

The Swiss Interbank Clearing (SIC) payment system Report on the SIC System and Disclosure Report 2021

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
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SWISS NATIONAL BANK



This publication is issued by the Swiss National Bank in cooperation with SIX Interbank Clearing Ltd (SIC Ltd).

The first section of the publication ('Report on the SIC system') contains information on the Swiss Interbank Clearing payment system (SIC system).¹ As a systemically important financial market infrastructure, the SIC system is subject to the CPMI-IOSCO Principles for financial market infrastructures (PFMI).² The second section ('Disclosure Report on the SIC system') shows how the relevant CPMI-IOSCO principles apply to the SIC system. In addition, this section includes a list of publicly available information on the SIC system.

Publisher

Swiss National Bank (Department III)

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Published

May 2022

Information

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Languages

English, French, German and Italian

1 The first section of the publication is based on and replaces *The Swiss Interbank Clearing (SIC) payment system* report by Jürg Mägerle and Robert Oleschak (SNB, 2019). It provides updated information on the SIC system.

2 Committee on Payment and Settlement Systems (since 2014 Committee on Payments and Market Infrastructures, CPMI) and Technical Committee of the International Organization of Securities Commissions (April 2012), *Principles for financial market infrastructures*, www.bis.org/cpmi/publ/d101a.pdf.

Executive summary

This publication describes the Swiss Interbank Clearing payment system (SIC system), via which financial institutions process their interbank payments and a substantial part of their retail payments in Swiss francs.

The SIC system is a real-time gross payment system for interbank and retail payments in Swiss francs. Payments are settled irrevocably and with finality in central bank money. Participants in the SIC system are mainly banks, but also insurance companies, securities firms and other financial institutions. It is a cooperation between the Swiss National Bank and the financial centre and is operated on behalf of the SNB by SIX Interbank Clearing Ltd (SIC Ltd). The SNB acts as system manager while SIC Ltd has operational responsibility as system operator. The legal basis for the SNB's role is its statutory task to facilitate and secure the operation of cashless payment systems. The SNB is also responsible for oversight of the SIC system.

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Report on the SIC system

1 IMPORTANCE

The SIC system is the payment system in Switzerland which financial institutions use to process their interbank payments and a substantial part of their retail payments in Swiss francs. It plays a central role in the settlement of payments in central bank money both for the financial system and for the Swiss economy as a whole. Owing to its importance for the functioning of the financial system, the SNB classifies the SIC system as a systemically important financial market infrastructure (FMI).

In 2021, the SIC system processed a total of 893 million payments with the value of CHF 41,810 billion. This corresponded to a daily average of 3.5 million payments with a total value of CHF 163 billion. On peak days, SIC processed up to 9.9 million payments and turnover of up to CHF 247 billion (cf. table 1 as well as charts 1 and 2). This means that the average value of payments settled within one week is slightly above annual Swiss GDP.³

Table 1

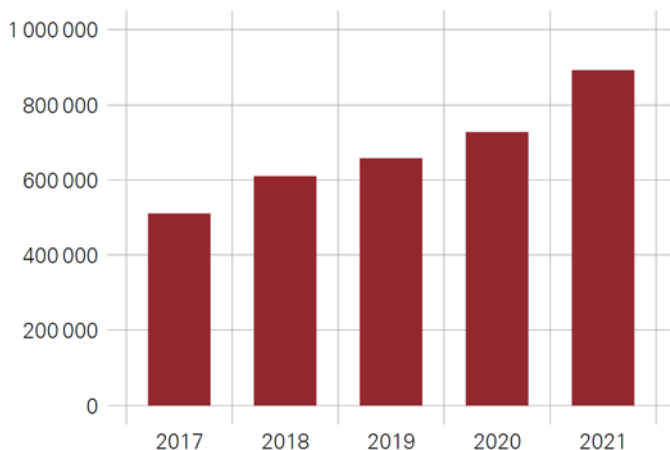
TRANSACTIONS IN THE SIC SYSTEM – NUMBER AND TURNOVER

		2017	2018	2019	2020	2021
Number of transactions						
Number	(in thousands)	510 901	610 486	658 262	728 223	893 425
Daily average	(in thousands)	2 035	2 432	2 623	2 867	3 490
Peak daily value for year	(in thousands)	7 025	7 436	7 484	9 286	9 909
Turnover						
Turnover	(in CHF billions)	43 397	39 121	39 664	45 266	41 810
Daily average	(in CHF billions)	173	156	158	178	163
Peak daily value for year	(in CHF billions)	227	249	240	276	247

Chart 1

TRANSACTIONS IN THE SIC SYSTEM

Number of transactions (in thousands)

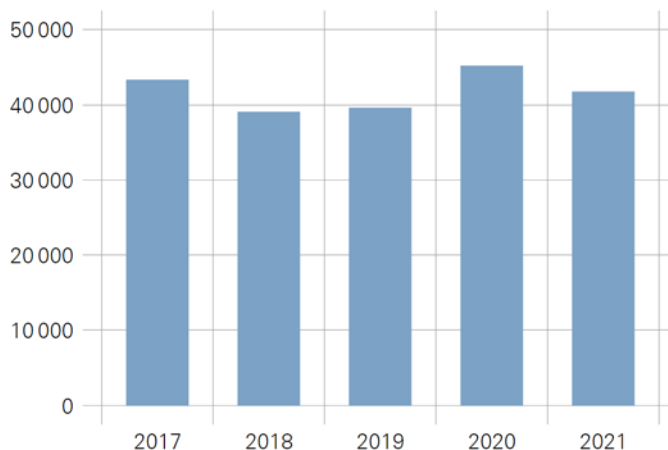


Source(s): SNB

Chart 2

TRANSACTIONS IN THE SIC SYSTEM

Turnover (in CHF billions)



Source(s): SNB

³ In 2020, Swiss GDP amounted to CHF 706 billion (Source: Swiss Federal Statistical Office).

2 PRINCIPAL FEATURES

REAL-TIME GROSS SETTLEMENT

The SIC system is a real-time gross settlement system (RTGS system) for payments in Swiss francs. Payments are settled continuously and individually. This distinguishes the SIC system from deferred net settlement systems, which only settle net balances of incoming and outgoing payments at predefined intervals.

SETTLEMENT IN CENTRAL BANK MONEY

Payments in the SIC system are settled with central bank money. The deposits held by SIC participants in their sight deposit accounts at the SNB are used as the means of payment in the SIC system. The sight deposits are central bank money. Like banknotes, they are legal tender and constitute a claim on the SNB. Sight deposits therefore entail no credit or counterparty risk.

Technically speaking, a SIC participant holds a sight deposit account with the SNB and a settlement account in the SIC system. At the beginning of a settlement day, the SNB transfers the deposits on the sight deposit account to the settlement account in the SIC system. At the end of the settlement day, it calculates, on the basis of the turnover of the individual SIC participants, the balance to be transferred from the settlement accounts back to the sight deposit accounts at the SNB.

SETTLEMENT FINALITY

Every payment in the SIC system is settled individually, irrevocably and with finality. A payment order is regarded as executed irrevocably and with finality as soon as the debit has been made to the settlement account.⁴ This distinguishes the SIC system from clearing systems which process payments continuously and individually but do not settle them irrevocably and with finality.

UNIFIED SETTLEMENT

The SIC system provides unified settlement – it settles both interbank payments and retail payments in Swiss francs. Interbank payments are payments between

financial institutions and third-party system payments.⁵ Retail payments mainly take the form of payment instruments such as bank transfers and direct debits. With interbank payments, both the payee and payer are a financial institution and the payments are made on behalf and for the account of the financial institutions themselves.

While interbank payments make up most of the turnover in the SIC system, retail payments dominate in terms of the number of transactions. Interbank payments are also known as large-value payments: the average amount per interbank payment transaction significantly exceeds that of retail payment transactions. Interbank payments thus represent around only 2% of all transactions but 88% of turnover. Retail payments, by contrast, make up just 12% of turnover but roughly 98% of all transactions (cf. table 2 as well as charts 3 and 4).

The share of retail payments has been steadily increasing over recent years.⁶ As retail payments are for small amounts, this trend has led to a reduction in the average transaction amount in the SIC system. In the case of both interbank and retail payments, the majority of transactions are for relatively small amounts, while a few are comparatively very large. An analysis of the average and median values illustrates this:⁷ For both types of payment, the average value significantly exceeds the median (cf. table 2 as well as charts 5 and 6).

Since it came into operation in 1987, the SIC system's unified settlement of interbank and retail payments has set Switzerland apart from other countries, where the two types of payment are generally settled in separate systems and RTGS systems are usually only used for interbank payment settlements.

⁴ In line with the special requirement for finality in the National Bank Ordinance (art. 25a para. 1 NBO), a systemically important payment system must determine the point in time after which a transaction is considered to be executed irrevocably and with finality.

⁵ Besides institutions which make payments for themselves and on behalf of their customers, third-party system operators (e.g. securities settlement systems) are also SIC system participants. The latter can directly debit or credit the SIC settlement accounts of other SIC participants (cf. chapter 3).

⁶ The relative increase in the number of retail payments is primarily due to the fact that, in 2017, PostFinance began to gradually migrate its payment transactions with other banks to the SIC system. This migration was completed in March 2021.

⁷ The median is also referred to as the middle value: 50% of transactions are for a lower amount than the median and 50% are for a higher amount.

Table 2

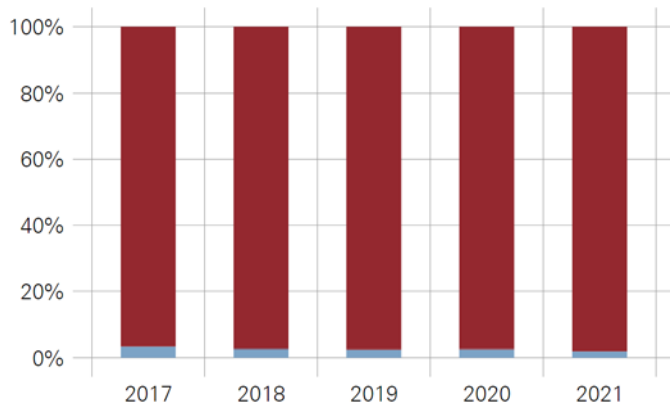
TRANSACTIONS IN THE SIC SYSTEM – INTERBANK AND RETAIL PAYMENTS

		2017	2018	2019	2020	2021
Number of transactions						
Share of interbank payments	(in %)	3.2	2.6	2.4	2.5	1.9
Share of retail payments	(in %)	96.8	97.4	97.6	97.5	98.1
Turnover						
Share of interbank payments	(in %)	91.1	89.2	88.6	89.7	88.3
Share of retail payments	(in %)	8.9	10.8	11.4	10.3	11.7
Average amount per transaction – total	(in CHF)	84 941	64 081	60 256	62 160	46 797
Average amount per transaction – interbank payments	(in CHF)	2 398 998	2 228 087	2 203 077	2 232 365	2 146 081
Average amount per transaction – retail payments	(in CHF)	7 813	7 104	7 068	6 539	5 590
Median – total	(in CHF)	355	340	334	310	282
Median – interbank payments	(in CHF)	14 087	14 184	14 820	12 109	12 277
Median – retail payments	(in CHF)	331	320	316	300	270

Chart 3

TRANSACTIONS IN THE SIC SYSTEM

Share of transactions – interbank and retail payments



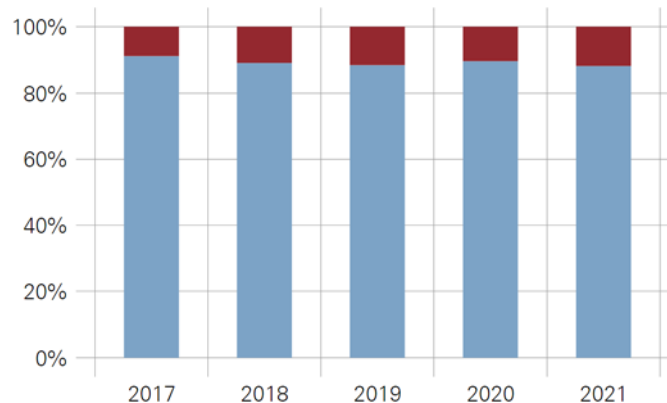
■ Interbank payments ■ Retail payments

Source(s): SNB

Chart 4

TRANSACTIONS IN THE SIC SYSTEM

Share of turnover – interbank and retail payments



■ Interbank payments ■ Retail payments

Source(s): SNB

Chart 5

TRANSACTIONS IN THE SIC SYSTEM

Median and average amount per transaction – interbank payments (in CHF)



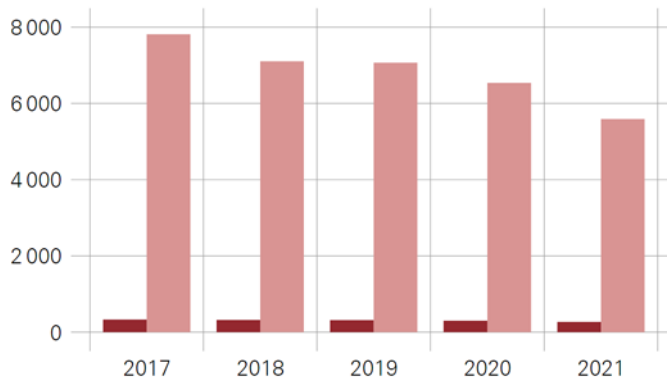
■ Median ■ Average amount per transaction

Source(s): SNB

Chart 6

TRANSACTIONS IN THE SIC SYSTEM

Median and average amount per transaction – retail payments (in CHF)



■ Median ■ Average amount per transaction

Source(s): SNB

3 PARTICIPATION

SIC ADMISSION CATEGORIES

The primary form of admission is ‘SIC participation with a sight deposit account’. SIC participants in this admission category hold a settlement account in the SIC system and a sight deposit account at the SNB. This form of admission allows participants to enter payments for themselves and on behalf of their customers in the SIC system. It is used particularly by banks, securities firms, companies with fintech licences, insurance companies and FMIs.

Another type of SIC admission is ‘SIC participation without a sight deposit account’. This admission category applies to third-party system operators which are able to effect debits and credits to the SIC settlement accounts of other SIC participants. This special form of admission is primarily used by service providers in the interbank area.

In principle, the SIC system only permits direct participation, i.e. participation is effected without another SIC participant acting as intermediary.⁸ This distinguishes the SIC system from many other RTGS systems in which only large banks participate directly, while acting as an interface for other institutions.⁹

PARTICIPANTS IN THE SIC SYSTEM – BANKS AND OTHER FINANCIAL INSTITUTIONS

Banks are the main participants in the SIC system, but other financial institutions also participate. The majority of the current 319 participants (as at end-2021) which make payments for themselves and on behalf of their customers are banks.¹⁰ The remainder are securities firms, cash processing operators, companies with fintech licences, insurance companies and FMIs (cf. chart 7). Some participants are domiciled abroad.

In addition, six third-party system operators are currently admitted to the SIC system (as at end-2021). For instance, the SIC system is linked to the SECOM securities settlement system of the central securities depository SIX SIS Ltd, whereby SIX SIS Ltd participates in the SIC system as a third-party system operator. As a result of this link, it is possible to settle the delivery and payment obligations arising from the purchase or sale of securities on a delivery-versus-payment basis. The delivery of securities takes place in SECOM, while SIX SIS Ltd as third-party system operator triggers the corresponding payment from the payer’s SIC account, which is simultaneously settled in the SIC system.

Chart 7

SIC PARTICIPANTS

Number of participants by category



Source(s): SNB

⁸ The sole exception in this regard is a FINMA-recognised clearing house that serves as a SIC system interface for its member banks.

⁹ For a general overview of direct and indirect participation, cf. Committee on Payment and Settlement Systems, 1997, *Real-time Gross Settlement Systems*, pp. 13–14, www.bis.org/cpmi/publ/d22.htm.

¹⁰ At end-2021, the 319 SIC participants had a total of 335 SIC settlement accounts in the SIC system.

PAYMENT-VERSUS-PAYMENT SETTLEMENT OF FOREIGN EXCHANGE TRANSACTIONS IN THE SIC SYSTEM

An important FMI participating in the SIC system is the Continuous Linked Settlement (CLS) payment system. CLS participants can settle foreign exchange transactions in a range of currencies via accounts at CLS Bank. CLS participants, who are simultaneously participants in the SIC system, thus have the possibility to directly transfer funds for foreign currency purchases, for example, via the SIC system to their Swiss franc accounts at CLS Bank, where the Swiss franc amount is exchanged for the traded foreign currency (payment-versus-payment settlement).

4 GOVERNANCE AND ORGANISATION

COOPERATION

The SIC system is a cooperation between the SNB and the financial centre. It is operated on behalf of the SNB by SIC Ltd. The collaboration between the SNB and SIC Ltd in the operation, maintenance and further development of the SIC system is governed by contract (cf. chapter 5). SIC Ltd is a subsidiary of SIX Group Ltd (SIX), which in turn is owned by a large number of national and international financial institutions.¹¹ The SNB has a seat on the Board of Directors of SIC Ltd, together with SIX and financial institution representatives.¹²

SIC SYSTEM AS A CONTRIBUTION TO THE SNB'S MANDATE

One of the SNB's statutory tasks is to facilitate and secure the operation of cashless payment systems (art. 5 para. 2 (c) of the National Bank Act, NBA). To this end, it acts as commissioning party and system manager of the SIC system. The SNB acts according to the principle that the core payments infrastructure must meet the highest security standards as well as banks' specific requirements regarding efficiency. The SNB, together with SIC participants, aims to continuously develop the SIC system to ensure security and efficiency on a long-term basis.

SHARED RESPONSIBILITY FOR SIC SYSTEM OPERATION, MAINTENANCE AND DEVELOPMENT

As SIC system manager, the SNB's responsibilities include setting the participation criteria (cf. chapter 3). Furthermore, the SNB administers participants' sight deposit accounts, issues settlement rules, sets the times when operations begin and end, steers the daily processes, provides the liquidity necessary for payment settlement, and is responsible for crisis management in the event of disruptions or incidents.

As system operator, SIC Ltd is in charge of operations and the technical monitoring of day-to-day business. It develops and maintains the software, manages the data files, operates the data centres and maintains the administrative rules of conduct.

¹¹ Approximately one-third of the shares of SIX are owned by the Swiss big banks. The remaining shares are held by commercial and investment banks, cantonal banks, regional and Raiffeisen banks, private banks and other banks. SIX and its group companies also own some shares themselves. The shares of SIX are distributed such that no single owner or type of bank has an absolute majority. A shareholders' agreement ensures that the ownership structure remains stable over the long term. Shares may only be transferred on a limited basis and, if the shareholder structure changes, the Board of Directors must approve any such change. Information on the breakdown of SIX shareholdings and information on the organisation, Board of Directors and Executive Board is available on the [SIX website](#).

¹² More information on SIC Ltd, including its Board of Directors and Executive Committee is available on the [SIC Ltd website](#).

5 LEGAL AND REGULATORY FRAMEWORK CONDITIONS

LEGAL FRAMEWORK

The basis for the SNB's role as commissioning party and system manager of the SIC system is its statutory task to facilitate and secure the operation of cashless payment systems (art. 5 para. 2 (c) NBA). The SNB has entrusted the operation of the SIC system to SIC Ltd. The rights and obligations of the SNB as the commissioning party and system manager, and of SIC Ltd as operator of the SIC system, are governed by contract.

The SNB decides on admission to the SIC system. The admission criteria are set out in its [Instruction sheet on admission to the SIC system and sight deposit accounts](#). As a general rule, to be admitted, participants must make a significant contribution to the fulfilment of the SNB's tasks, and their admission must not pose any major risks. The instruction sheet also describes the admission categories, the process for applying for admission and the criteria for suspension and exclusion from the SIC system.

Participation in the SIC system has a legal basis in agreements between the different parties. Technical regulations, in particular the SIC Handbook and directives (such as circulars and implementation guidelines) provide more specific detail on the areas governed by these agreements.¹³ In addition, the [Terms of Business of the SNB](#) also apply. The individual agreements between SIC participants, the SNB and SIC Ltd are subject to Swiss law.

REGULATORY FRAMEWORK

The SIC system is overseen by the SNB. Pursuant to art. 4 para. 3 of the Financial Market Infrastructure Act (FinMIA), the SIC system is not subject to authorisation or supervision by the Swiss Financial Market Supervisory Authority FINMA; it is therefore subject to the provisions of arts. 22–34 of the NBO. These requirements are derived from the [Principles for financial market infrastructures \(PFMI\)](#). According to the PFMI guidelines (cf. table 1, column 1, p. 14), 18 of the 24 principles apply to payment systems. They include requirements to regularly disclose important information.

The SNB has a dual role with respect to the SIC system. On the one hand, it commissions the operation of the SIC system and assumes the role of system manager. On the other, it oversees the SIC system. This dual mandate reflects the division of tasks between Department II and Department III within the SNB. While Department III assumes the commissioning agent and system manager roles, Department II is responsible for overseeing the SIC system.

The oversight of the SIC system is part of the SNB's statutory task to contribute to the stability of the financial system. The NBA (art. 5 para 2 (e) and arts. 19–21) requires the SNB to oversee systemically important central counterparties, central securities depositories and payment systems in accordance with art. 22 of the FinMIA. The NBO lays down the details of the oversight of systemically important FMIs.

¹³ The technical regulations are available to participants on the SIC Ltd extranet.

6 TECHNICAL FEATURES

OPERATING HOURS

The SIC system processes payments on weekdays on an almost round-the-clock basis. It is only closed for approximately half an hour at about 18.15 in order for the entries to be closed for the previous value date and to start the new value date. At the weekend it is closed for a longer period of time from Saturday lunchtime (12.00) to Sunday evening (18.00). This closure period primarily serves as a maintenance window, during which work can be carried out, in particular, on the technical infrastructure.

The SIC system has five value dates a week. The Tuesday to Friday value dates begin at about 18.40 on the previous calendar day and end at about 18.15. The value date Monday begins on Friday at about 18.40 and ends on Monday at about 18.15. It therefore includes the aforementioned maintenance window from Saturday lunchtime to Sunday evening. Chart 8 illustrates a week in the SIC system, including the sequence of value dates.

VALUE DATE PROCESS

The value date begins with start-of-day processing: SIC participants' sight deposits are transferred from their SNB sight deposit accounts to their settlement accounts in the SIC system. The system is then ready for the settlement of participants' payments. All payments

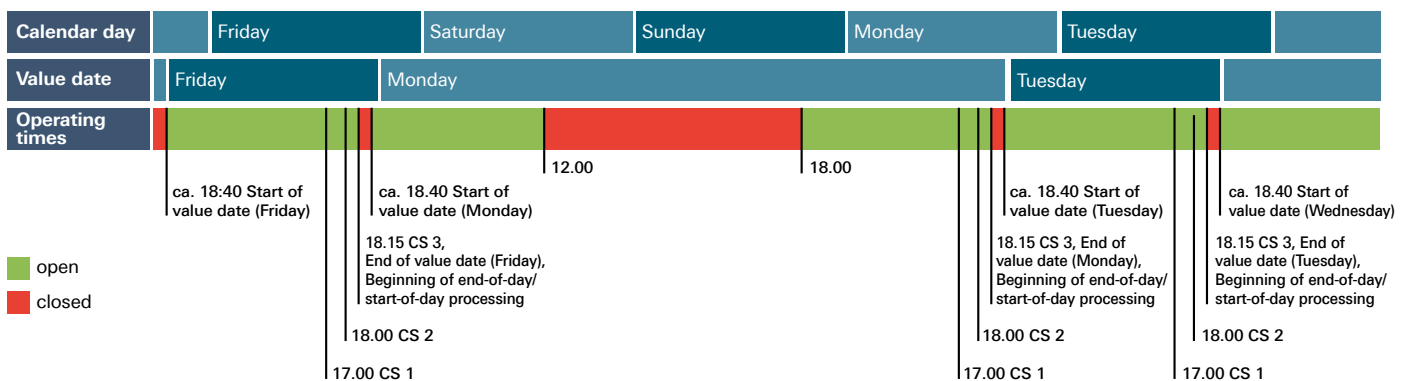
entered and covered by 17.00 are settled on the same value date.

Towards the end of the value date, there are three clearing stops (CS) which allow an orderly end of day for each type of payment (cf. chart 11). While all payment types can be submitted until clearing stop 1 at 17.00, only interbank payments are admitted between clearing stop 1 and clearing stop 2 at 18.00. In the interval between clearing stops 1 and 2, SIC participants can procure liquidity on the money market from other financial market participants to settle any outstanding payments. Between 18.00 and 18.15 (i.e. between clearing stops 2 and 3), participants also have the opportunity to obtain liquidity from the SNB via special-rate repo transactions (the 'liquidity-shortage financing facility') in order to settle any remaining outstanding payments.¹⁴ The value date ends at about 18.15 immediately after clearing stop 3, and end-of-day processing begins. The balances on participants' SIC settlement accounts are transferred to the corresponding sight deposit accounts.

Liquidity drawn under the liquidity-shortage financing facility must be repaid with any applicable interest on the following bank working day (overnight). In addition to offering the liquidity-shortage financing facility, the SNB also facilitates payment transactions by providing SIC participants with interest-free liquidity during the

Chart 8

A WEEK IN THE SIC SYSTEM



¹⁴ The SNB invites counterparties to draw liquidity under the liquidity-shortage financing facility on bank working days. The tender procedure lasts 15 minutes from clearing stop 2 (18.00).

SIC day through repo transactions (the ‘intraday facility’). SIC participants can notify the SNB of their intraday liquidity requirements between 07.30 and 17.55 on the preceding calendar day. Between 07.30 and 16.45 on the current value date, SIC participants have another opportunity to obtain additional intraday liquidity. The funds obtained must be repaid to the SNB by the end of the same value date at the latest. In this way, the sight deposit balances at the end of the day are not affected. The SNB charges penalty interest in the event of late repayment.

SETTLEMENT ALGORITHM

Payments in the SIC system are settled in order of payment remittance, with an algorithm using prioritisation and a wait file helping to prevent gridlocks and reduce the need for liquidity.

A new submitted payment is first placed in the wait file. If there is sufficient cover in the remitting party’s SIC settlement account, the payment order only remains there for a few seconds and is then settled immediately. If cover is insufficient, the payment remains in the wait file until sufficient funds become available. SIC participants can manage the settlement sequence of their payments by assigning a priority to a payment.

As a first step, the highest priority in the wait file is given to the next payment to be settled for each SIC settlement account. If a participant has several payment orders with identical priority in the wait file, the payment submitted first will be selected. This payment will be settled provided that the participant has sufficient cover.¹⁵

Payments in the wait file can be revoked by the remitting party at any time up to clearing stop 1 (17.00) without the consent of the recipient. Payments remaining in the wait file at the end of the settlement day due to insufficient cover are automatically deleted and must be resubmitted by the remitting party. The designated recipient of unsettled payments is in this case entitled to charge the remitting party a penalty tax.

COMMUNICATION AND REPORTING STANDARDS

Participants have the choice between the proprietary Messaging Gateway or SWIFT¹⁶ as their default access channel to the SIC system. Depending on the channel, payment instructions are transmitted either via the closed Finance IPNet (Messaging Gateway) network or via the internationally widespread SWIFT network, SWIFTNet. The standard for payment messages in the SIC system is ISO 20022 (version 2009).

Via the web portal, SIC participants can also carry out certain tasks such as checking the current balance on a SIC settlement account or altering the priority of a payment in the wait queue.

¹⁵ If wait files can be processed on more than one settlement account, the order in which payments are processed is determined by the time at which the payment order was entered. For reasons of efficiency, the SIC system tries to settle not only the payment that has been in the wait file the longest, but several consecutive payments at the same time. If all payments in the wait file have been settled, or if there is insufficient cover, the next wait file with the earliest remitted payment order is selected and settled.

¹⁶ Society for Worldwide Interbank Financial Telecommunication.

Disclosure Report on the SIC system¹⁷

As a systemically important financial market infrastructure (FMI), the SIC system is subject to the CPMI-IOSCO Principles for financial market infrastructures (PFMI).¹⁸ The Disclosure Report, together with the first section of this publication ‘Report on the SIC system’, provides information on the SIC payment system in accordance with the provisions of the National Bank Ordinance (NBO) and the PFMI. With this publication, the Swiss National Bank (Department III) is complying with PFMI principle 23 and art. 23a para. 2 NBO.

The structure of the Disclosure Report is based on the CPMI-IOSCO guidelines.¹⁹ Chapter 1 lists the main developments to the SIC system in 2021; chapter 2 explains how each of the relevant CPMI-IOSCO principles is addressed in the SIC system; and chapter 3 provides a list of publicly available information on the SIC system. Content from the first section of this publication (‘Report on the SIC system’) is repeated or set out in more detail where appropriate for the disclosure.

Institutions responsible for FMIs: Swiss National Bank (Department III) and SIX Interbank Clearing Ltd

Jurisdiction in which the FMI operates: Switzerland

Authorities which regulate, monitor or oversee the FMI: Oversight by the SNB (Department II) in accordance with the Financial Market Infrastructure Act (FinMIA), the National Bank Act (NBA) and the National Bank Ordinance (NBO)

Institution responsible for Disclosure Report: SNB (Department III)

Publication date of this Disclosure Report: May 2022

The Disclosure Report is published as part of ‘The Swiss Interbank Clearing (SIC) payment system’ report and is available here: https://snbwebsite/en/i/about/paytrans/id/paytrans_swiss_interbank_clearing

Contact addresses for further information: SNB (Department III): sbsic.ops@snb.ch, SIX Interbank Clearing Ltd: operations@six-group.com

¹⁷ Disclaimer: This is an English translation of a German original. Only the German original text is authoritative.

¹⁸ Committee on Payment and Settlement Systems (since 2014 Committee on Payments and Market Infrastructures, CPMI) and Technical Committee of the International Organization of Securities Commissions (April 2012), *Principles for financial market infrastructures*, www.bis.org/cpmi/publ/d101a.pdf.

¹⁹ Committee on Payment and Settlement Systems (since 2014 Committee on Payments and Market Infrastructures, CPMI) and Technical Committee of the International Organization of Securities Commissions (December 2012), *Principles for financial market infrastructures: Disclosure framework and Assessment methodology*, www.bis.org/cpmi/publ/d106.pdf.

1 MOST IMPORTANT DEVELOPMENTS IN 2021

The last Disclosure Report was published on 24 February 2021. The following important developments took place in 2021.

SIC5 PROJECT

In 2021, the SNB and SIX Interbank Clearing Ltd continued work on the SIC5 project initiated in 2020 to further develop the SIC system. Among other things, SIC5 allows the settlement of instant payments, i.e. cashless retail payments that are processed around the clock with the amount being made available for use by the final recipient within seconds. The new SIC5 platform is expected to be launched at the end of 2023. The SIC5 project is being developed in close collaboration with the SIC participants. As the commissioning party and system manager of the SIC system, in March 2021 the SNB decided – after consultation with the SIC participants – to make the acceptance of instant payments a compulsory requirement. This requirement is compulsory for all SIC participants active in retail payment transactions and will initially be introduced for the largest financial institutions in retail payment transactions from mid-2024.

SECURE SWISS FINANCE NETWORK

In 2021, work continued on the project launched jointly by the SNB and SIX in 2019 to develop a secure network for the Swiss financial centre (Secure Swiss Finance Network, SSFN). The SSFN communication network went into operation for the SIC system test environments in November 2021. A decision on the connection to the productive environment of the SIC system will be made during 2022. The existing communication link to the SIC system is thus to be gradually replaced by the SSFN.

ENDPOINT SECURITY TO REDUCE FRAUD RISK

The Committee on Payments and Market Infrastructures (CPMI) published a strategy in 2018 for reducing the risk of wholesale payments fraud related to endpoint security. Endpoint security in payment transactions means the protection of all devices, applications and systems used to submit payment messages against unauthorised third-party access. The SNB has defined measures on the basis of this strategy. One key measure is a catalogue of requirements, which is to be communicated to the SIC participants in the course of 2022. The operational and

technical requirements contained in the catalogue are intended to increase the protection of the endpoints with regard to payment messages. The new catalogue of requirements supplements requirements already in place and expands the SIC participants' obligation to provide information to the SNB.

INTEGRATION OF POSTFINANCE PAYMENT TRANSACTIONS INTO SIC SYSTEM

In 2017, PostFinance Ltd began migrating its bilateral payment transactions with other financial institutions into the SIC system. The migration was completed at the end of March 2021. The relative increase in the number of retail payments in the SIC system since 2017 is primarily attributable to this migration (cf. table 2).

CHANGE TO PRICING MODEL

The increased transaction volume in recent years has allowed for a reduction in the prices in the SIC system. The increase in transaction volume is primarily attributable to the integration of PostFinance's payment transactions into the SIC system. With effect from 1 January 2021, the prices for internal customer payments have been set using a degressive scale at all volume levels. The decreases in the price per transaction thus now go through to the tenth and final level, and not just to the second level as before. The volume levels are based on the number of transactions carried out and apply per month and participant. By contrast, the prices for gateways and for the admission of new participants have been raised.

REVISION OF SIC HANDBOOKS

The 'Swiss RTGS Handbook', the 'Swiss Payments Rulebook – SIC payment system' and the 'Swiss Payments Rulebook – euroSIC payment system', all previously applicable to SIC and euroSIC, were revised with effect from 1 July 2021 and combined into two versions of a new handbook: the 'SIC Handbook' and 'euroSIC Handbook'.

2 APPLICATION OF THE CPMI-IOSCO PRINCIPLES

According to the [PFMI guidelines \(cf. table 1, p. 14\)](#), 18 of the 24 principles apply to payment systems. The PFMI are implemented in Switzerland through provisions in the Financial Market Infrastructure Act (FinMIA), the Financial Market Infrastructure Ordinance (FinMIO) and the National Bank Ordinance (NBO). Pursuant to art. 4 para. 3 FinMIA, the SIC system is not subject to authorisation or supervision by the Swiss Financial Market Supervisory Authority FINMA; it is therefore subject to the provisions of arts. 22–34 NBO.

Principle 1: Legal basis

A financial market infrastructure (FMI) should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Depending on the principle in question, the SNB and/or SIX Interbank Clearing Ltd (SIC Ltd) is/are responsible for ensuring compliance with the requirements.

Explanations of how each of the 18 relevant CPMI-IOSCO principles are applied to the SIC system are set out on the following pages.

Participation in the SIC system is based on bilateral agreements between the SIC participant and the SNB on the one hand, and between the SIC participant and SIC Ltd on the other. These agreements are supplemented with technical regulations, namely the SIC Handbook. The SNB's 'Terms of business' also apply and are published on the SNB website at www.snb.ch, [The SNB/Legal Basis/Terms of Business](#).

These documents govern the contractual relations between the SNB, SIC Ltd and the SIC participants, and specify their rights and obligations. The SIC contracts, i.e. the individual agreements between SIC participants, the SNB and SIC Ltd, are subject to Swiss law. The place of jurisdiction is Zurich, Switzerland.

Pursuant to art. 4 para. 3 FinMIA, the SIC system is not subject to FINMA authorisation or supervision. It is subject to the provisions of arts. 22–34 NBO, through which the PFMI are implemented for systemically important FMIs in Switzerland.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. [...]

The operation of the SIC system has been entrusted to SIC Ltd, a wholly-owned subsidiary of SIX Group Ltd (SIX). SIX is an unlisted joint-stock company owned by a large number of financial institutions. Ownership is spread across a broad range of shareholders, thus ruling out the possibility of any individual category of bank having an absolute majority. Any change to the shareholder structure would require the approval of the Board of Directors of SIX. More information on the organisation, shareholders, Board of Directors and Executive Board can be found on the [SIX website](#).

The provision of services for the SIC system is laid down in an agreement between the SNB and SIC Ltd. Furthermore, the SNB has a seat on the Board of Directors of SIC Ltd. The SNB is also in regular contact with SIX. The division of tasks between the SNB and SIC Ltd is described in [chapter 4](#) of the first section of this publication. More information on the Board of Directors and the Executive Committee, as well as the Annual Report, can be found on the [SIC Ltd website](#).

SIC Ltd runs a comprehensive risk-management operation and reports on it regularly to the SNB in accordance with art. 36 NBO. SIC Ltd's risk management operation is reviewed and updated annually by its Executive Committee and approved by its Board of Directors.

As the system operator, SIC Ltd is not exposed to direct credit risk in the event of participant default (other than loss of revenue). The SNB provides intraday and liquidity-shortage financing facilities only against collateral (cf. principle 5).

In addition to the FMI's credit risk covered by principle 4, payment systems also entail credit risk between participants, as well as the risk of default by the settlement institution in the case of indirect participation. In the SIC system there are no credit risks between SIC participants since all payments are settled individually, irrevocably and with finality. The SIC system reduces credit risk vis-à-vis settlement institutions by minimising indirect participation and providing direct access for a wide range of participants.²⁰

²⁰ In principle, the SIC system only permits direct participation. This means that participation is effected without another SIC participant acting as intermediary. The sole exception in this regard is a FINMA-recognised clearing house that serves as a SIC system interface for its member banks.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

The SNB gives SIC participants the possibility of using intraday and liquidity-shortage financing facilities via the SIX Repo Ltd trading platform. The SNB provides these facilities only against liquid, high-quality collateral. Procedures for this, and information on eligible collateral, are set out in the 'Guidelines of the Swiss National Bank on Monetary Policy Instruments' and the relevant instruction sheets, published on the SNB website at www.snb.ch, [The SNB/Legal Basis/Guidelines and regulations](#).

The SIC system only executes payments if adequate cover is available. If this condition is not met, the SIC system places the payment in a wait file until adequate cover is available. This means that SIC Ltd is not exposed to liquidity risk through the settlement of transactions in the SIC system.

In addition to the FMI's liquidity risk addressed by principle 7, payment systems also entail the risk that a system participant does not have enough liquidity to meet its financial obligations when they fall due (or at best only later). Various measures help to keep the liquidity risk for SIC system participants and the danger of a system gridlock as low as possible.

First, participants can access different sources of liquidity, which allows them to react to fluctuating liquidity situations quickly and flexibly. The SNB provides SIC participants with interest-free liquidity via the intraday facility. This liquidity must be repaid to the SNB by the end of the same value date at the latest. Through the liquidity-shortage financing facility, the SNB provides SIC participants with call money to enable them to bridge short-term liquidity bottlenecks. Both facilities are offered only against collateral (repo transactions).

Second, the SIC system supports the efficient use and active management of the available liquidity. Participants are not only able to check their account balances, incoming and outgoing payments and payments pending in the wait file at any time, they can also manage the wait file and reserve liquidity for certain payments.

Furthermore, system-wide liquidity requirements are reduced by dividing amounts and applying the settlement algorithm. The SIC system rules require participants to split payments in excess of CHF 100 million into separate smaller tranches wherever possible. This helps to prevent potential gridlocks in the wait file. The settlement algorithm in the SIC system includes a mechanism to resolve system-wide gridlocks. This checks whether there are any pending counterpayments from the receiving participant to the sending participant at the front of the wait file. If this is the case, and if sufficient cover is available, the payments are offset simultaneously and on a bilateral basis.

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

The SIC system is a real-time gross settlement system (RTGS system). This means payment orders are executed individually, irrevocably and with finality in central bank money in real time through the participants' SIC settlement accounts (provided that sufficient cover is available).

The SIC system only processes payments using balances on sight deposit accounts at the SNB, i.e. with central bank money via the SIC settlement accounts.

According to the PFMI (cf. table 1, p. 14), this principle applies to payment systems. It is implemented in Switzerland via art. 25b NBO, but applies to SIX SIS Ltd as the operator of the securities settlement system SECOM rather than to the SIC system.

SIC Ltd and the SNB have established procedures for managing the default of one or more SIC participants. The SNB decides on access to the SIC system and on the suspension or exclusion of a participant. The SNB may terminate access to the SIC system with immediate effect (exclusion) or temporarily exclude a participant (suspension) under the following circumstances: if the participant no longer fulfils the conditions for participation; if insolvency law measures have been imposed against the participant; if the participant is in material breach of either the contractual provisions or the associated regulations; or if a case arises that the SNB assesses as posing a particular risk to the SIC system.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets.

An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

SIC Ltd's business risks are identified in its recovery plan. The procedures and key indicators have been defined. These indicators are continually monitored and the defined measures can, if needed, be put into action promptly.

SIC Ltd holds sufficient assets to function as a going concern for at least six months in accordance with art. 31 para. 2 NBO. Should further assets be required, the measures possible are described in the recovery plan and can be implemented without delay.

The assets in the SIC system are exclusively deposits held by SIC participants on their sight deposit accounts at the SNB, and are thus central bank money. Hence, the risk of loss for participants on their assets in the SIC system is reduced to a minimum.

As regards the risk for the SIC system in respect of its own assets, a distinction needs to be drawn between the SNB as commissioning party and SIC Ltd as operator. SIC Ltd's assets mainly comprise liquid assets, short-term claims on SIC participants, and intangible assets.

An operational disruption or indeed a temporary failure of the SIC system would greatly impair the settlement of cashless payment transactions in Swiss francs. SIC Ltd and the SNB have defined various procedures and tools to ensure that, in the event of disruption or failure, normal operations can be recovered and resumed as quickly as possible. A distinction is made between disruptions affecting one SIC participant and those that affect the SIC system as a whole.

The SIC system itself has a multi-layer backup and recovery process and a 'two data centre' strategy (hot standby) to ensure the continuity of operations in various different scenarios. The second instance of the SIC system in the backup centre (hot standby) can be activated at any time or – if internet access is impossible, for example – batch processing can be started (miniSIC). The changeover to the backup centre and batch processing are practised annually, the latter with system-critical SIC participants and SIC participants connected via Finance IPNet (Messaging Gateway, cf. principle 22).²¹ SIC Ltd tests the functionality of the

²¹ The SIC Handbook defines system-critical participants as being those financial institutions and third-party computer centres or service bureaux which accounted for a share of at least 5% of SIC turnover (excluding the SNB) during all of the preceding three years.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

technical processes at least once a year. As SIC system manager, the SNB is informed of the test results.

In the event of failure of the SIC system, the SNB as system manager is also responsible for crisis management across the Swiss financial centre within the framework of the Interbank Alarm and Crisis Management Organisation (IAKO), and it defines appropriate tools for this purpose. Alongside the SNB and FINMA, the SIC participants deemed system-critical and those represented on SIC Ltd's Board of Directors participate in IAKO. Regular exercises are conducted to test the functionality of IAKO.

In addition to the backup and recovery process at the system level, in the event of disruptions or failure affecting individual SIC participants there is the possibility of submitting and receiving transactions via a backup data carrier. Furthermore, as system manager, the SNB can directly access the SIC system acting on behalf of the SIC participant. Generally, the SIC system and its participant connections are actively monitored on both the technical and the operational level during operating hours.

The SNB decides the criteria for access to SNB sight deposit accounts and the SIC system. The participation requirements are explained in detail in the 'Instruction sheet on admission to the SIC system and sight deposit accounts' and in the SNB's 'Terms of Business', which are both available on the SNB website at www.snb.ch, [Legal Basis/Terms of Business](#).

SIC participation must be effected directly, i.e. without another SIC participant acting as intermediary. The sole exception in this regard is participation in the SIC system via a FINMA-recognised clearing house that serves as a SIC system interface for its member banks. Both the clearing house itself and the participants affiliated to it have a banking licence and are thus subject to FINMA supervision.

The SIC system, which is steered by the SNB, is a key element in the Swiss financial centre. The SNB, SIX and representatives of other financial institutions have seats on SIC Ltd's Board of Directors. Thanks to the involvement of the participants and the SNB, the efficiency and effectiveness of the system can be ensured and developed on an ongoing basis. Through their activities, other financial market bodies (such as the Swiss Payments Council, the Payments Committee Switzerland as well as the Project and IT Process Steering Committee) contribute to market requirements being taken into account.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Participants have the choice between the proprietary Messaging Gateway or SWIFT as their default access channel. Depending on the channel, messages are transmitted either via the closed Finance IPNet (Messaging Gateway) network or via the internationally widespread SWIFT network, SWIFTNet. ISO 20022 (version 2009) is the standard for payment messages.

There is an online portal for checking settlement accounts. Data carriers and SIX's file transfer service can also be used as access channels in an emergency.

The SIX Advanced Security Server (SASS) is used to protect the integrity of incoming and outgoing messages in the SIC system. This is a Swiss solution developed for the SIC system to provide the cryptographic components for message encryption and authentication. It has been in use since April 2017 and meets the highest requirements for unchangeable data and secure transmission of messages between SIC participants and the SIC system. For SWIFTNet participants, the SWIFT security requirements apply to transmission through to the interface with SIC Ltd.

More information on the system interfaces and interbank security systems used in the SIC system can be found on the [SIC Ltd website](#) and in the SIC Handbook available to SIC participants.

Conditions for participation in SNB sight deposit accounts and the SIC system are detailed in the 'Instruction sheet on admission to the SIC system and sight deposit accounts', published on the SNB website www.snb.ch, [Payment Transactions/Business operations](#).

All SIC participants can access the full range of SIC documents on the SIC Ltd extranet. The most important document for SIC participants is the SIC Handbook.

The respective figures for transactions and turnover in the SIC system are published on the [SNB's data portal](#) and updated on a regular basis. The transaction prices for the SIC system are available on the [SIC Ltd website](#).

3 PUBLICLY AVAILABLE INFORMATION

The most important publicly available information on the SIC system is listed here.

- [Payment transactions via SIC, SNB data portal](#)
- [Instruction sheet on admission to the SIC system and sight deposit accounts](#)
- [Instruction sheet on the liquidity-shortage financing facility \(special-rate repo transactions\)](#)
- [Instruction sheet on the intraday facility](#)
- [SIX Group's SIC system webpage](#)
- [The SNB's SIC system webpage](#)