FINANCE **TRAINER**®

REPOS

1. Common Definition

1.1 Structure of Contract

A repo (sale and repurchase agreement) is a contract under which the seller

▶ Commits to sell securities to the buyer (alternativ term: to repo out securities)

and

▶ Simultaneously commits to repurchase the same (or similar) securities from the buyer at a later date (maturity date), repaying the original sum of money plus a return for the use of that money over the term of the repo
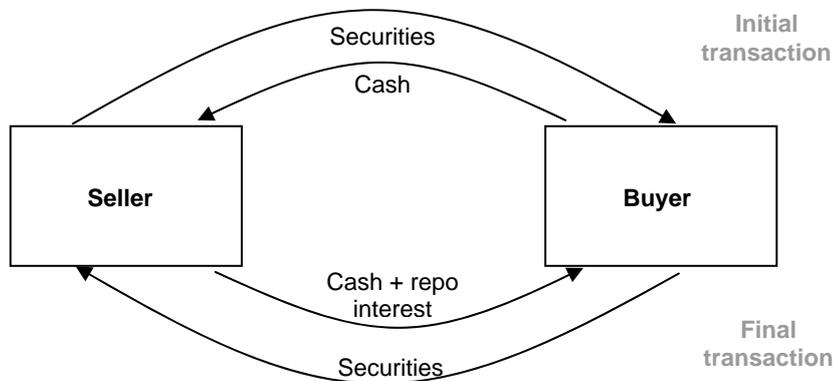
As the graphic shows, there are two legs to a repo transaction:

▶ On the value date, the repo seller sells securities (collateral) to the buyer for an agreed sum of money (initial transaction)

▶ At maturity, the seller

  – repurchases the securities for the original sum, and

  – pays a return for the use of the cash proceeds during the term of the repo

Please note that the securities are only running through, i.e. at maturity the securities of the initial transaction are just delivered back.

Depending on which way you look at it, the repo is either

▶ a mechanism for borrowing/lending funds on a secured basis or

▶ a method of borrowing/lending securities against cash

In the market, 3 types of repos are generally differentiated:

▶ **Classic repo (US-style repo)**

Both transactions are conducted under the same frame contract:

▶ **Sell/buy-back (resp. buy/sell-back)**

Economically sell/buy-backs have the same result as classic repos. Legally, however, both transactions in a sell/buy-back are conducted under two different contracts.

▶ **Security lending**

Two securities are swapped for a certain period of time. It is also possible to lend one security without secured basis.

We shall focus the discussion on classic repos; in the sections for sell/buy-backs and security lending we will only explain the differences between the three types.

1.2   Legal Framework

1.2.1   Legal Status

The collateral in a repo is not pledged but sold to the buyer (= gives cash). As a consequence the collateral passes from the seller to the buyer, i.e. legal title is transferred for the term of the repo.

If the collateral was only pledged, as in a secured loan, the buyer would not be allowed to liquidate the collateral immediately upon a default by the seller but would have to wait until insolvency proceedings were completed which could take a long time. Moreover, the buyer may have to defend his rights to the collateral in court against claims by other creditors.

In comparison with pledged collateral, collateral sold through a repo is therefore exposed to much less legal risk.

Transferring legal title to the collateral does also allows the buyer to use repo elsewhere, e.g. to cover a short position in securities or to enter into another repo.

Transferring legal title to collateral does not imply that repo is a sale and repurchase of identical securities, as the repo buyer will not necessarily be able to return securities with the

same identification numbers (e.g. he has used them in another repo). This is why repo is defined as a sale and repurchase of "the same or similar securities" and thus, in some contracts, the buyer has the right to return substitute securities within certain broad parameters.

1.2.2   Risk and Return on Collateral

Although legal title to collateral in a repo is transferred to the buyer, the commitment of the seller to repurchase the collateral at the original value means that the risk and return on the collateral remain with the seller. Thus the **economic ownership stays with the seller**.
If the value of the collateral falls during the term of the repo – as a result of a fall in its price or because the issuer defaults – the seller repurchases it at its original (higher) value, so he makes a loss.
If the value of the collateral rises during the term of the repo, the seller repurchases the collateral at its original (lower) value, so he makes a profit.
Therefore, the seller retains all the economic risk on the collateral, even though the buyer becomes the legal owner during the term of the repo.

Since the seller retains all the risks on the collateral, he is also entitled to keep the return. In the case of repoed bonds, this includes the coupon interest which accrues over the term of a repo.
If a coupon is paid on a bond collateral during the term of a repo, it will actually be paid to the repo buyer, who is the legal owner during the term of the repo. However, under the terms of the repo contract, the buyer is required to make an equivalent cash payment to the seller. This payment is called a **manufactured dividend**.

1.3   Types of Repo regarding the Term

The value date (start date) for a repo transaction in a particular currency will typically be the same as the conventional value date in the interbank deposits market in the same currency, i.e. 2 working days after the trade date. Forward value dates are also available.

Regarding the term, the following types can be differentiated:

▶ **Open repo or demand repo:** which is rolled over at the same rate until one of the counterparties decides to terminate the transaction

- ▸ **Short-dated repo:** which is for a term of less than one month (most commonly, on an overnight basis). According to an ISMA survey in 2004 this is the case for about 2/3 of all repos.
- ▸ **Term repo:** which is negotiated for a fixed term longer than one month

1.4 Quotation

Repos are quoted on a p.a. basis (like interbank deposits). The repo interest rate is calculated according to the relevant money market convention, i.e. act/360 resp. act/365 for GBP. The repo terminology, however, is based on the securities side of the deal.
The seller sells the securities in the initial transaction (sale and repurchase) and takes cash. The buyer of the repo is the party that purchases the bond in the first leg and gives cash. This is also called a **reverse repo**.

Repo:	sell securities = take cash
Reverse repo:	buy securities = give cash

According to this convention the bid rate is higher than the offer rate (e.g. 3.28 – 25%). The market maker buys the bond at the bid rate (i.e. he lends money at the higher side of the quote) and sells it at the offer rate (i.e. borrows money on the lower side of the quote).

Note: Also the opposite quotation is possible (bid < offer). However, the market user will always take cash at the higher rate and give cash at the lower rate (and vice versa for the market maker). In this case you should first define if you take or give cash and if you act as market maker or market user. Then decide which rate is used after checking both sides of the quotation.

Example
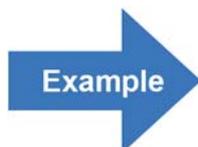
You are quoted the following repo rates: 3.30 – 3.25 %

On the bid side – as market user – you can sell the bond and thus pay 3.30% for the cash you take. On the offer side you "buy" the bond and receive 3.25% on the cash you give to the seller.

2.   Application of Repos

As already described, repo usually has two major uses:

▸   cash-driven: lending cash against securities

▸   security-driven: lending securities against cash

2.1   Cash-driven Repo

Today, this is the most common type. The repo is used as a money market instrument like a classic interbank deposit. Thus, the focus is on the cash. The main difference to interbank deposits is the collateral. For the borrower of cash this results in a lower refinancing rate. The lender of the cash can profit from the reduced credit risk.

Classic repo – cash-driven

A bond trader holds EUR 10 m of 5 ½ German government bond due 14th August 2013. The actual clean price is 108.27. For the refinancing of the bond position he needs 10 m cash for 1 month (30 days), i.e. he repos out the bond. Spot value is 14th November and a repo trader quotes him 3.27 – 25% for one month.

The bond trader enters into the following repo:

|	
Repo seller:	bond trader
Repo buyer:	repo trader
Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92 / 365)
Dirty price:	109.6563014
Repo rate:	3.27%
Term:	30 days

The bond trader needs exactly EUR 10 m (cash-driven). Instead he has to deliver collateral with a current market value of also EUR 10 m.

Initial transaction cash:	EUR 10,000,000.00	
Initial transaction bond:	EUR 9,119,402.96	(10,000,000 / 109.6563014 / 100)
Rounded:	EUR 9,120,000.00	

For simplification it is common to round the nominal to full 1,000 units. Often smaller amounts just cannot be delivered because of minimum denomination. As the bond only serves as collateral and is therefore only running through, in practice, this has no influence on the interest amount for the cash.

The bond trader sells the bond in the repo and takes the cash. Therefore he sells on the bid side at 3.27%.

Repo interest:	EUR 27,250.00	(10,000,000 x 0.0327 x 30 / 360)
Final transaction cash:	EUR 10,027,250.00	(10,000,000 + 27,250.00)
Final transaction bond:	EUR 9,120,000.00	
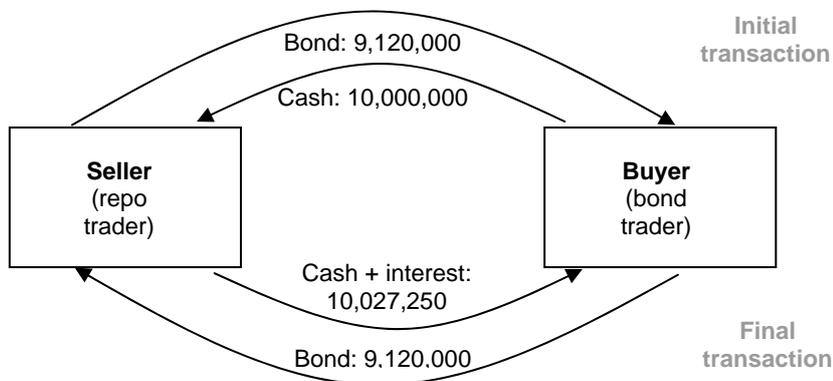
The graphic shows that in a cash-driven repo, the main difference to interbank deposits is the collateral. For the calculation of the nominal amount of the collateral one has to consider that the bond's market value (= dirty price) equals the borrowed cash amount. To the repo buyer it does not matter what bond is used as long as certain quality criteria are guaranteed. Therefore you also speak of a so-called **general collateral** (opposite to **special collateral**). At maturity the collateral is transferred back, the seller (cash borrower) pays back the cash amount plus repo interest to the buyer (cash lender).

In summary, the following calculations are required for a cash-driven repo:

Classic repo – cash-driven

Initial transaction:

Cash amount: specified

Bond nominal amount: $\dfrac{\text{cash initial transaction}}{\dfrac{\text{dirty price}}{100}}$

Final transaction:

Cash amount: $\text{cash initial transaction} \times \left(1 + \text{repo rate} \times \dfrac{\text{days}}{\text{basis}}\right)$

Bond nominal amount: nominal of the initial transaction

2.2   Security-driven Repo

Repos do not necessarily have to be cash-driven; they can also be used for a temporary security lending. Contrary to a normal security lending the collateral is no other security but cash.

Why is security lending needed? Assuming a bond trader expects the price of a certain bond to fall. In order to profit from that fall he will sell this bond (go short) and buy it back on a later date at a hopefully fallen price. When selling the bond he has to deliver the bond physically – but he does not have it yet. By means of a reverse repo he can borrow the bond for a certain period of time (= buy bond against cash value spot and simultaneously sell bond at a later date).
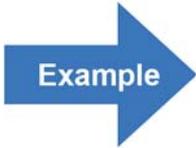
Example

Classic repo – security-driven

A bond trader expects the German government bonds to fall. Therefore he goes short EUR 10 m of the 5 1/2% Federal Republic of Germany 14th August 2013. The actual clean price is 108.27. In order to cover the short position he enters into a 1-month reverse repo (30 days), i.e. he needs to reverse in the bond. Spot value is 14th November and a repo trader quotes him 3.27 – 25% for one month.

Repo seller:	repo trader
Repo buyer:	bond trader
Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92 / 365)
Dirty price:	109.6563014
Repo rate:	3.25%
Term:	30 days

The bond trader needs exactly EUR 10 m of the bond nominal (security-driven). Instead he has to give cash to the extent of the current market value.

Initial transaction cash: EUR 10,965,630.14   (10,000,000 * 109.65630137 / 100)

Initial transaction bond: EUR 10,000,000.00

The bond trader buys the bond in the repo and gives cash. Therefore he buys on the offer side at 3.25%.

Repo interest:	EUR	29,698.58	(10,965,630.14 x 0.0325 x 30 / 360)
Final transaction cash:	EUR	10,995,328.72	(10,965,630.14 + 29,698.58)
Final transaction bond:	EUR	10,000,000.00	
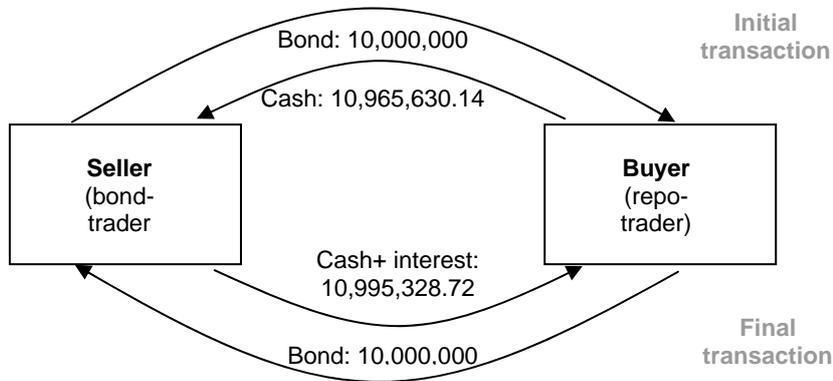
For a security-driven repo the basis is the bond nominal and not a specific cash amount. The initial cash amount then is the actual market value (dirty price) of the collateral. In the final transaction the collateral is transferred back, and for the cash amount repo interest is added to the initial amount.

Classic repo – security-driven

Initial transaction:

Cash amount: $\text{bond no}\min\text{al} \times \dfrac{\text{dirty price}}{100}$

Bond nominal: specified

Final transaction:

Cash amount: $\text{cash initial transaction} \times \left(1 + \text{repo rate} \times \dfrac{\text{days}}{\text{basis}}\right)$

Bond nominal: nominal of the initial transaction

3. General Collateral and Special Collateral

When describing the different typical applications, on the one hand the cash is the basis, on the other hand it is the security. Thus you can differentiate between repos with a general collateral (GC) or a special collateral.

3.1 General Collateral (GC)

For cash-driven repos the only reason for the collateral is the securitisation for the lended cash amount. The party giving the cash does not care which bond is used as long as certain predetermined criteria are satisfied. The repo can be regarded as a loan on a secured basis. The interest rates of GC repos therefore tend towards other money market rates. Due to the collateral, repo rates are usually lower than rates for non-secured interbank deposits (i.e. LIBOR resp. EURIBOR).

Comparison EURIBOR rates vs. GC Repos (Eurepo):

	1 week	2 weeks	3 weeks	1 mth	2 mth	3 mth	6 mth	9 mth	12 mth
EURIBOR (Average 2003)	2.35	2.35	2.35	2.35	2.34	2.33	2.30	2.31	2.33
Eurepo (Average 2003)	2.33	2.33	2.32	2.30	2.28	2.26	2.21	2.21	2.24
Differenz	-0.02	-0.02	-0.03	-0.04	-0.06	-0.07	-0.09	-0.10	-0.09

Usually domestic government bonds are used as collateral. On www.isma.org or www.icma-group.org the European Repo Council publishes a list of issuers which have to be accepted as general collateral as long as a bond is not excluded by one counterpart before trading the repo.

General Collateral Conventions

Submitted for publication on www.isma.org on May 25, 2001
European repo council acceptable general collateral (GC) list
With effect from May 25, 2001 the security types set out in the following table were deemed by ISMA's (now: ICMA's)   European Repo Council to be acceptable as collateral on general collateral (GC) repo and buy/sell transactions, unless specifically indicated otherwise prior to engaging in transactions.

Country of Issuance	Currency	Details	
Euro GC			
Austria	EUR	Government guaranteed bonds and bills	
Belgium	EUR	Government guaranteed bonds and bills	
Finland	EUR	Government guaranteed bonds and bills	
France	EUR		Bloomberg ticker
		OATs	FRTR (fixed coupon securities only)
		BTANs	BTNS (fixed coupon securities only)
		BTFs	BTF
		Strips	FRTRR, FRTRS
Germany	EUR		Bloomberg ticker
		Unity	DBRUF
		Bund	DBR
		Bobl	OBL
		Treuhand	THA
		Schatz	BKO
		Bubill	BUBILL
Greece	EUR	Government guaranteed bonds and bills	
Ireland	EUR	Government guaranteed bonds and bills	
Italy	EUR		Bloomberg ticker
		CCT	CCT
		BTP	BTPS
		BOT	BOTS
		CTZ	ICTZ
Luxembourg	EUR	Government guaranteed bonds and bills	
Netherlands	EUR	Government guaranteed bonds and bills	
Portugal	EUR	Government guaranteed bonds and bills	
Spain	EUR	Government guaranteed bonds and bills Note: the seller must specify if the securities go over record date 30 days prior to the trades being consummated	
Sterling GC			
UK	GBP	UK Treasury stock UK Conversion stock	
Danish GC			
Kingdom of Denmark	DKK	DKK Government guaranteed bonds and bills (Danish mortgages are excluded)	
Swedish GC			
Kingdom of Sweden	SEK	SEK Government guaranteed bonds and bills (Swedish mortgages are excluded)	
Norwegian GC			
Kingdom of Norway	NOK	Government guaranteed bonds and bills	
Swiss GC			
Switzerland	CHF	Government guaranteed bonds and bills	

The current list can be downloaded from the following homepage:

www.icma-group.org

Eurepo

Since the introduction of the Euro, the European repo markets have developed significantly, with more and more emphasis on cross border financing trades. This has led to an increasingly homogenous Euro-denominated General Collateral (GC) market.
Since 2002, the benchmark for secured money market transactions (GC repos) in the Euro zone is **Eurepo** (in analogy to the EURIBOR as the benchmark for unsecured interbank deposits).

Definition: "Eurepo is the rate at which one prime bank offers funds in euro to another prime
                      bank if in exchange the former receives from the latter Eurepo GC as collateral."

The range of Eurepo quoted maturities is T/N, 1, 2 and 3 weeks and 1, 2, 3, 6, 9 and 12 months. Daily, at 11:00 a.m. (CET), Moneyline Telerate will process the Eurepo calculation as the average of all quotes from the bank panel, for each maturity, eliminating the highest and lowest 15% of all the quotes collected. The remaining rates will be averaged and rounded to two decimal places. The panel consists of first-class international banks (within and outside Europe, 37 banks in 2004).

3.2   Special Collateral

If the buyer in a repo transaction requires a specific security as collateral, then he needs to do a special repo. The essential purpose of repo in this context is the borrowing and lending of specific securities against cash. We also call this a security-driven repo.
Buyers of special repo often find themselves competing against eachother for the same securities. In those situations, competition will force the buyers to offer cheap cash in exchange, and the repo rate on the collateral falls below the GC rate (in extreme situations the rate can even be negative); the security in question will be said to have "gone on special".

Securities can go on special for a number of reasons. In particular:

▸ A government bond that becomes the **cheapest-to-deliver (CTD)** against a bond futures contract is prone to go on special. Such bonds are strong contenders for delivery against maturing futures contracts. CTD is the most common reason for securities going special.

▸ **Benchmark bond issues** (e.g. government bonds with 2-, 3-, 5-, and 10-years maturities) are also prone to go on special because they are usually in demand by traders who tend to concentrate their activity in swaps, caps and other fixed income derivatives on those maturities.

4.   Main Repo Market Participants

As shown above, repos can be done for different reasons. In the following, the most important repo market participants are described:

Bond trader

As shown in the above examples, there are two typical applications for bond traders:
- funding of long positions in securities – here a repo is a secured form of borrowing
- funding of short positions in securities – here a repo is security lending against cash

Investors

Risk averse investors, who have surplus cash to place in the money markets, have two main advantages:
- because repo is secured, it carries lower credit risk.
- it incurs lower capital charges than unsecured lending under regulations such as the EU Capital Adequacy Directive (CAD). (Providing repo is documented and counterparties can call variation margins.)

Instead, they are willing to accept a lower interest rate compared to unsecured investments like CDs or CPs.

Fund managers

Among the number of securities in a fund you often also find specials. These can be repoed out in order to acquire "cheap" cash. This additional liquidity can then be borrowed at higher rates in the money market which means additional income.

Repo market maker

The aim of the repo market makers is to earn the bid-offer spread, although in very mature markets this spread has become very close.

Central banks

Another important player in most countries is the central bank. Central banks use repo as a tool of domestic money market intervention, to control short-term interest rates on a regular basis, often every 1-2 weeks. The repo rate then serves additionally as an important signal for the future interest rate policy of the central bank.

For repos done by central banks you have to consider that the terminology is regarded at from the commercial banks' point of view:

▸ Central bank repo: the central bank adds liquidity to the money markets, they buy-and-sell securities (buy securities, give cash) in the repo market, i.e. actually not the central bank but the commercial banks do repo

▸ Central bank reverse repo: the central bank sells securities and thus drain liquidity from the money markets

In the US, you have to be more careful with the terminology: here reverse repos are also called "matched sale-purchase" (MSP, "matched funding"). From the FED's point of view, securities are sold and bought and thereby liquidity is drained from the money markets.

In the US one speaks also of "system repos" resp. "matched funding" if repo is done in order to serve the money market policy. FED also does so-called "customer repos" where it acts for international central banks or supranational institutions who want to invest liquidity surplus.

5.   Collateral Management

5.1   Initial Margin/ Haircut

The collateral in a repo is intended to protect the buyer (cash lender) against default by the seller. The buyer therefore has to ensure that he has enough collateral. As shown in the above examples, typically, the collateral is valued at its current market price (i.e. dirty price). This may subsequently prove to be inadequate cover because:

▸ **Illiquid market:** the market in the asset used as collateral may be illiquid, in which case, if the buyer has to sell collateral, he may find prices fall very fast as he begins to sell. Even liquid markets may become illiquid in a crisis.

▸ **Price volatility:** the price of the asset used as collateral may be volatile. Even if the collateral was enough for today, a price decline tomorrow could lead to a deficit of collateral.

To build in some protection against valuation problems, the buyer may insist on buying the collateral at a discount to its current market value – i.e. the repo will be overcollateralised. The degree of overcollateralisation is called an **initial margin** or **haircut**.
In theory, the seller could seek similar protection by insisting that his collateral should be sold at a premium to its current market value which in practice is not common.
The amount of haircut can be freely fixed by the counterparts. Typical haircuts are 2% for European government bonds, at least 5% for equity and as much as 50% for emerging market debt. However, haircuts are unusual between repo professionals and on very short-term repo.

Calculation of haircut

If an initial margin is agreed, the cash amount of the the initial transaction can be calculated in two different ways:

With fixed nominal:

Method 1: $\text{Cash}_{\text{start}} = \text{nominal} \times \dfrac{\text{dirty price}}{100} \times (1 - \text{haircut})$

or

Method 2: $\text{Cash}_{\text{start}} = \dfrac{\text{nominal} \times \dfrac{\text{dirty price}}{100}}{1 + \text{haircut}}$

Method 2 is recommended by ERC (European Repo Committee) in "Best Practice Guide to Repo Margining" and also complies to the regulations of PSA/ISMA Global Master Repurchase Agreement.

If you would like to calculate how much nominal of the collateral you have repo out against a given cash amount (e.g. for a cash-driven repo), you have the following formula:

With fixed cash:

$$\text{Nominal} = \dfrac{\text{Cash}_{\text{start}}}{\dfrac{\text{dirty price}}{100}} \times (1 + \text{haircut})$$

Example

Classic repo with haircut:

Collateral: 5 1/2% Fed. Republic of Germany 14th August 2013

Dirty Price: 109.65

Haircut: 2%

Cash amount for fixed nominal (10,000,000):

$$Cash_{start} = \frac{10,000,000 \ x \ \dfrac{109.65}{100}}{1+0.02} = 10,750,000$$

Nominal with fixed cash amount (10,000,000):

$$Nominal = \frac{10,000,000}{\dfrac{109.65}{100}} \ x \ (1+0.02) = 9,302,325.58$$

Note: for classic repos the nominal of the initial transaction can also be rounded to full 1,000 units (for simplification).

5.2 Variation Margin

Initial margins may prove inadequate if the price of the collateral falls more than expected. To maintain the intended balance between the collateral and cash in repo, use is made of **variation margins**. Variation margins are extra transfers of collateral or extra payments of cash, made during the term of the repo, to eliminate divergences between the agreed initial values of the collateral and the cash. These margin calls can be paid either in cash or securities.

▸ If the value of the collateral falls during the term of the repo, the buyer (= cash lender) can demand that seller provides either extra collateral, or refunds the excess cash

▸ If the value of the collateral rises, the seller can demand that the buyer either returns the excess collateral or pays extra cash

Note that the variation margins may be made by either buyer or seller, whereas initial margins are usually only made by the seller.

With general collaterals margin calls are paid in securities, whilst with specials they are paid in cash. In this case the margin call is a kind of redemption resp. increase of the lended cash amount and thus has to be considered in the final transaction (incl. interest). For the interest calculation of cash margins a reference rate should be defined. The European Repo Committee (ERC) recommend EONIA.

Variation margining may be used in conjunction with initial margins or on their own. Note that a once agreed initial margin has be maintained during the whole term of the repo.

Unlike initial margins, regulators require that variation margins should be used by all types of market participants, including professionals. Variation margins require that the collateral should be marked to market – i.e. revalued – at least daily for professional players. Variation margins require considerable operational resources. In order to reduce the burden on the back office, it is standard practice to reduce the size and frequency of variation margin calls by defining so-called trigger levels resp. margin threshold. Margin calls are then only paid if an agreed minimum amount is exceeded. However, if this trigger level is exceeded, the whole margin call amount has to be paid, not only the amount exceeding the trigger.

Example

Margin Call – GC repo (cash-driven)

A bond trader does the following repo. After 10 days the price of the collateral falls to 107.00. What is the variation margin?

Volume:	EUR 10,000,000 cash
Repo term:	30 days
Repo rate:	3.27%
Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92 / 365)
Dirty price:	109.6563014
Haircut:	2%

The bond trader needs exactly EUR 10 m (cash-driven). Instead he has to pay collateral with a current market value of also EUR 10 m plus 2% initial margin.

Initial transaction cash: EUR 10,000,000.00

Initial transaction bonds: EUR   9,301,791.02 $\left[\dfrac{10,000,000}{\dfrac{109.6563014}{100}} \times (1+0.02) \right]$

As this is a GC, in this case, the nominal amount could also have been rounded.

Revaluation after 10 days: in the first step the current interest on the cash has to be calculated. Then, for the actual cash amount, the required bond nominal based on the actual dirty price has to be calculated. If a haircut has been agreed, it has to be maintained during the whole repo term.

Cash$_{day\ 10}$:   EUR   10,009,083.33 [(10,000,000 x (1 + 0.0327x10/360)]
Dirty Price$_{day\ 10}$:   108.5369863   [107+(5.5 x 102 / 365)]

Required bond nominal: EUR   9,406,254.35 $\left[\dfrac{10,009,083.33}{\dfrac{108.5369863}{100}} \times (1+0.02) \right]$

As originally the value of the collateral was less than now required, the seller has to settle the difference in securities.

Margin call: EUR 104,463.33 nominal (9,406,254.35 – 9,301,791.02)

Note: For cash-driven GC repos variation margin is always paid in securities. Thus margins calls do not have any impact on the final transaction. Depending on the price movement of the collateral either the seller or the buyer has to pay the margin. If, for example, the price rises, the seller receives the collateral surplus from the buyer.
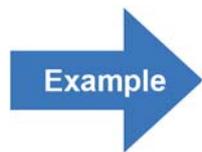
Margin call – security-driven

A bond trader does the following repo. After 10 days the price of the collateral falls to 107.00. What is the variation margin?

Volume:	EUR 10,000,000 nominal
Repo term:	30 days
Repo rate:	3.27%
Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92 / 365)
Dirty price:	109.6563014
Haircut:	2%

The bond trader needs exactly EUR 10 m nominal (security-driven). Instead he has to pay cash (less 2% initial margin).

Initial transaction bonds: EUR   10,000,000.00

Initial transaction cash: EUR   10,750,617.78 $\left[\dfrac{10{,}000{,}000 \times \dfrac{109.6563014}{100}}{1+0.02}\right]$

Revaluation after 10 days: with specials the variation margin is in cash. First, the securities are revalued (less haircut) and then compared to the actual cash amount (incl. interest).

Dirty price$_{day\ 10}$:   108.5369863   [107 + (5.5 x 102 / 365)]

MTM bonds (less haircut): EUR   10,640,881.01 $\left[\dfrac{10{,}000{,}000 \times \dfrac{108.5369863}{100}}{1+0.02}\right]$

Cash$_{day\ 10}$:   EUR   10,760,382.92 [10,750,617.78 x (1 + 0.0327x10/360)]

As the cash amount exceeds the market value of the collateral, the seller (= cash borrower) has to pay back cash.

Margin call: EUR 119,501.91 cash (10,760,382.92 – 10,640,881.01)

If the margin is paid in cash, it has to be considered in the final transaction including interest.

Cash final transaction:

Initial amount:		10,750,617.78	
+ interest:	+	29,295.43	[10,750,617.78 x (1 + 0.0327 x 30/360)]
+/- margin (here -):	-	119,501.91	see above
+/- interest on margin:	-	217.10	[119,501.91 x (1 + 0.0327 x 20/360)]
Final transaction:		**10,660,194.20**	

5.3 Custody of Collateral

A major issue in repo is, who has custody of the collateral. There are three basic alternatives:

▸ **Bilateral repo (delivery repo):** the buyer takes custody of the collateral from the seller. This is the safest for the buyer, given that the collateral is under his direct control. However, because collateral has to be transferred across settlement systems, it is also the most expensive alternative.

▸ **Hold-in-custody (HIC) repo:** the seller retains custody of the collateral on behalf of the buyer. This exposes the buyer to the greatest credit risk, as there could be difficulties in recovering the collateral from the seller, in the event that the seller defaults. In addition, an unscrupulous seller could use the same piece of collateral several times in parallel HIC repos. Of course, this is forbidden and is called "double-dipping". However, because the collateral does not have to be transferred against settlement systems, HIC repo is the cheapest option and should reward the buyer with higher repo rate than delivery repo.

▸ **Tri-party repo:** collateral is transferred into the custody of the buyer across accounts held with an independent third-party custodian. This means that the buyer controls the collateral, as in delivery repo. However, because the transfer of collateral is handled internally by the custodian, tri-party repo should avoid the cost of using a settlement system. The seller pays a fee to the custodian, but this should be less than the cost of the settlement system, so tri-party repo should be cheaper than delivery repo.
The main tri-party agents (clearing houses) are Euroclear, Clearstream (formerly Cedel) and Bank of New York. These clearing houses typically also provide back office services such as marking collateral to market, making variation margin calls, handling manufactured dividends, etc.
Tri-party repo is the normal method of settlement in the US market. According to a survey made by ISMA, in December 2003, only 11.2% is the proportion in Europe, but with an increasing bias.

5.4   Substitution

Sellers may be reluctant to use certain securities as collateral in longer-term repo, in case they need the securities for another purpose before the maturity of the repo. This concern will tend to reduce the terms for which seller will repo out certain assets or result in those assets being withheld from the repo market entirely.

A solution is for the repo seller to seek rights of substitution of collateral from the buyer. This allows the seller to recall collateral during a repo and substitute alternative collateral of equivalent value and quality. Rights of substitution may be limited to certain dates within the contract period, or the seller may only be allowed to substitute a limited number of times during the course of a contract.

Substitution rights are valuable to the seller, but they may be inconvenient for the buyer, for example, if the collateral has been used to settle a short date. If the seller exercises his right of substitution, the buyer will incur operational expenses in returning the original collateral and taking in new collateral. Accordingly, a buyer will expect to receive a higher repo rate on his cash in exchange for granting rights of substitution.

Example

Substitution

A bond trader does the following repo. After 10 days the collateral is supposed to be substituted.

Volume: EUR 10,000,000 cash

Repo term: 30 days

Repo rate: 3.27%

Collateral: 5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)

Dirty price: 109.6563014

Haircut: 2%

Initial transaction cash: EUR   10,000,000.00

Final transaction bonds: EUR   9,301,791.02 $\left[\dfrac{10.000.000}{109.6563014/100} \times (1+0.02) \right]$

After 10 days the collateral is supposed to be substituted by the following bond:

Collateral: 4 3/4 % BTF (France) 17th March 2011

Dirty price: 103.6581902

The buyer delivers back the original collateral (Bund) and substitutes it by the new one (BTF). The nominal is calculated in same way as for the initial transaction, i.e. first, the actual cash amount is determined (incl. interest).

$\text{Cash}_{\text{day 10}}$:   EUR   10,009,083.33   [(10,000,000 x (1+0.0327 x 10 / 360)]

Required BTF nominal: EUR   9,848,970.91 $\left[\dfrac{10,009,083.33}{103.6581902\,/\,100} \times (1+0.02)\right]$

For the substitution of the Bund a BTF nominal of EUR 9,848,970.91 has to be delivered.

The substitution has no impact on the final cash transaction.

6. Sell/Buy-Backs (resp. Buy/Sell-Backs)

As we mentioned before, the term repo is used to describe two types of transaction:

▸ Classic repo (US-style repo)
▸ Sell/buy-backs (resp- buy/sell-backs)

There is no significant economic difference between the two types of repo, only minor structural differences. Therefore classic repos and sell/buy-backs for the same maturity, amount and collateral should yield approximately the same return.

The really significant difference is in their legal status and in the way in which each typey of repo is managed. For a sell/buy-back two legally independent contracts are concluded – a spot transaction and the opposite forward transaction with different prices. Thus the net cost of the repo is implicit in the difference between the start and the end proceeds, whereas in classic repo the proceeds are the same and the cost of repo is explicitly stated as a repo interest amount.

Due to the independence of the two contracts neither variation margin nor substitution can be made. Thus sell/buy-backs are less safe and flexible than classic repos.

Classic repos predominate in the US, the UK, France and Switzerland; sell/buy-backs predominate in Germany, Italy, Spain and most emerging markets.

Structure of sell/buy-backs:
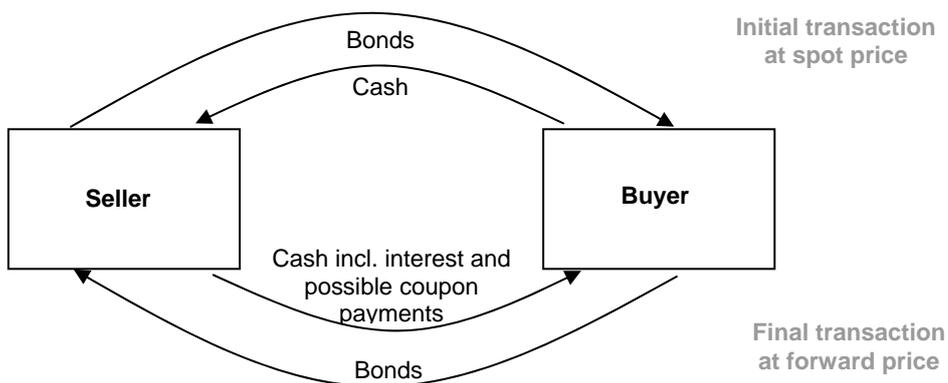
The structure is nearly the same as for classic repos. The main difference is that the interest (and possible coupon payments during the term of the repo plus interest) have to considered in the forward price of the final transaction.

6.1 Comparison Classic Repo vs. Sell/Buy-Back

Classic repo	Sell/buy-back (undocumented))
Both transactions are concluded under one single contract	Two legally independent contracts
Documented: a written legal agreement (frame contract) evidences the rights and obligations of the counterparties	Traditionally undocumented, i.e. there is only one confirmation for the spot and the forward transaction
Same price for initial and final transaction; repo interest is paid separately	Different prices for initial and final transaction; the forward price includes both interest as well as possible coupon payments
The start proceeds should never be rounded	The start proceeds should never be rounded as they are the basis for the interest!
Initial margin/haircut and variation margin is allowed	Initial margin can be agreed; variation margin is not possible
Allows right of substitution: this encourages the counterparties to undertake longer-term transactions	Substitution is not possible
The buyer is obliged to pay the manufactured dividend to the seller on the same day he receives the coupon from the issuer	The buyer is obliged to pay the manufactured dividend to the seller at maturity. However, the buyer will have to add reinvestment interest to compensate the seller for the delay

Originally, sell/buy-backs have always been undocumented, i.e. the frame contract solely referred to classic repos. Since November 1995, it has been possible to document sell/buy-backs under the PSA/ISMA Global Master Repurchase Agreement. Consequently, it is now possible to distinguish three major types of repo:

▸ **Classic repo** – always documented

▸ **Traditional sell/buy-back** – undocumented

▸ **Documented sell/buy-back** – always documented

Documented sell/buy-backs are more like classic repos in that they are single contracts and allow margins and rights of substitution. However, instead of variation margins, sell/buy-backs use a method called **"early termination and reprice"** (also called "early close-out" resp. "close and reprice") in which the sell/buy-back is terminated and a new transaction arranged for the remaining term to maturity at the original rates, but with the amount of cash or collateral changed.

6.2   Calculation of Sell/Buy-Backs

The quotation for sell/buy-backs is – like for classic repos – also in percent, however, in the confirmation both the clean prices for the initial and the final transaction are fixed which reflect the agreed interest rate.

Price initial transaction:	clean price
Amount initial transaction:	$\dfrac{\text{dirty price}}{100} \times \text{nominal}$
Amount final transaction:	$\text{initial transaction} \times \left(1 + \text{repo repo} \times \dfrac{\text{days}}{\text{basis}}\right)$
Dirty price of the final transaction:	$\dfrac{\text{amount final transaction}}{\text{nominal}}$
Price final transaction (cp):	$\text{dirty price}_{start} - \text{accrued interest}$

Example

Buy/sell-back

A trader buys EUR 10 m Bund in a sell/buy-back.

Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean Price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92 / 365)
Dirty price:	109.6563014
Repo rate:	3.27 – 3.25%
Repo term:	30 Tage

Initial transaction cash: EUR   10,965,630.14 [(10,000,000 x 109.65630137/100)]
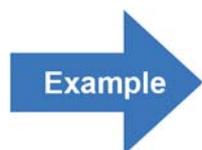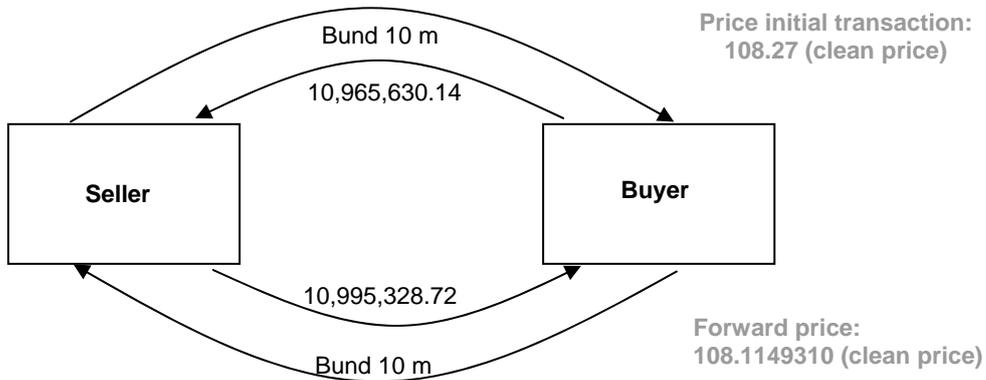Initial transaction bonds: EUR   10,000,000.00

The bond trader buys the bond in a repo and gives cash. As market user he trades on the offer side at 3.25%.

Final transaction cash: EUR 10,995,328.72[10,965,630.14 x (1 + 0.0325 x 30 /360)]

Final transaction bonds: EUR 10,000,000.00

Dirty price: 109.9532872

Accrued interest (122 days):   1.8383562

Clean price: 108.1149310

For this buy/sell-back transaction both the spot price of 108.27 as well as the forward price of 108.1149310 are confirmed (both clean prices).

Note that here – contrary to classic repos – it is not allowed to round!

Structure:

Price initial transaction:
108.27 (clean price)

Bund 10 m

10,965,630.14

Seller

Buyer

10,995,328.72

Bund 10 m

Forward price:
108.1149310 (clean price)

Buy/sell-back

Calculation forward price with interim coupon payments

A trader buys EUR 10 m Bund in a sell/buy-back.

Collateral: 5% Fed. Republic of Germany

Clean price: 108.00

Accrued interest: 345 days

Accrued interest: 4.7260274   (5 x 345 / 365)

Dirty price: 112.7260274

Repo rate: 3.50%

Repo term: 30 days

Initial transaction cash: EUR 11,272,602.74 [(10,000,000 x 112.7260274 / 100)]

Initial transactions bonds: EUR 10,000,000.00

After 20 days the buyer (= cash lender) receives the coupon. He does not transfer the coupon to the seller but takes it into account for the final transaction – plus interest. The coupon payment equals an early redemption of the cash amount.

Coupon$_{day20}$: EUR 500,000.00 (0.05 x 10,000,000)

Interest$_{day\ 20-30}$ EUR 486.11 (500,000 x 0.035 x 10 / 360)

Final transaction cash:

Initial amount: 11,272,602.74

Repo interest: 32,878.42

- Coupon: - 500,000.00

- Interest Coupon: - 486.11

10,804,995.05

The dirty price of the final transaction is the result of dividing the cash amount by the bond nominal:
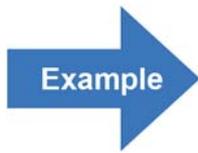
Dirty price: 108.0499505

For the forward price (clean price) the accrued interest have to be substracted.

Accrued interest (10 days): 0.1369863

Clean price: 107.9129642

The forward price for this transaction is 107.9129642.

Buy/sell-back - close and reprice with collateral adjustment

Example ➤ A trader buys EUR 10 m Bund in a sell/buy-back. After 10 days the price of the collateral falls to 105.00. Which transactions has to be made if close and reprice with collateral adjustment has been agreed?

Collateral:	5 1/2% Fed. Republic of Germany 14th Aug. 2013 (ACT/ACT)
Clean price:	108.27
Accrued interest:	92 days
Accrued interest:	1.3863014 (5.5 x 92/365)
Dirty price:	109.6563014
Repo rate:	3.25%
Repo term:	30 days

Initial transaction cash: EUR 10,965,630.14 [(10,000,000 x 109.65630137/100)]
Initial transaction bonds: EUR 10,000,000.00

Close and reprice means that the original deal is early terminated. Thus the buyer delivers back the bonds and receives the cash plus interest. At the same time a new deal is done at the amount of the outstanding cash amount. As payments are netted, there is actually only one delivery in securities.

Close: closing of the original deal

Collateral:	EUR 10,000,000.00	from buyer to seller
Cash:	EUR 10,975,529.67	from seller to buyer
		[10,965,630.14 x (1+0.0325 x 10/360)]

Reprice: new deal

Clean price:	105.00	
Accrued interest (102 days):	1.5369863	[5.5 x 102/365]
Dirty price:	106.5369863	
Cash:	EUR 10,975,529.67	from buyer to seller
Collateral:	EUR 10,302,083.86	from seller to buyer
		[10,975,529.67 / 1.065369863]

Thus, the seller has to deliver **EUR 302,083.86** additional collateral (nominal) to the buyer.

The new deal has the following specifications:

Initial transaction:

Clean price:	105.00
Dirty price:	106.5369863
Bond nominal:	EUR 10,302,083.86
Cash:	EUR 10,975,529.67

Final transaction:

Cash:	EUR 10,995,346.50	[10,975,529.67 x (1+0.0325 x 20/360)]
Bond nominal:	EUR 10,302,083.86	
Dirty price:	106.7293447	[10,995,346.50 / 10,302,083.86]
Accrued interest (122 days):	1.8383562	
Clean price:	104.8909885	

The new deal is done at **105.00 (spot price)** and **104.8909885 (forward price)**.

7.   Documentation – Frame Contracts

Repo depends on the ability of the buyer (= cash lender) to sell collateral in order to recover his cash in the event of a default by the seller. This depends on legal title to the collateral being successfully transferred to the buyer. However, transfer of legal title is not possible in all jurisdictions. Even in jurisdictions where this is possible, the transfer may be subject to conditions. The main problem is compounded by the number of jurisdictions potentially involved, which could be different for the repo seller, the buyer, the issuer of the collateral, the depository holding the collateral and the jurisdiction of the governing law chosen by the counterparties to the contract. Anyone using repo should take care to ensure that the contracts are legally enforceable in the event of a dispute.

A vital safeguard against legal difficulties is obviously to document the agreed rights and obligations of the counterparties. The main obstacle to documentation in the past has been cost, but this has been greatly reduced by the publication of standard frame contratcs.

The most common frame contract in the repo market is the **TBMA/ISMA Global Master Repurchase Agreement** (TBMA/ISMA GMRA). TBMA (The Bond Market Association) is the US-American association of bond traders and the successor of the PSA (Public Securities Association). ISMA stands for International Securities Market Association[1].

The first version has been published in 1992. A substantially revised version followed in 1995 (PSA/ISMA 1995) where sell/buy-backs have been added. The third and actual version has been published in 2000 (TBMA/ISMA 2000). The frame contract is regularly updated and a number of additions have been made.

One aim of ISMA is also to ensure the legal enforceability for as many countries as possible. For that purpose, at present, legal opinions for 30 countries are available.

The frame contract also defines the **events of default**. Here, some of them are roughly summarised:

▸   price is not paid

▸   securities are not delivered (optional)

▸   margin calls are not done (regulations regarding the margin maintanance)

▸   dividends resp. accrued interest due under a transaction are not paid

▸   insolvency

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[1] The ISMA merged in 2005 with the International Primary Market Association to form the ICMA (International Capital Market Association).

The occurrence of an event of default has the effect of accelerating outstanding transactions, converting delivery obligations in respect of securities to cash sums based on the market value of those securities (close-out) and then applying set-off. The defaulting party will be liable for the non-defaulting party's expenses in connection with the event of default, together with interest.

Except for certain cases of insolvency (where default arises automatically) the non-defaulting party can decide if these events have to be regarded as events of default which would then lead to the termination of the frame contract. If this party decides to treat the event as an event of default, it has to inform the other party ("note of default"). The granting of a grace period is not necessary, i.e. the collateral can immediately be liquidated.

In the event of a close-out following the event of default, the non-defaulting party is allowed to calculate the close-out amount by reference to an actual sale or purchase price or the market value of the securities, in either case at any time during the five dealing days following the occurrence of the event of default. If, however, the non-defaulting party determines that it is not commercially reasonable to obtain quotations, it may instead determine the market value to be the "Net Value" of the securities. The "Net Value" is a fair market value reasonably determined by the non-defaulting party.

Where there has been a failure to deliver securities on the purchase or repurchase date and this event is not specified as a default event, or the non-defaulting party chooses not to give a default notice, the non-defaulting party is entitled to

▸ require the repayment of the (re)purchase price if it has paid it, or
▸ if it has a transaction exposure, require the payment of cash margin, or
▸ declare by written notice, that only that transaction shall be terminated

The complete frame contract including annexes and guidance notes can be downloaded at www.icma-group.org

8. Risks

Repos offer a double indemnity against credit risk:

▶ Repo collateral provides protection against loss due to a default by a repo counterparty; if a repo counterparty fails, the non-defaulting buyer would sell the collateral and the non-defaulting seller would use the cash to buy new collateral.

▶ The repo counterparty provides protection against loss due to a default by the issuer of the collateral securities; if the issuer of the collateral fails, the seller has an obligation to repurchase the defaulted collateral at the original price, or provide new collateral

For the counterparty that lends cash (= buyer), loss can only incur if both the seller as well as the issuer of the collateral simultaneously default. As long as there is limited correlation between the credit risk on the repo counterparty and the credit risk on the issuer of the collateral, making a simultaneous default unlikely, each repo counterparty has two more or less independent sources of comfort which significantly reduces the credit risk exposure through a repo. Especially when regarding the extreme case where the seller (= cash borrower) offers self-issued securities (correlation = 100%), the collateral does not provide any more comfort as in the event of default of the seller also the issuer of the collateral would default.

If the issuer of collateral fails, the buyer has merely to demand fresh collateral from the seller, what – due to margin calls - would happen automatically. Whereas, if the repo counterparty fails, the non-defaulting counterparty may be exposed to a variety of potential problems:

▶ **Legal risk:** even though the repo should transfer ownership of the collateral to the buyer, the buyer's rights to it may be challenged in court by the administrator of a defaulting counterparty, or by other creditors.

▶ **Operational risk:** the collateral may turn out to be inadequate due to operational inefficiencies, e.g. inability to sell illiquid collateral, failure to call variation margins, inefficiency in collecting the collateral from a custodian, or a delay in identifying an event of default

▶ **Inconvenience:** a default, even on a secured instrument like repo, will require the non-defaulting counterparty to monitor bankruptcy proceedings, to ensure that there are no legal challenges to the buyer's right to collateral; and it may have to pursue a claim if there is a shortfall in collateral

Because of the potential problems, the primary credit risk in a repo is typically on the repo counterparty, rather than on the collateral. The collateral provided through a repo should be regarded only as secondary protection against default by the counterparty.

Repo transactions are inherently safer than unsecured instruments, but they should not be used to do business with institutions who would otherwise be unacceptable counterparties for unsecured business. The appropriated way of taking extra risk to enhance returns on repos is to take riskier collateral from acceptable counterparties.

In summary, repos are operationally intensive and thus bear operational risks:

▸ The sale and repurchase, variation margins, rights of substitution and payments of manufactured dividends all involve transfers of securities and/or cash.

▸ In order to mark to market, professional systems and good price sources are required. Once made, margin calls have to be monitored until they arrive.

▸ Collateral has to be managed to avoid undue concentrations of particular securities in holdings of collateral.

▸ Documentation, tax and accounting implications have to be understood and monitored. All this activity requires an efficient back office operatiuon in terms of people and systems.

9. Special Types of Repos

▸ **Dollar repo**

A dollar repo is a repo in which the buyer may return at maturity a security which is different, within agreed limits, from the original collateral.

▸ **Forward start repo**

This is a repo where the start date is for value later than the normal settlement date for the security concerned.

▸ **Floating rate repo**

In a floating rate repo, the repo rate is re-set at pre-determined intervals according o some benchmark, such as LIBOR. It is also common to use an overnight reference rate like EONIA.

▸ **Reverse to maturity repo**

This is a reverse repo with the same maturity date as the security used as collateral.

▸ **Flex repo**

In a flex repo the buyer pays back the cash in instalments, following an exact repayment plan.

▸ **Open repo**

An open repo can be terminated by both counterparties. A specific maturity date is not fixed.

10.   Synthetic Repo

A synthetic repo is a strategy that consists of more than one deal which then altogether have the same effect as a repo.

As we know, a reverse repo is the simultaneous purchase and later sale of a security. A **synthetic reverse repo**, for example, would be a sale of bond futures and, at the same time, purchase of deliverable bonds in the spot market. Out of this you can calculate the implicit interest rate for an investment – the so-called **implied repo rate**. Such a strategy is also called "cash-and-carry arbitrage". To make this arbitrage perfect, the synthetic repo position has to be hedged by a "real" repo, i.e. here the bond is sold and bought. If in this case, the implicit reverse repo rate for the investment was higher than the repo rate for the "real" repo, this would be a profit.

A **synthetic repo** would be produced the other way round: sell deliverable bonds in the spot market and buy bond futures. The short bond position had to be hedged by means of a "real" repo. In this case, it was a profit if the implied repo rate was lower than the reverse repo rate.

11.   Security Lending

Security lending is the exchange of two securities for the term of the deal. This is sensible if the seller of the security does not need cash and wants to wait until his security turns special. With other words, securities lending is the exchange of two securities, where one is usually a special and the other a general collateral.

Quotation

The terminology in securities lending follows that in a classic repo but takes the viewpoint of the special. The "buyer" is therefore the party buying the special, and the seller is the party selling the special. Since in securities lending no cash transfers take place, a premium (= security lending fee) in % p.a. based on the market value of the security is quoted instead of the repo rate. This fee has to be paid by the buyer (of the special). The security lending fee is the difference between a GC repo rate and the repo rate for the corresponding special.

GC repo rate: 3.00 %
Special rate: 2.25 %
Security lending fee: 0.75 %

If the premium did not equal the difference between GC and special, arbitrage would be possible:

Premium < difference, e.g. 0.5%:
special lending   at 0.50% (costs)
repo (special)   at 2.25% (= borrow cash at 2.25%)
reverse repo GC   at 3.00%   (= lend cash at 3.00%)
profit: 0.25%

Premium > difference, e.g. 1.0%:
special lending   at 1.00% (return)
Rev. repo (Special) at 2.25% (= lend cash at 2.25%)
repo GC   at 3.00% (= borrow cash at 3.00%)
profit: 0.25%

Coupon payment

Coupon payments are treated analogue to classic repos, i.e. these coupon payments are transferred immediately to the original owner (seller).

Margins

Like in a classic repo, initial margin and margin calls can be required under securities lending.

Contrary to the classic repo, the initial margin must be paid by the buyer of the special because it is the securities lent which are driving the deal.

Margin calls are paid in the same way as in classic repo, but this generally by adjusting the amount of collateral rather than the amount of the security lent (= special), because the borrower has a need for that particular amount of that security.

12.   Repo Terminology

Security-driven	Repo with fixed bond nominal
Bilateral Repo	a Repo where only 2 counterparts are involved
Cash and carry	Arbitrage strategy: Buy bond, sell Repo, sell bond future
Cash-driven	Repo with fixed cash amount
Close out and reprice	early termination of the original Repo and prolongation at actual market price but with the same Repo rate
Cross currency Repo	Repo where the currency of the cash is different from the currency in which the collateral is denominated
DAC-RAP	Delivery against Collateral-Receipt against payment, analog DBV
Day to day Repo	same as Open Repo
DBV	Delivery by Value, delivery cash and securities only after both have arrived at the custodian
Deliver out Repo	see bilateral Repo
Deliverable Bond	Bond which comes up to the buyer's specifications
Dollar Repo	Repo in which the buyer may return at maturity a security which is different, within agreed limits, from the original collateral
Dollar roll	Sell and buy back in the US
Double dipping	the illegal practice of a Repo seller using the same security to collateralise two separate Repos in a HIC Repo
Due bill Repo	same as HIC Repo
DVP	Delivery versus Payment, analog DBV
Fed Repo	Repo initiated by the FED, terminology is always viewed from the market's point of view
FED Reverse	opposite of a FED Repo
Flat basis	A repo on which the initial margin is zero is described as being on a "flat basis"
Flex Repo	a classic term Repo with the added feature that the cash is repaid to the buyer in instalments
Forward Start Repo	Repo with a later value than the usual one
GC	abbreviation for General Collateral
General collateral	Repo which can be secured by any acceptable collateral
Gensaki	Repo in the Japanese domestic market
Haircut	same as initial margin
HIC	see Hold in Custody
Hold in Custody (HIC)	Repo in which the security continues to be held by the seller on the buyer's behalf
Hot Stock	a security in general demand in the market

Indexed Repo Rate	Repo where the Repo rate is adjusted periodically (e.g. to LIBOR)
Initial Margin	see Margin
Investor	the buyer of the Repo
Classic Repo	US-style Repo
manufactured dividend	technical term for the transfer of the coupon payment in a classic Repo
Margin	also Initial Margin or Haircut, the additional bonds or the lower cash amount required by the buyer to allow for a potential subsequent change in the collateral's market value
Margin Call	Adjusting the Repo to the actual market value of the collateral
Margin Ratio	official term for the all-in market value of the securities divided by the cash loan (e.g. 102%)
matched book trading	Market maker (bid and offer prices are quoted) in the Repo market, contrary to other markets this is no expression for a closed position
matched sale purchase	same as Fed Reserve Repo
On side date	the value date of the first leg of a Repo
Overnight Repo	a Repo from today until the next working day („tomorrow")
price differential	the accrued interest on the cash lent in a Repo
Pricing rate	same as the Repo rate
Purchase Price Repo	purchase price in a classic Repo (= cash divided by the nominal)
Purchase Price Sell/Buyback	purchase price in a Sell and buy back (= Dirty Price of the bond)
Rebate	the lending fee in a Security Lending
Repos trading flat	Repos which are traded without haircut
Reverse Repo	sell Repo, lend cash
Reverse to maturity	Repo with the same maturity date as the collateral
RP	Abbreviation for Repo
Sell back price	Forward price (Clean Preis) in the final transaction in a Sell and buy back
Sell buy back differential	official term for the accrued interest on the cash loan in a Sell and buy back
Specific collateral	Repo which can be secured by only one particular security
Spread trade	Repo strategy where one usually takes cash „low priced" in a special and then lends it "high priced" in a general
SPVT	Spécialistes en pension sur valeurs du trésor, French Repo trader
Substitution	Repo which allows the seller to substitute one security for another
Synthetic Repo	a series of transactions which is economically equivalent to a Repo
System Repo	Repo initiated by the Fed in order to control liquidity
Tail	the exposure to interest rates over a forward-forward period arising from a mismatched position
Term Repo	Repo dealt for a specific length of time
Termination Date	End date in a Repo

Third Party Repo	see Triparty Repo
Threshold	the level where margin calls are due
Transaction exposure	the difference between the current market value of the cash loan (incl. Repo interest) and the current market value of the securities (incl. accrued interest)
Trigger level	analog Treshold
Triparty Agent	the custodian in a Triparty Repo
Triparty Repo	Repo in which the collateral is delivered to and held by a third party custodian on behalf of the buyer who also receives the cash amount and transfers it to the seller via DVP
Trust-me Repo	same as HIC Repo
US-style Repo	classic Repo
Variation Margin	the amount of cash or collateral which has to be transferred when there is a change in the value of the collateral