

# The Swiss franc money market: instruments and market participants

Antoine Veyrassat, Asset Management, Swiss National Bank, Zurich

## Introduction

The money market is a market for the short-term lending and borrowing of funds. The money market is usually defined so as to include only transactions with maturities of up to 12 months. Banks are the main participants in the money market, which makes it primarily an interbank market. Yet on the repo market at least, the Swiss National Bank (SNB) also plays a key role as it implements its monetary policy through transactions with banks on the CHF money

market. Further participants in the CHF money market are those bank customers that place time deposits and fiduciary investments with these banks. In recent years the CHF money market has undergone profound changes. The repo business and derivative money market instruments in particular have expanded substantially. The present study gives an overview of the CHF money market. The first section sets out what instruments are traded and how they have developed. The second section then focuses on the market participants.

# 1 Money market instruments

The money market instruments that will be discussed in the following are foreign exchange swaps, deposits, repo transactions, customer term deposits, fiduciary investments, money market debt register claims, tom-next index swaps, forward rate agreements and interest rate futures. Of these instruments, foreign exchange swaps, deposits and repo transactions are used both for short-term liquidity management and for hedging risks as well as for entering into speculative positions. The other instru-

ments are used mainly for one of two functions: short-term liquidity management (customer term deposits, fiduciary investments, money market debt register claims), or hedging a position as well as entering into a speculative position (tom-next index swaps, forward rate agreements, interest rate futures). Table 1 gives an overview of the different instruments used on the CHF money market and of their market volumes. As some of the data refer to different sources, the volumes cannot be compared directly.

**Volume of money market instruments**

Table 1

Market/instrument	Volume	Description
Foreign exchange swaps USD/CHF	CHF 899 billion	Outstanding amount. Up to 1 year. Average April 2001. Own estimate. Source: Bank for International Settlements (2002).
Deposits	approx. CHF 100 billion <sup>1</sup>	Outstanding amount. Source: own estimate.
Repo transactions (interbank market)	CHF 22.6 billion	Outstanding amount. Average December 2003. Source: Eurex Repo.
Customer time deposits	CHF 46.1 billion	Outstanding amount. Residual maturity up to 1 year incl. call money. End of 2003. Source: SNB.
Fiduciary investments	CHF 14.8 billion	Outstanding amount. End of 2003. Source: SNB.
Money market debt register claims	CHF 10.7 billion	Outstanding amount. End of 2003. Source: SNB.
Tom-next index swaps	CHF 490.6 billion	Average outstanding book volume of 16 market makers. 2001. Source: Trauth (2002, p. 36).
Forward rate agreements	CHF 261.1 billion	Outstanding book volume. End of June 2001. Source: Bank for International Settlements (2002).
Interest rate futures	CHF 277.5 billion	Outstanding book value (open interest). End of January 2004. Source: Reuters.

<sup>1</sup> There is no reliable data available on deposits.

## 1.1 Foreign exchange swaps

A foreign exchange swap is usually a spot purchase (sale) of foreign currencies and a simultaneous forward sale (purchase) of the same currencies. The swap rate (discount or premium to the spot rate) is calculated based on the interest differential between the two currencies for the corresponding maturity. The risks entailed in a foreign exchange swap are the credit risk (risk of losing the amount due) associated with a market risk (risk of a price loss on the amount due) and the settlement risk.<sup>2</sup> With regard to volume, foreign exchange swaps dominate over both deposits and repo transactions on the interbank market. Short-term liquidity management primarily involves foreign exchange swaps in US dollars against Swiss francs. Interbank transactions are concluded for the most part via Reuters Dealing communications platform, via Reuters Matching and Voice Broker and, rarely, also by telephone. In April 2001, an estimated CHF 899 billion was outstanding. The average daily turnover was CHF 59 billion, 75% of which had a maturity of up to 7 days (see table 1).<sup>3</sup>

2 The settlement risk is the risk that a counterparty in a transaction becomes insolvent and can no longer meet its obligations although the other contractual party has already performed as agreed. The performance risk can be eliminated by both contractual parties paying simultaneously.

3 Cf. Bank for International Settlements (2002).

4 Overnight transactions (ON), tom-next transactions (TN) and spot-next transactions (SN) all have a maturity of one bank business day. ON transactions are settled on the date of conclusion T, TN transactions on T+1 and SN transactions on T+2.

## 1.2 Deposits

Deposits are composed of unsecured interbank money market investments and loans. Measured by the market volume, deposits are the second most important instrument in short-term liquidity management. The outstanding amount is approximately CHF 100 billion. The turnover in the tom-next<sup>4</sup> maturity segment exceeds the turnover in the other maturities. Interbank transactions with maturities of up to twelve months are not subject to withholding tax. Unsecured money market investments and loans are also concluded between banks and non-banks.

Banks increasingly strive to limit their credit risks, for example by introducing a counterparty limit determining the maximum claim on a counterparty depending on the maturity of the transaction. However, as the claim is still unsecured, counterparty limits cannot completely eliminate the credit risk but simply restrict the potential loss to the amount of the limit. First, a bank decides whether or not a credit limit is opened for a potential counterparty. It can be said as a rule that the longer the maturity, the smaller the counterparty limit. Starting with maturities of about one month, liquidity on the interbank market for deposits decreases significantly. In most cases, the premiums requested on the applicable Libor<sup>5</sup> within the corresponding maturity vary depending on the credit rating<sup>6</sup>. Pursuant to the capital adequacy requirements stipulated in art. 12 of the Banking Ordinance, the premiums for non-banks should be higher than for banks provided that the equity capital costs arising from the deposit are taken into account in determining the price. Deposits are on the decline owing to the generally lower limits and the rising level of activity on the repo market. The increased use of derivative money market instruments for hedging purposes has also contributed to the decline in volumes traded on the deposit market.

The interbank market for deposits is much less transparent than the repo market. Whereas deposits are often mediated by brokers and concluded primarily by telephone or via Reuters Dealing, the counterparties in electronic repo trading usually are in direct contact.

5 The Libor (London interbank offered rate) is the interest rate that a premium borrower would have to pay for an unsecured money market loan. The Libor rate is fixed daily by the British Bankers' Association (BBA) for the major currencies. The Libor fixing is based on the deposit rates (offered rates) of the banks participating in the fixing. When selecting these banks, the BBA takes into account their reputation, their experience in the rele-

vant currency and their credit rating. The fixing of the Libor in Swiss francs is based on the interest rates of 12 banks; the average is calculated excluding the three lowest and the three highest interest rates (cf. [www.bba.org.uk](http://www.bba.org.uk)).

6 A credit rating is the assessment of a borrower's quality with regard to creditability and creditworthiness. Ratings are given by specialised, independent agencies.

### 1.3 Repo transactions

A repo transaction is, in economic terms, a loan secured by collateral. The cash taker sells the cash provider securities and repurchases them after a previously agreed period. The cash taker pays the cash provider a repo rate depending on the maturity of the transaction.

Compared to EUR and USD repo markets, the corresponding CHF market is still quite recent. CHF repo transactions were for the first time concluded via the electronic trading platform Eurex Repo in 1999. The launch of this market in Switzerland was decisively influenced by the decision of the Federal Tax Administration not to levy a stamp duty on repo transactions. The SNB also played a key role by starting to use repos as a monetary policy instrument in 1998.

Repo transactions can be broken down into general collateral (GC) repos and special repos, depending on their purpose. If a repo's main purpose is the investment or borrowing of short-term liquid funds (as is the case for foreign exchange swaps and deposits), it is a GC repo (money market transaction). In this kind of transaction, only the category, quality and rating of the collateral are usually agreed on between the counterparties. Four different baskets are currently available for CHF repos.<sup>7</sup> If, by contrast, a repo transaction involves one specific security, this is called a special repo (capital market transaction). Special repos, which play only a minor role on the CHF market, serve for financing long securities positions and covering short securities positions.<sup>8</sup> Moreover, the conclusion of special repos can boost the return on a securities portfolio.<sup>9</sup>

Apart from counterparty limits in deposits, credit risks can also be steered through repo transactions. In fact, the use of collateral in repo transactions brings about a more substantial reduction in

credit risks. The daily valuation of collateral and the automatic margin calls additionally contribute to increasing security. If the cash taker delivers collateral, its credit rating is less significant for the cash provider. The cash taker has access to liquidity at any time through the available collateral. The growing role of collateral as a money substitute thus also limits the risks of unexpected liquidity drains (liquidity risks).

Whether a cash provider invests liquidity by means of a deposit or a repo transaction depends, among other factors, on the applicable interest rates. The larger the spread between the deposit rate and the repo rate, the more attractive a deposit becomes compared with a repo transaction.

The spread between these two types of transactions depends on the collateral costs in repo transactions on the one hand and on the risk premium on the other. The repo rate is lower than the deposit rate as the cash taker has to deliver collateral in a repo transaction. The costs for procuring collateral are likely to amount to around 10 basis points (bp).<sup>10</sup> The cash provider bases its calculation of the credit risk premium on the counterparty's default probability. For example, the annual default rate for ratings of the "investment grade" category between 1920 and 2003 averaged 0.15%.<sup>11</sup> In addition, a deposit – unlike a repo transaction – gives rise to equity capital costs. In the case of unsecured money market claims on banks (headquartered in OECD countries) and an arithmetic return on equity of 10%, capital costs amount to 20 bp pursuant to the capital adequacy requirements stipulated in art. 12 of the Banking Ordinance. If these costs are taken into account consistently, the interest rate spread between deposit and repo transactions has to amount to at least 20 bp.

7 A basket contains one or several securities categories that are deliverable as equivalent collateral within the basket. A minimum rating or a minimum issuing volume may limit the collateral belonging to a basket. The following baskets are available on the interbank market for CHF repos: CHF GC Basket (CHF denominated debt paper of the Confederation, the cantons, foreign banks and sovereign states, as well as mortgage bonds), Euro GC Basket (EUR denominated German and Austrian government bonds with a minimum volume of EUR 1 billion), German Jumbo Pfandbriefe GC Basket (EUR denominated German mortgage

bonds with a minimum volume of EUR 1 billion) and SMI GC Basket (all SMI stocks). The securities eligible for repo transactions with the SNB are combined in a collective basket – the SNB GC Basket – comprising the CHF, Euro and German Jumbo Pfandbriefe GC Baskets.

8 A long position is a position created through the purchase of a security. A short position is created through the sale of a security that was not purchased beforehand (short sale). A long position benefits from falling interest rates or rising prices, a short position from rising interest rates or falling prices.

9 Cf. Veyrassat (2003).

10 100 basis points correspond to 1 percentage point.

11 Cf. Moody's (2004).

Graph 1 illustrates the development of the spreads (annual averages) between quoted deposit rates and actually traded repo rates on the interbank market for one-week and three-month investments. Between 2000 and 2003, spreads have narrowed from 9–11 bp to around 5–8 bp.

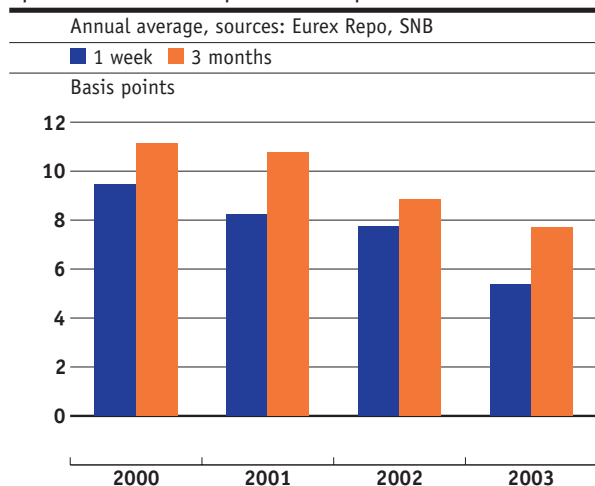
The above explanations lead to the conclusion that the price of collateralisation, i.e. the return loss on a repo compared with unsecured investments, is small for the cash provider. The decline in spreads observable since 2000 can be explained by the reduction in collateral costs thanks to the continuing activation of existing but as yet unused collateral, e.g. by means of securities lending and borrowing (SLB) and efficient collateral management systems. Since collateral costs incurred by a cash taker have declined, the latter will accept – given a certain deposit rate – a higher repo rate. Moreover, the adoption of a near zero interest rate policy by the SNB in March 2003 has – at a given repo rate – contributed to the further decline in the spread for one-week investments from an average of 8 bp in 2002 to 5 bp in 2003. In the second half of 2003, unsecured money market bid quotes for one-week investments averaged 10 bp, roughly corresponding to the collateral costs in repo transactions.

Repo trading takes place on the electronic trading platform Eurex Repo. More than 100 banks have already signed the Swiss framework agreement for repo transactions.<sup>12</sup> UBS Investment Bank, Credit Suisse and the Swiss Union of Raiffeisen Banks regularly act as market makers, i.e. they give binding buy quotes (bid) and sell quotes (ask) for repos with

maturities typically extending up to six months.<sup>13</sup> The electronic trading platform is highly transparent: the prices and volumes of all transactions concluded along with the names of the banks giving quotes can be seen in the trading system. Repo transactions are settled via SIS SegInterSettle AG (SIS) and Swiss Interbank Clearing AG (SIC). The requirements for accessing the repo market thus follow cumulatively from the access conditions fixed by Eurex Repo, SIS, SIC and the SNB. The triparty services of SIS allow, firstly, the automatic settlement of transactions; secondly, the daily valuation of claims and liabilities in money and collateral; and thirdly, the automatic off-setting of margins and compensation.<sup>14</sup>

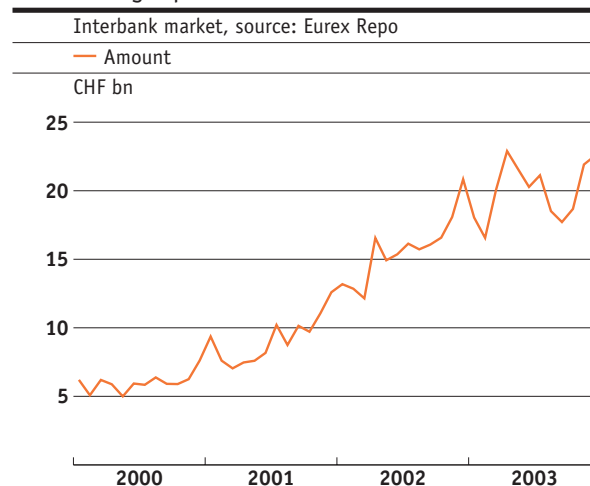
According to graph 2, the amount outstanding on the interbank market in January 2000 was CHF 6.2 billion (monthly average). By December 2003, this amount increased to CHF 22.6 billion. During the same period, the monthly turnover rose from CHF 24.5 billion to CHF 63.4 billion. The upward trend on the repo market was halted in 2003. Money market rates close to 0% led to a general decline in activity on the market. Owing to the low opportunity costs of keeping liquidity, the incentives to optimise liquidity decreased.

Graph 1  
Spreads between deposit and repo rates



12 The Swiss framework agreement for repo transactions defines the legal relationship between the cash taker and the cash provider.

Graph 2  
Outstanding repo amount



13 A buy or bid quote is a buying rate and a sell or ask quote is a selling rate. The buying rate is always lower than the selling rate. The difference between the buying and the selling rate is known as the bid-ask spread.

14 Compensation: the cash taker is indemnified for distributions paid on collateral (e.g. coupon payments) that are in the cash provider's custody account during the repo duration.

Graphs 3 and 4 show the outstanding amount and the monthly turnover on the interbank market for repo transactions, broken down by maturity.

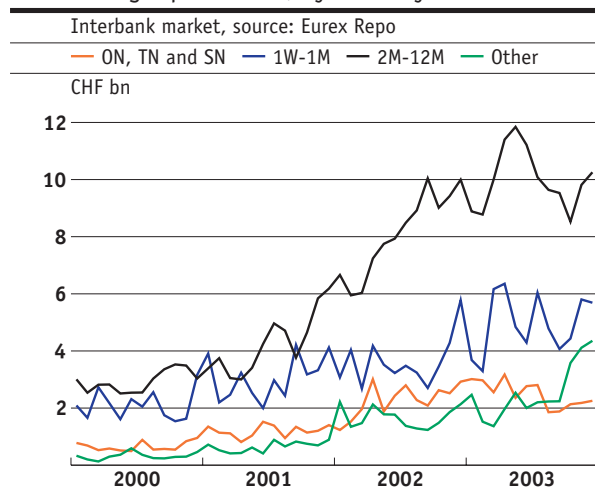
In December 2003, maturities between 2 and 12 months accounted for 45% of the outstanding amount, but for only 4% of the monthly turnover. Repo transactions are primarily used for short-term liquidity management. Day-to-day money repos (ON, TN and SN transactions), i.e. repos with a maturity of one bank business day, accounted for 74% of the turnover in December 2003, but for only 10% of the outstanding amount. The fall in the monthly turnover of day-to-day money repos is attributable to the SNB's quantitative relaxation of monetary policy in mid-2003. In 2003, an average of 57 transactions per day were concluded. The average residual maturity of all outstanding repo contracts increased from 28 days in January 2000 to 47 days in December 2003.

Graph 5 contains the number of monthly securities sales and repurchases concluded last year in the context of repo transactions (interbank market and

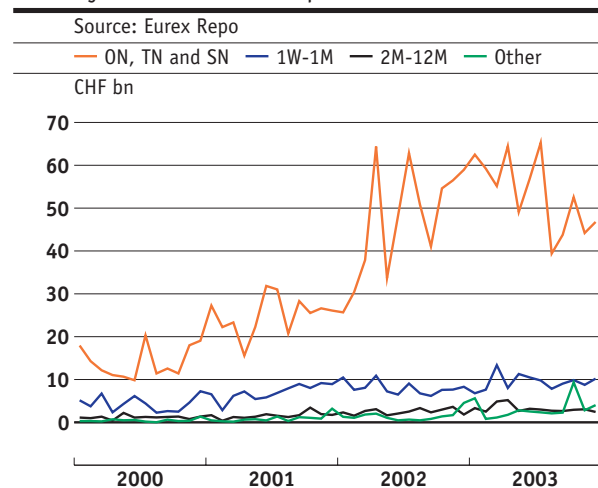
SNB). The bulk of transactions are settled on the regular settlement day. As graph 6 illustrates, a few transactions were settled only one bank business day after the regular settlement day (failed transactions). The very low number of transactions with delayed payment or delivery is an indicator of the banks' judicious liquidity and collateral management. A delay in payment or delivery results in transaction costs. In addition, the reputation of the counterparty suffers.

The interbank market for repo transactions is likely to continue growing, causing activity on the deposit market to weaken further. The increased substitution of deposits by repos is a welcome development. Instead of confidence being created through counterparty limits, repo transactions strengthen confidence in the functioning of the financial system – and thus contribute to lower systemic risks on the Swiss financial market – by reducing the credit, liquidity and settlement risks.

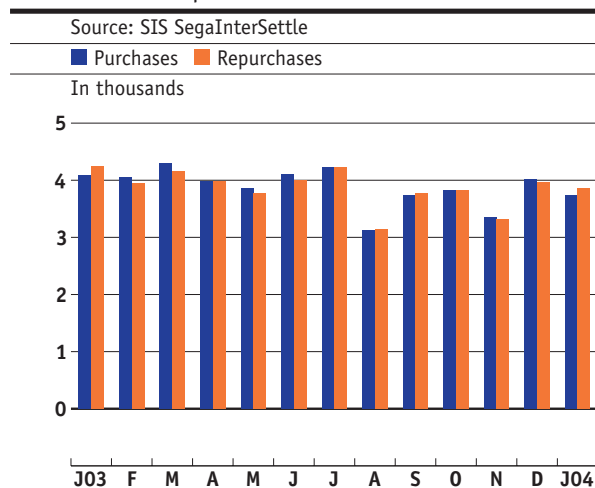
Graph 3  
Outstanding repo amount, by maturity



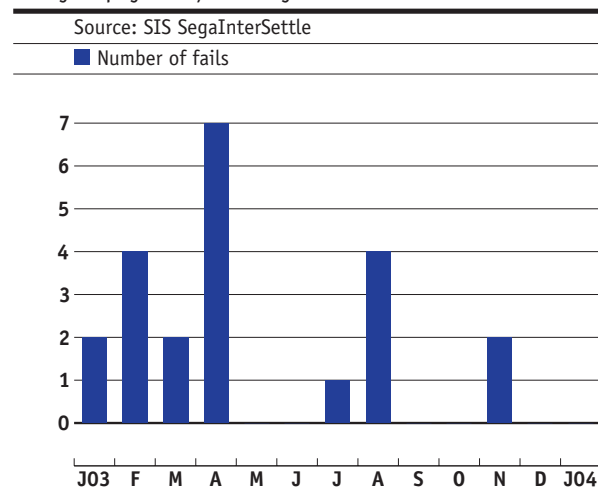
Graph 4  
Monthly turnover on the repo interbank market



Graph 5  
Purchases and repurchases of securities



Graph 6  
Delayed payment/delivery



## 1.4 Time deposits and fiduciary investments

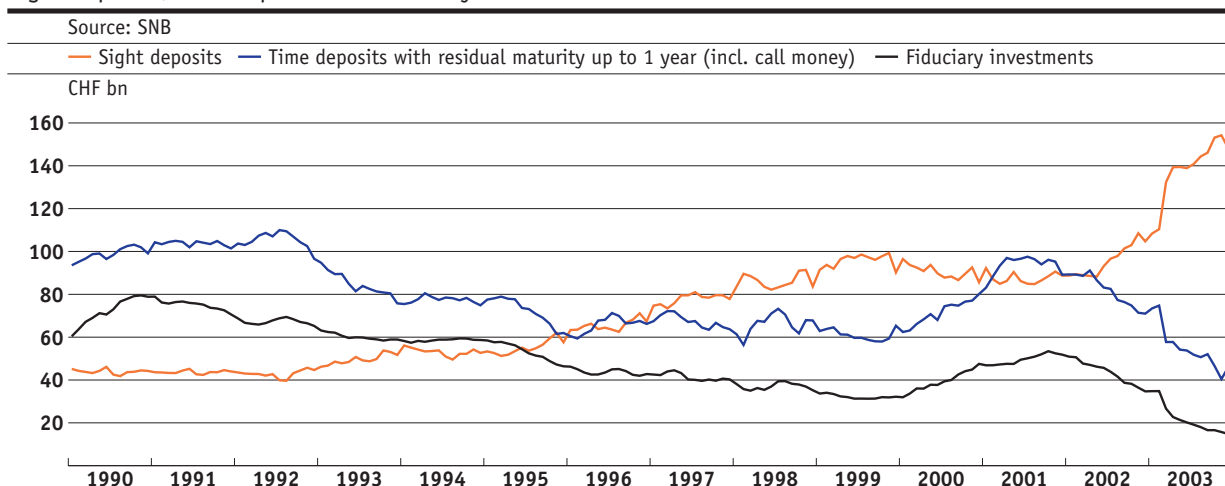
Time deposits, which are part of the  $M_3$  monetary aggregate, are customer deposits placed with banks and have a fixed duration ranging from one to twelve months. The time deposits (including call money<sup>15</sup>) of domestic banks in all currencies amounted to CHF 71.0 billion at the end of 2003. The Swiss franc accounted for 65%. The EUR and USD portions were 17% and 14% respectively.

Fiduciary investments are time deposits concluded by a bank in its own name, but on the customer's account and at the customer's risk. Unlike time deposits, fiduciary investments are not shown in the bank's balance sheet and are therefore not a component of the  $M_3$  monetary aggregate. Fiduciary investments are usually concluded with third-party banks abroad, including the foreign branches of Swiss banks. Fiduciary investments are so attractive because the return is exempt from withholding tax. This applies provided that the money is placed with a bank abroad, that the bank in Switzerland does not bear any risk and that a written contract has been concluded between the customer and the bank in Switzerland. The fiduciary commission payable by the customer amounts to up to 50 bp. In part, the customers decide with which bank abroad the money is to be placed. The customer's credit risk can be limited through counterparty limits. At the end of 2003, the outstanding fiduciary investments of domestic banks in all currencies amounted to CHF 408.4 billion. About 80% of the funds come from abroad.

Roughly 90% of all fiduciary investments are concluded in US dollars, euros and Swiss francs. The share of the Swiss franc was 3.6% at the end of 2003, that of the euro 33.1% and that of the US dollar 52.3%. At the end of 1990, the Swiss franc share – at over 20% – reached a record high.

Time deposits and fiduciary investments are subject to strong interest rate-induced fluctuations. Graph 7 illustrates that the introduction of virtually a zero interest rate policy by the SNB in March 2003 triggered a massive fall in customer time deposits and fiduciary investments. By the end of December 2003, the interest rate for three-month time deposits slipped to 10 bp. Time deposits (including call money) contracted by 35% to CHF 46.1 billion between the end of 2002 and the end of 2003. Fiduciary investments in CHF receded by 57% to CHF 14.8 billion during the same period. At the end of 1990, they had amounted to almost CHF 80 billion. Owing to the low opportunity costs of keeping liquid funds, customer deposits were held mostly at sight. Between end-2002 and end-2003, sight deposits surged by 41% to CHF 148.0 billion.

Graph 7  
Sight deposits, time deposits and fiduciary investments of domestic banks



15 Call money is an investment without a fixed term. The total or partial amount can usually be called at 48 hours' notice. The interest rate on call money is continuously adjusted to the market rate. This type of investment is thus well suited when rising interest rates are expected.



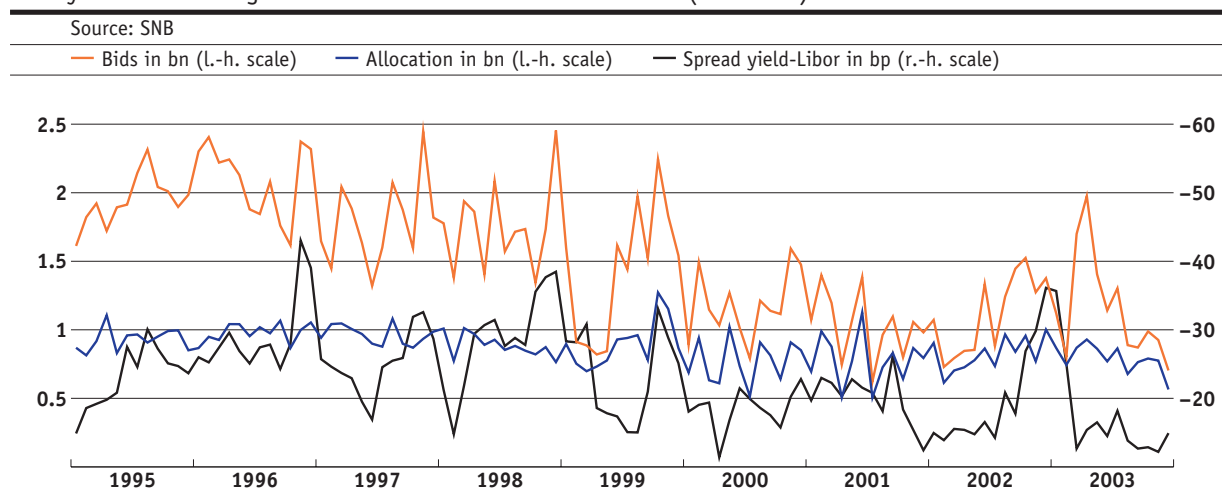
## 1.5 Money market debt register claims of the Swiss Confederation

For short-term refinancing purposes, the Swiss Confederation participates in the money market by issuing money market debt register claims (MMDRCs). MMDRCs are outstanding accounts which are negotiable on a discount basis and are recorded in a register. The smallest negotiable denomination is CHF 50,000.

MMDRCs are issued at weekly auctions via the electronic trading platform Eurex Repo. As a rule, MMDRCs have a term of 3 months (or occasionally 6 or even 12 months). The outstanding amount of MMDRCs at end-2003 was CHF 10.7 billion. This amount has fluctuated between CHF 10.2 billion and CHF 17.1 billion since 1995. Graph 8 shows how interest in MMDRCs has waned sharply in terms of the development of bids. Auction bids of three-month MMDRCs with a December 2003 settlement date averaged only CHF 0.7 billion. The lack of interest can be explained partly by the interest rate paid on MMDRCs, which is usually below the corresponding Libor owing to the prime credit rating of the Swiss Confederation. The allocation of the Confederation has also trended lower during the period under review.

The USD money market is characterised by extensive trading in Treasury bills, commercial paper, medium-term notes, banker's acceptances and certificates of deposit.<sup>16</sup> There is no comparable market in Swiss francs. The reason for this was, for quite some time, the stamp duty which was levied on securities transactions. In 1998, however, the duty on money market paper was abolished under the revised Act on Stamp Duty. Nevertheless, trading in money market paper in Switzerland has not experienced a revival since then. Even before 1998, MMDRCs were not subject to stamp duty as they were not issued in the form of securities.

Graph 8  
Money market debt register claims of the Swiss Confederation (3 months)



16 Cf. Fabozzi, Mann, Choudhry (2002, p. 1).

## 1.6 Derivative money market instruments

The derivative financial instruments used by money market traders include tom-next index swaps, forward rate agreements, interest rate futures as well as options on forward rate agreements and on interest rate futures. An interest rate serves as the underlying for derivative money market instruments.

### Tom-next index swaps

A tom-next (“tomorrow-next”) index swap (TOIS) is an interest rate derivative with a very liquid market, in which not only domestic banks but also internationally operating banks abroad participate.<sup>17</sup> The TOIS supplements the shorter maturities not covered by interest rate swaps.<sup>18</sup> Compared with the corresponding instruments in other currencies, the TOIS is a relatively recent instrument on the CHF money market.<sup>19</sup>

The TOIS is an OTC transaction.<sup>20</sup> The party buying the TOIS pays a fixed interest amount upon maturity and receives a floating interest amount for the agreed term. Only the difference between the floating and the fixed interest payment is transferred to the party with a net claim on the other. The floating interest payment is pegged to a tom-next index, also known as the TOIS fixing. The tom-next index is computed daily based on an average of offer quotes for unsecured tom-next funds of 30 banks. The three highest and the three lowest rate quotations are not used to calculate the arithmetic mean. Unlike the interest rate swap, the floating interest payment is calculated based on the accrued interest reinvested daily at the tom-next index rate. The bid and offer rates on which the fixed interest payment is based are set by the market makers for different maturities. A TOIS can also be concluded on a forward basis.

As the notional amounts are not exchanged, the credit risk merely relates to the net claim or net liability. Maturities range from one week to two years. The instrument is of particular interest to cash managers who wish to hedge against interest rate movements at the front end of the interest rate curve. Repo transactions and deposits as well as interest rate mismatches between the assets and the liabilities side can be hedged by means of a TOIS. A TOIS may, for example, be purchased to hedge a day-to-day money loan that is refinanced daily, from the borrower’s viewpoint, against rising day-to-day money rates for the corresponding TOIS maturity. TOIS are also used to build up speculative positions.

17 Cf. Trauth (2002).

18 An interest rate swap is a capital market instrument. The floating rates are usually based on the Libor.

19 On the markets abroad, overnight index swaps (OIS) have supplemented the shorter matu-

rities not covered by interest rate swaps. The corresponding instrument on the EUR money market is based on the EONIA (Euro ON index average). This interest rate is an ON index weighted according to the unsecured transactions on the interbank market. Around

TOIS trading was started in 1998. Measured by the book volume, the TOIS is the most liquid interest rate derivative on the CHF money market. The outstanding book volume in the trading books of 16 market makers averaged CHF 490.6 billion in 2001.<sup>21</sup> Trading takes place by telephone or on trading platforms such as Reuters Dealing. Both banks and brokers regularly set bid and offer rates for TOIS. The spread between the bid and offer rates is about 3 to 4 bp.

### Forward rate agreements

A forward rate agreement (FRA) is an OTC transaction whose terms and conditions are negotiated by the counterparties.<sup>22</sup> The term of the contract begins on the settlement date, i. e. on a specific date in the future agreed upon between the counterparties upon conclusion. In a “3 v 6 FRA”, for example, the three-month contract term starts in three months. On the settlement date, a purchaser of FRA receives the present value of the differential between the reference rate and the FRA rate – based on the notional – agreed on the day of conclusion. The reference rate (typically Libor) is determined on the fixing date, which is generally two business days before the settlement date. The differential is present-valued because payment is made at the beginning of the life of the contract. The trading terms for the FRA market are fixed by the British Bankers’ Association (BBA).

By purchasing (selling) a FRA, a future loan (future investment) can be hedged against rising (falling) interest rates. Buying a FRA (entering into a FRA long position) also permits speculation on a rise in interest rates (provided that a money market trader believes that the reference rate on the fixing date will exceed the forward interest rate applicable today). Future loans and investments can also be hedged by options on the purchase or sale of an FRA.

The CHF market for FRAs is a liquid market. According to BIS surveys, however, the outstanding book volume dropped from CHF 483.8 billion in 1998 to CHF 261.1 billion in 2001 (end-of-June figures). The corresponding market value decreased from CHF 758 million to CHF 521 million during the same period.<sup>23</sup> FRA rates are set by banks and brokers. Like TOISs, FRAs are also traded by telephone or via trading systems such as Reuters Dealing. Bid-ask spreads are in the range of 2 to 4 bp.

50 banks participate in the fixing of the EONIA, which is calculated by the European Central Bank (ECB).

20 OTC stands for over-the-counter. An OTC transaction has the following features: non-standardised maturity date, not

traded on the stock exchange, no central counterparty.

21 Cf. Trauth (2002, p. 36).

22 Cf. Fabozzi, Mann, Choudhry (2002, pp. 221–228).

23 Cf. Bank for International Settlements (1999 and 2002).

### Interest rate futures

Interest rate futures are also forward transactions, but a standardised version of an FRA. These instruments can be used for hedging or speculation purposes: interest rate futures are sold (purchased) in order to hedge against rising (falling) interest rates. Futures on CHF interest rates and the corresponding options are traded on the anonymous market of the London Liffe (London International Financial Futures and Options Exchange), which belongs to the Euronext group. Futures trading takes place on the electronic platform called Liffe Connect.<sup>24</sup> The standardisation increases the market's liquidity and price transparency. In its role as central counterparty, the London Clearing House (LCH) guarantees all trades concluded. Settlement is also made through LCH. Trade orders are entered into a central order book, and trades are concluded via automatic matching. The positions of the counterparties are revalued daily (mark-to-market principle). Position gains are credited – and position losses debited – to the margin account on a daily basis (variation margin). An initial margin to be paid by a clearing member offers the LCH protection against losses sustained by the default of such member. If the balance on the account drops below the maintenance margin (the minimum security that has to be maintained at all times), the difference must be paid in. Central netting helps to reduce margin calls. As a rule, interest rate futures fall due every quarter, i.e. in March, June, September and December.

The outstanding book volume has risen steadily since 2001 to reach CHF 277.5 billion at the end of January 2004.

## 2 Participants in the CHF money market

### 2.1 SNB

The SNB supplies the banks with liquidity via repo transactions virtually on a daily basis. As a rule, repos are auctioned in the morning or are concluded in the course of the day on a bilateral basis. The liquidity is credited to non-interest-bearing sight deposits which the banks keep with the SNB. The demand for sight deposits (at the end of the day) is primarily determined by the minimum reserve requirements stipulated in the National Bank Act. According to these provisions, the banks must cover certain short-term liabilities with coins, banknotes and sight deposits held with the SNB. Since liquidity is provided only via repo transactions with maturities between overnight and three weeks, the banks have continuous demand for liquidity. Moreover, the demand partly stems from payment transactions and from the need for precautionary balance. Since 1999, the SNB has offered repo liquidity by means of the intraday facility (intraday repos). This facility covers most of the demand for sight deposits resulting from payment transactions. The liquidity provided by the SNB is then traded on the interbank market.

Interest rates on the money market are influenced by the price and volume of the liquidity injected by the SNB. In addition, they are determined by the demand for and the distribution of liquidity, the maturities, interest rate expectations, the collateral furnished and the credit rating of the market participants. The interest rate on the CHF money market that is relevant for monetary policy is the three-month Libor, for which the SNB sets a target range. The SNB indirectly steers the Libor by fixing the repo rates and the size of the sight deposits.<sup>25</sup> Since monetary stimuli are transmitted via the money market, the SNB endeavours to offset any unwanted imbalances in the money market. Its aim is to maintain a liquid and smoothly functioning repo market.

Since 2000, the SNB has steered the Libor solely through repo transactions; previously, foreign exchange swaps (mainly USD against CHF) were the most significant monetary policy instrument.

24 Cf. [www.liffe.com](http://www.liffe.com).

25 Cf. Veyrassat (2001) for a more detailed description of how the SNB steers the three-month Libor.

## 2.2 Commercial banks

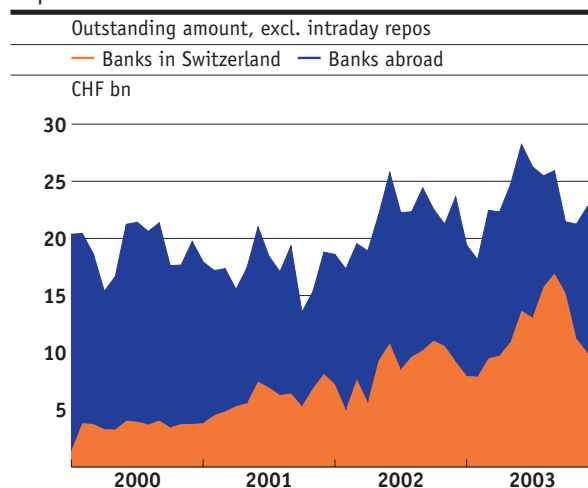
The commercial banks in Switzerland and abroad are the most important group of participants in the money market. Most of the turnover for the off-setting of payment flows on the interbank market is in the short maturity segment, notably in overnight and tom-next transactions. The big Swiss banks, the leading cantonal banks and a large number of European banks are the dominant participants on the CHF day-to-day money market. Only banks that have a certain minimum credit rating and whose name is well known on the market are accepted as counterparties on the unsecured money market. Money market participants with a low rating, lesser known banks and institutions that do not enjoy the confidence of other market participants can usually access the repo market only. The interest rate that banks have to pay for unsecured loans corresponds in most cases to the Libor. Refinancing through repos, by contrast, is at rates below the Libor.

Not only banks in Switzerland but also banks located abroad have a regular demand for CHF liquidity. Both can access the liquidity provided by the SNB. Since 1999, the SNB has also accepted euro-denominated collateral provided that certain conditions are met.<sup>26</sup> Eurex Repo participants may participate in the repo auctions, conclude intraday repos and use the liquidity-shortage financing facility.<sup>27</sup>

In 2003, a total of 66 banks concluded interbank transactions via the trading platform Eurex Repo. Of these banks, 12 were located abroad; they accounted for 21% of the average outstanding amount on the interbank market for CHF repo transactions. In the same year, the percentage of foreign banks participating in the SNB's repo transactions (excluding intraday repos) was, at 51%, even significantly higher than on the interbank market. As graph 9 shows, foreign banks account for a growing proportion of the outstanding amount of SNB repo transactions (excluding intraday repos).

Banks abroad conduct refinancing in Swiss francs chiefly through foreign exchange swaps against US dollars and deposits. Banks abroad participate in the SNB's repo auctions if, for example, there are arbitrage possibilities versus the euro money market. In this case, CHF amounts are exchanged into the respective currency through foreign exchange swaps. On the one hand, higher refinancing activity through SNB repos can help to reduce the dependence of foreign-based banks on their correspondent banks in Switzerland. Furthermore, collateral eligible for SNB repo transactions can help these foreign-based banks to mitigate any severe liquidity risks. On the other hand, the credit risks of Swiss correspondent banks could be reduced if the banks abroad managed their CHF liquidity autonomously.

Graph 9  
Repo transactions of the SNB



26 Cf. section 1.3.

27 The liquidity-shortage financing facility can be used either through conventional Lombard advances or special-rate repo transactions. Lombard advances

are due to be replaced entirely by special-rate repo transactions by the end of 2005. The special rate is 2 percentage points above the day-to-day money rate (cf. [www.snb.ch](http://www.snb.ch)).

## 2.3 Brokers, commercial bank customers and the Federal Finance Administration

Brokers mediate between the suppliers and demanders of money market liquidity, interest risk exposure and interest risk hedging without entering into a position themselves. The trend towards reducing counterparty limits for unsecured money market investments is increasingly forcing brokers to mediate transactions with derivative financial instruments. Given the increased use of electronic trading platforms, though, brokers risk being sidelined and are therefore on the lookout for new business fields such as the structuring of complex financial transactions. Brokers are also increasingly trying to acquire non-bank customers.

Commercial bank customers participate in the money market to manage their liquidity requirements. Industrial enterprises and institutional investors place excess liquidity on the market or use it for short-term refinancing. Among the money market instruments employed are foreign exchange swaps, deposits, repo transactions and derivatives. Measured by the number of transactions, the most common instruments are foreign exchange swaps, followed by deposits. For unsecured loans, commercial customers usually have to pay a premium on the Libor which is determined by their rating.

The Federal Finance Administration also participates in the money market. Unlike Postfinance, however, it does not participate independently but has commissioned the SNB to do so on its behalf. On the one hand, the SNB brokers money market loans for the Swiss Confederation to cover the short positions resulting from liquidity management, while on the other hand the Confederation places money market investments with the SNB. The SNB pays interest at market rates (for the relevant maturities) on money market investments. The sight deposits of the Swiss Confederation up to an amount of CHF 600 million bear interest at the day-to-day money rate. Furthermore, the SNB conducts the auctions of the Swiss Confederation's MMDRCs and bonds via the electronic repo trading platform.

## 3 Conclusion

Against the backdrop of extraordinarily low money market rates in 2003, activity on the CHF money market was subdued. Various innovations, however, have enhanced the attractiveness of the money market in the past few years. In short-term liquidity management, the popularity of secured transactions is increasing at the expense of deposit market transactions. Banks are becoming increasingly aware of the significance of collateral in hedging credit and liquidity risks. The risks entered into on the deposit market and the associated equity costs are probably not always fully offset by the applicable market prices. Nevertheless, foreign exchange swaps and deposits are still the dominant instruments used for short-term liquidity management. The prerequisites for a further expansion of the repo business are an even stronger focus on credit and liquidity risks, intensified use of systems for collateral management and cooperation between the banks' capital and money market divisions. Based on such cooperation, unused collateral can serve to procure liquidity. The activation of collateral means that refinancing on the interbank market or through the SNB is possible at any time. Eurex Repo, the electronic trading platform, the triparty services of SIS, and SIC provide the CHF money market with a modern infrastructure which makes efficient repo trading possible. Given the international significance of the Swiss franc, foreign-based banks that are already very active in derivative money market instruments are likely to become increasingly active in the repo interbank market in the future.

## 4 Sources

Bank for International Settlements. 2002. *Triennial Central Bank Survey – Foreign Exchange and Derivatives Market Activity in 2001*.

Bank for International Settlements. 1999. *Central Bank Survey of Foreign Exchange and Derivatives Market Activity 1998*.

Bank for International Settlements. 1996. *Central Bank Survey of Foreign Exchange and Derivatives Market Activity 1995*.

Fabozzi, Frank J., Steven V. Mann und Moorad Choudhry. 2002. *The Global Money Markets*. New Jersey: John Wiley & Sons, Inc.

Moody's. 2004. *Default & Recovery Rates of Corporate Bond Issuers*.

Trauth, Thomas. 2002. Tom-Next Index Swaps (TOIS). The Swiss Fixed Income Market. Credit Suisse First Boston: 36–38.

Veyrassat, Antoine. 2001. Steuerung der Geldmarktsätze durch die Schweizerische Nationalbank. *Financial Markets and Portfolio Management* 15: 344–362.

Veyrassat, Antoine. 2003. Der Repo-Markt in Franken gewinnt an Bedeutung. *ClearIT* 16: 8–9.

[www.bba.org.uk](http://www.bba.org.uk)

[www.liffe.com](http://www.liffe.com)