



RIX, third four- month period

September – December

Payments Department

2018

Aim

The aim of this report is to briefly describe RIX, the Riksbank's system for the transfer of funds in accounts, and to report statistics concerning payments, collateral, incidents, changes in participants and other events affecting RIX. The report is primarily aimed at participants in the RIX system.

The report is published three times per year. Other information that may be relevant to the RIX system's participants will be regularly communicated via email and in meetings. Statistics on payments are also made available in weekly reports and in the Riksbank's annual report.

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Abbreviations

RIX	The Riksbank's system for the transfer of funds in accounts
QCMS	The Riksbank's system for the management of collateral for loans in RIX
LOM	Liquidity Optimization Mechanism
RTM	Real-Time Mechanism
SWIFT	Society for Worldwide Interbank Financial Telecommunications
FSPOS	Finansiella Sektorns Privat-Offentliga Samverkan (Group for private-public cooperation in the financial sector)
SCP	Scandinavian Cash Pool
REC	Receiver Code
IMM day	International Monetary Market day
CSD	Central Securities Depository

The four-month period in brief

- Technical availability for the period was 99.07 per cent for the whole year 2018 it was 99.70 per cent
- Average turnover: SEK 566 billion
- Highest turnover: SEK 975 billion
- Lowest turnover: SEK 351 billion
- Average number of transfers 21,864 (increased every four-month period since the second period of 2010, with exception for first period of 2015)
- Highest number of transfers 33,310
- Lowest number of transfers 15,826
- Mean value of pledged assets: SEK 181 billion¹
- Accumulated cost coverage for first, second and third four-month periods of 2018: 105 per cent
- One new RIX participant has joined. There are currently 34 participants in RIX

¹ Estimated as a mean value per day, calculated using the mean value every hour for each day respectively.

KAPITEL 1 – The RIX payment system

General description

The RIX payment system is the Riksbank's system for the transfer of funds in accounts and is one of the major hubs of the Swedish financial system. RIX provides banks, clearing houses and several other market participants with the opportunity to make transfers to each other in a manner that does not entail credit or liquidity risks. The transfers may concern the participants' own financial transactions, transactions made on behalf of their customers or transactions to or from the Riksbank.

Almost all of the payments in Swedish kronor that are not made internally within an individual bank are handled in the RIX system in some form. In order to increase the efficiency of the payment system, the Riksbank adds liquidity by granting credit against collateral. This collateral mainly consists of securities but may also be foreign currency.

As RIX is of decisive importance to the financial system, its availability is highly important. The Riksbank has set, as a target, that the RIX system is to be available for at least 99.85 per cent of its opening hours. RIX must also match its clients' demands. Consequently, the target set by the Riksbank is that at least 80 per cent of participants are to be satisfied with RIX. This is measured through surveys.

RIX is entirely funded through fees from the participants. As the Riksbank is also a participant in RIX, the Riksbank itself pays a fee, according to the same principles that apply to the other participants.

Participants in RIX

An institution that fulfils the Riksbank's criteria can apply to become a participant in RIX. A RIX participant can decide to act in two different roles, either as *Account Holder* or as *Agent*.

An *Account Holder* may choose between either sending funds settlement instructions and receiving information from the system itself or wholly or partly using an *Authorised Settlement Agent* which has been approved by the Riksbank for this function. During the four-month period, Netfonds has joined as a new participant in RIX. In total, there are currently 34 RIX participants.

RIX participants at the end of the third four-month period, 2018

Avanza Bank
 Bankgirot
 BlueStep Bank
 BNP Paribas Fortis
 Citibank
 CLS Bank
 Cr dit Agricole
 Danske Bank
 DNB Bank
 EuroCCP
 Euroclear Sweden
 FOREX Bank
 JAK Medlemsbank
 Klarna Bank
 Kommuninvest
 Landshypotek
 LCH
 L nsf rs kringar Bank
 Marginalen Bank
 Nasdaq Clearing
 Netfonds
 Nordea Bank
 Nordnet Bank
 Sveriges Riksbank
 Swedish National Debt Office
 SBAB Bank
 SEB
 Skandiabanken
 Sparbanken Syd
 Svea Bank
 Svenska Handelsbanken
 Swedbank
 VP Securities
  landsbanken

RIX terms and conditions

The relationship between the Riksbank and the RIX participants is regulated by the *Terms and Conditions for RIX and Monetary Policy Instruments (the Terms and Conditions)*. The *Terms and Conditions* are made up of both contractual conditions and provisions for monetary policy instruments.

The *Terms and Conditions* apply to RIX as well as to the framework for the implementation of monetary policy because the systems interact in a number of ways. The Riksbank's ability to influence the overnight interest rate ultimately depends on the Riksbank being in a position to set the terms and the extent of overnight deposits and lending. Moreover, the requirements concerning collateral in RIX are partly the same as those for monetary policy instruments.

For further information, see:

<https://www.riksbank.se/en-gb/payments--cash/the-payment-system---rix/conditions-and-instructions/>

RIX timetable

The RIX system is open on all banking days. On half-days, the RIX system uses normal opening hours. RIX's opening hours follow a specific timetable. The timetable below shows how a day at RIX includes various events and is divided into various periods. Under special circumstances, the Riksbank can decide to extend opening hours.

RIX timetable	
06:30–07:00	Start of settlement day
07:00	Opening of settlement procedures
11:00	Cut-off time for bilateral limits
16:00	Closure of settlement procedures for PRT LOM
16:15	Closure of settlement procedures for other LOM
16:30	First final point for overnight loans
17:00	Closure of settlement day
17:10	Opening of new settlement day
18:00–06:30	Temporary closure of settlement day

Continuity

The Riksbank works to ensure that the RIX system is resilient. If a disruption occurs, the objective is for it to have the smallest impact possible. A number of different activities are therefore conducted each year such as: analysis of operational risks including cybersecurity; further development of contingency procedures; and the implementation of both internal exercises and exercises involving the RIX participants. In September, the year's third major exercise in manual contingency routines was held with the participation of all RIX participants. The objective of the exercises is to achieve a good ability to limit negative consequences, exercise cooperation with others and take the right decisions in a crisis. The exercise was assessed to have worked well.

The Riksbank also participates in FSPOS, a group for private-public cooperation in the financial sector. This is a voluntary forum with members from both the public and private segments of the Swedish financial sector. FSPOS's business idea is for FSPOS to collaborate, exercise, chart and share information in order to strengthen the financial sector's ability to cope with threats and manage crises, and thereby safeguard society. The Riksbank, together with several of the participants, has during this four-month period taken part in a cooperation exercise with

the aim of working together to deal with and face cyber threats.

Collateral in RIX

The Riksbank grants credit over the day and overnight. This lending takes place against collateral that has been approved by the Riksbank.

Eligible collateral

The criteria that collateral must fulfil to be approved as eligible for credit in RIX are specified in *Annex H4, Collateral Instructions* in the *Terms and Conditions*.

In general, eligible collateral consists of securities issued by a government, central bank, municipality, other public body, credit institution or company with a satisfactory credit rating. Furthermore, it is required that such securities are issued in an approved currency, that the registered office of the issuer is located in an approved state and that there is an established arrangement (link) between Sweden and the CSD in which the security is issued.

Certain foreign currencies may be used as collateral under the framework of the Scandinavian Cash Pool (SCP) or through payments via Deutsche Bundesbank.

The Riksbank regularly tests whether certain securities issued by the Swedish government, Swedish municipalities and county councils, as well as certain covered bonds, are eligible as collateral. For other securities, examination and approval by the Riksbank does not take place until a RIX participant has submitted an application.

A participant's credit limit is calculated as the sum of pledged collateral after haircut. Different types of security have different haircuts.

For further information, see:
<https://www.riksbank.se/globalassets/media/rix/engelska/2018/terms-and-conditions-for-rix-and-monetary-policy-instruments---annex-h4---collateral-instructions.pdf>

KAPITEL 2 – Operative goals, outcomes and administration

The RIX system is evaluated on the basis of three operative goals: technical availability, cost coverage and customer satisfaction.

Technical availability

The goal for technical availability is that the RIX system should be able to manage payments for 99.85 per cent of the time it is open.

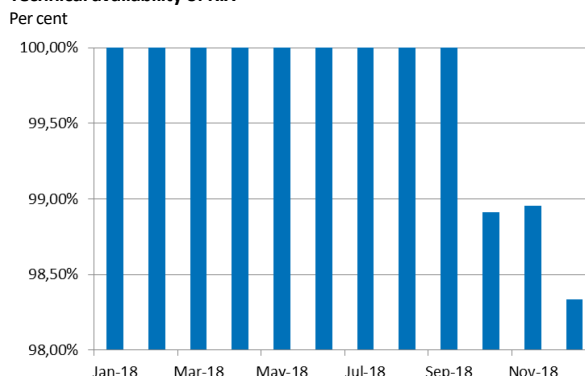
Technical availability of the RIX system during the third four-month period of 2018 was 99.70 per cent and for the whole year 2018 it was 99.70 per cent.

Incidents

Incidents are divided into four categories: Application, Software, Participant and Configuration. The Application category covers incidents that affects systems that have an interface that interacts with a user, for example RIX Online and RIX EMS. The Software category covers other software errors, such as the Riksbank’s log-in software. The Participant category covers incidents that occur at a RIX participant but in some way affect the Riksbank’s RIX system operations. The Configuration category covers incidents caused by changes or the lack of changes in applications.

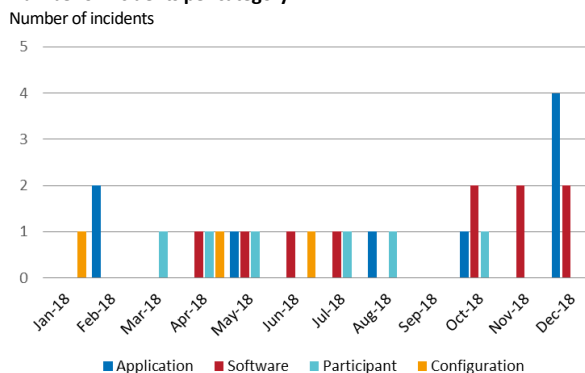
During the period, five incidents occurred which were linked to the category application, they had an impact on the log-in to RIX Online. One participant incident occurred that led to a number of transactions being completed somewhat later than planned. One of the incidents under software led to problems in communication between QCMS and RIX. The remaining five incidents under the category software affected availability and meant that RIX could not execute payments for a total of 458 minutes. A more detailed summary of these incidents is provided to the participants separately by the Riksbank. No incidents occurred in the category of configuration.

Technical availability of RIX



Source: Sveriges Riksbank

Number of incidents per category



Source: Sveriges Riksbank

Cost coverage

The Riksbank's provision of RIX is to take place according to the principle of full cost coverage. The requirement for full cost coverage is measured over a three year period, in which revenues are to correspond to 100 per cent of costs +/- 10 per cent. This means that the Riksbank charges the RIX participants fees to cover its costs. In addition to costs for personnel and systems, these also include allocated expenditure for premises, property management, security and surveillance etc. As the Riksbank itself is a participant in RIX, the Riksbank pays a fee according to the same principle of expenditure as applies to the other participants. As of 1 March 2018, the fee per payment order was cut by SEK 0.5 and the fixed monthly fee per participant was cut by SEK 5,000.

Cost coverage over the last three four-month periods is 105 per cent.

The RIX Division's revenue and allocated expenditure

Million SEK, accumulated T1, T2 and T3, 2018

	T1, T2 and T3 2018
Revenue	SEK 86.4 million
Distributed costs	SEK 82.5 million
Cost coverage	105%

Source: Sveriges Riksbank

Fees applying from 1 March 2018

Fees in SEK

Fee per transfer notification	4.0
Fixed monthly fee per participant	55,000
Fixed monthly fee for participants able to utilise the right to credit through grant of pledge	20,000
Additional fee divided among participants with domestic turnover exceeding one billion kronor	3,000,000
Entry fee for new participants	125,000
The monthly fee for provision of central administration of access rights (participants with 1-10 users)	1,000
The monthly fee for provision of central administration of access rights (participants with more than 10 users)	3,000

Source: Sveriges Riksbank

Customer satisfaction

The target for customer satisfaction is that at least 80 per cent of the participants, representing at least 70 per cent of the payment volume, are satisfied or very satisfied with the RIX system. This is measured by a survey that assesses how users perceive the Riksbank's services.

In the latest customer survey, conducted during the first four-month period of 2017, the customer satisfaction target was achieved. As a general assessment of RIX, 100% of the 51 respondents (26 of 28 participants) said that they were satisfied or very satisfied with the system.

Administration

RIX

RIX-RTGS: Updating the operative system is now complete, as is the connected upgrade of the database, the software for message processing, and several other components of the platform.

RIX-EMS: V3 has been launched excluding the SMS module, this is expected to have been tested and to be ready for launch during 2019 Q1.

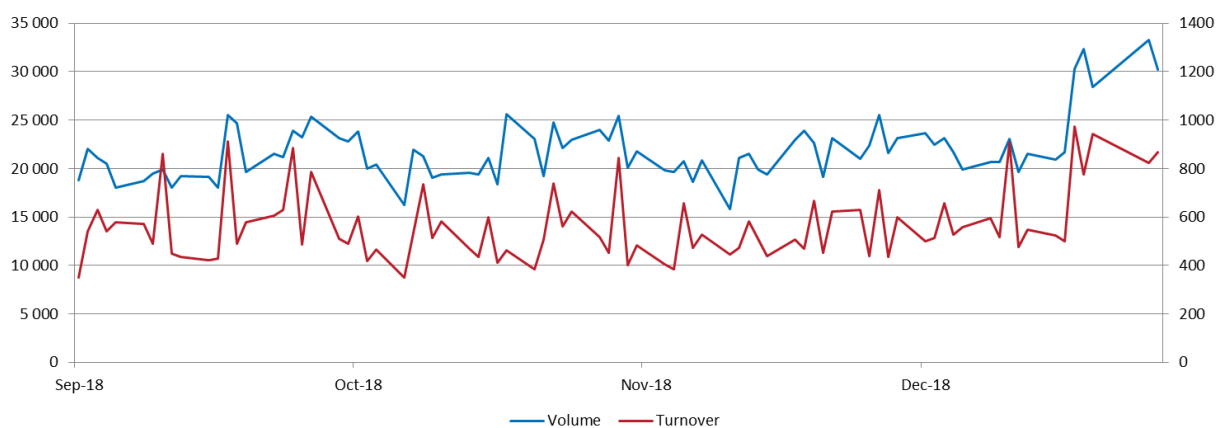
QCMS

During 2018, QCMS has been upgraded with a number of small, planned patches.

KAPITEL 3 – Statistics on payments in RIX

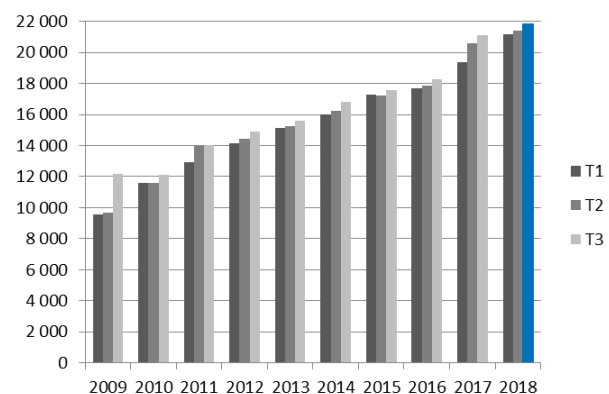
Number of transfers and turnover

Number of transfers and SEK billion Source: Sveriges Riksbank



Average number of transfers per day

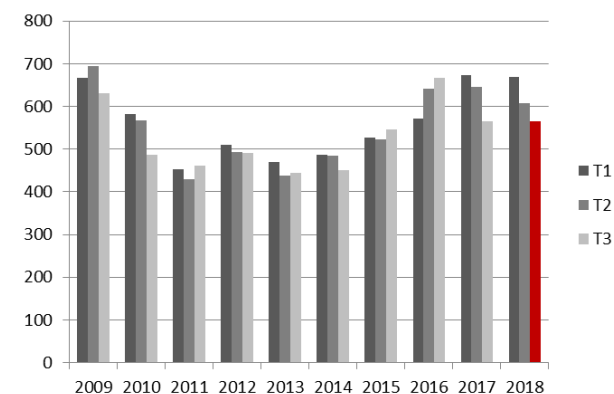
Number of transfers



Source: Sveriges Riksbank

Average daily turnover

SEK billion



Source: Sveriges Riksbank

Key data

SEK billion and number of transfers

	Turnover		Number of transfers	
	T3, 2018	Previous four-month period	T3, 2018	Previous four-month period
Average	566	607	21,864	21,431
Highest value	975	1,163	33,310	29,576
Lowest value	351	352	15,826	16,542
IMM day	913 ² , 975 ³	1,163 ⁴	25,561 ² , 30,311 ³	29,462 ⁴

Key data on daily turnover and number of transfers.

Source: Sveriges Riksbank

² Occurred 19/09/2018

³ Occurred 19/12/2018

⁴ Occurred 20 June 2018

KAPITEL 4 – Allocation of settlement procedures and transaction codes

RIX consists of eight settlement procedures: RTM, and seven other procedures, LOM, for various purposes. Transfers in RTM are implemented immediately, while settlement procedures for LOM provide functions for liquidity management, prioritisation of transfers and optimisation. Optimisation means that RIX simultaneously executes several transfers by offsetting outgoing transfers

against incoming transfers. Simultaneous transfers can be executed bilaterally and multilaterally. The LOM that manages most of the transfers in RIX is named RIX-LOM and the processes that manage transfers connected with participating clearing organisations are named after the relevant clearing organisations. Transaction codes (REC) are used to mark payments of different types.

Allocation of settlement procedures

SEK billion and number of transfers

LOM	Turnover				Number of transfers			
	T3, 2018		Previous four-month period		T3, 2018		Previous four-month period	
	Total	% of total	Total	% of total	Total	% of total	Total	% of total
RTM	9,495	20.5%	12,217	23.7 %	4,086	0.2%	4,036	0.2 %
RIX	23,760	51.2%	25,339	49.1 %	1,577,187	88.0%	1,599,605	87.8 %
BGC	4,734	10.2%	4,677	9.1%	190,978	10.7%	198,071	10.9 %
CLS	1,987	4.3%	2,628	5.1 %	11,731	0.7%	11,122	0.6 %
VPC	6,186	13.3%	6,555	12.7 %	2,639	0.1%	2,620	0.1%
OMX	101	0.2%	85	0.2%	1,600	0.1%	1,460	0.1%
PRT	56	0.1%	41	0.1 %	3,636	0.2%	3,750	0.2%
ACH	74	0.2%	65	0.1%	1,003	0.1%	984	0.1 %
Total	46,392	100.0%	51,606	100.0%	1,792,860	100.0%	1,821,648	100.0 %

Source: Sveriges Riksbank

Allocation of transaction codes in RIX LOM

SEK billion and number of transfers

REC	Turnover				Number of transfers			
	T3, 2018		Previous four-month period		T3, 2018		Previous four-month period	
	Total	% of total	Total	% of total	Total	% of total	Total	% of total
ADG	5,158	18.9%	6,679	21.9%	1,330	0.1%	1,321	0.1%
ARB	1,469	5.4%	2,102	6.9%	6,381	0.4%	7,576	0.5%
DOK	0 ⁵	0.0%	0	0.0%	195	0.0%	239	0.0%
DOM	5,974	21.9%	6,235	20.4%	151,254	9.6%	149,613	9.3%
ITB	420	1.5%	667	2.2%	317	0.0%	334	0.0%
RBK	6	0.0%	4	0.0%	159	0.0%	163	0.0 %
RTA	0 ⁶	0.0%	0	0.0%	7	0.0%	6	0.0 %
UTG	0 ⁷	0.0%	0	0.0 %	0	0.0%	5	0.0%
UTL	14,240	52.2%	14,804	48.6%	1,418,034	89.9%	1,441,182	90.0%
Total	27,267	100.0%	30,492	100.0%	1,577,677	100.0%	1,600,439	100.0 %

ADG = repayment overnight loan, ARB = FX payments, DOK = aggregate document clearing, DOM = domestic payments, ITB = interbank payments, RBK = Riksbank's payments of cash, RTA = interest compensation, UTG = aggregate international payments, UTL = international payments

Source: Sveriges Riksbank

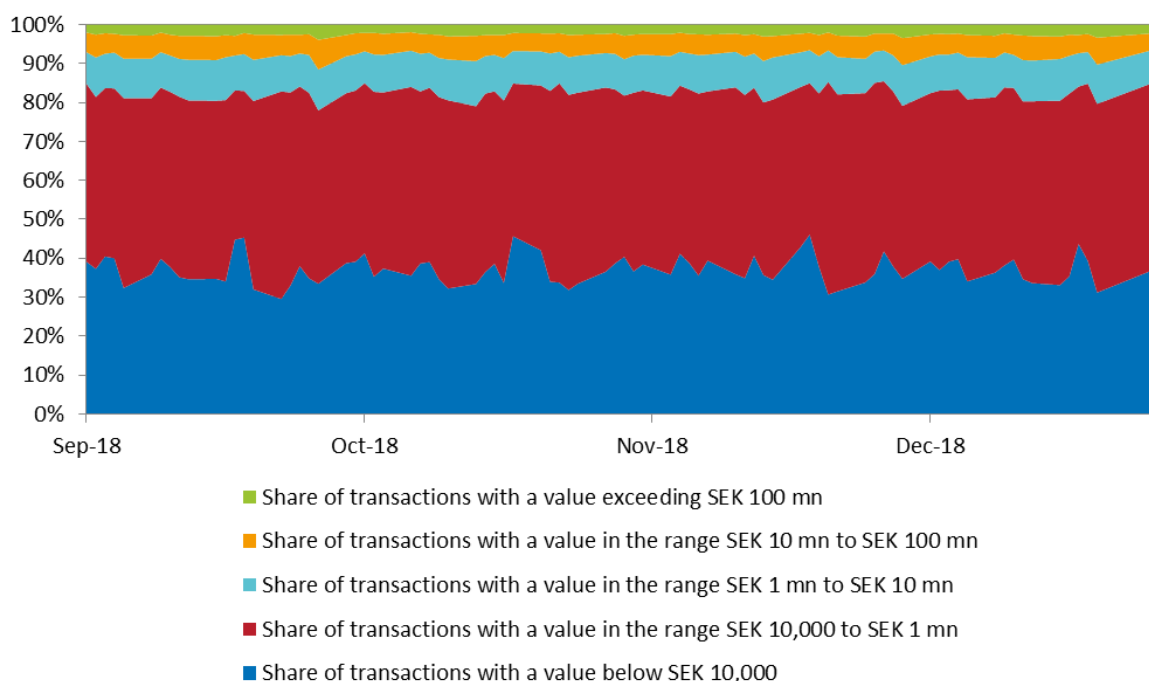
⁵ For transaction code DOK, turnover was SEK 3,980,019 in the third four-month period 2018 and SEK 22,836,316 in the previous four-month period.

⁶ For transaction code RTA, turnover was SEK 9,041 in the third four-month period 2018 and SEK 11,389 in the previous four-month period.

⁷ For transaction code UTG, turnover was SEK 0 in the third four-month period 2018 and SEK 55,362,523 in the previous four-month period.

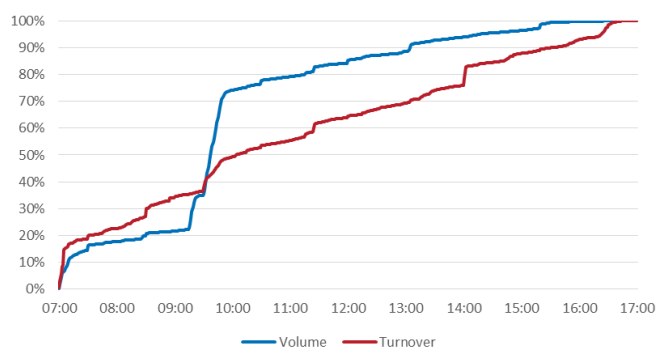
KAPITEL 5 – Other statistics from RIX

Number of transfers by transaction interval
Per cent



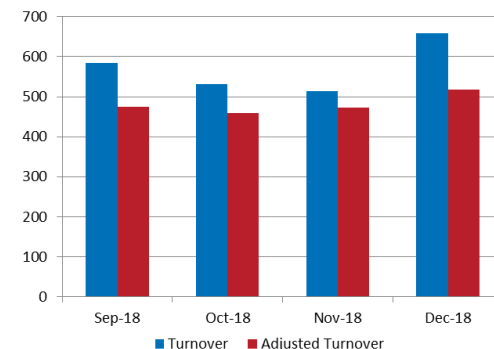
The diagram shows the proportion of transfers for each amount range.
Source: Sveriges Riksbank

Aggregate turnover and volume for an average day in RIX
Per cent



The graph shows the times of day at which transfers in RIX are usually made. The graph is based on transaction data for two months of the four-month period.
Source: Sveriges Riksbank

Average daily turnover and adjusted average daily turnover per month
SEK billion



Adjusted turnover comprises the RIX system's total turnover after transactions relating to the Riksbank's own operations have been deducted.⁷
Source: Sveriges Riksbank

⁷ Because of a formula error, the reported value of the adjusted turnover has been too high since T2 2017. With effect from this report, the value has been corrected. This means that the figures are not entirely comparable with the reports from the second four-month period of 2017 up to the second four-month period of 2018.

KAPITEL 6 – Statistics on collateral

Number of securities and value of pledged collateral

Number of securities and value in SEK billion. From T2 2017 is the value estimated as a mean value per day, calculated using the mean value every hour for each day respectively.

	T3, 2018	Previous four-month period
Number of securities eligible for credit	996	1,013
Value of pledged collateral (SEK billion)	181	175

Source: Sveriges Riksbank

Average collateral transactions

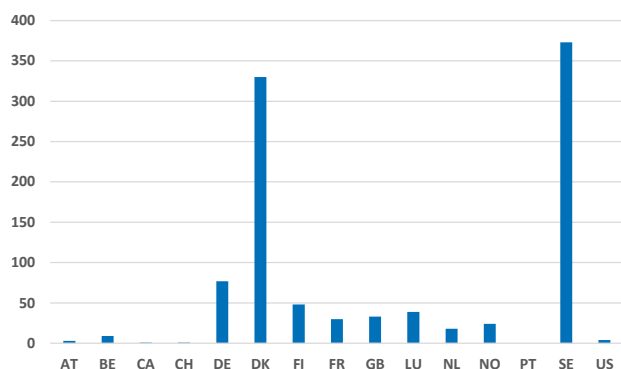
Average per day of the number of collateral transactions and amount in SEK billion (excluding collateral for CBK).

	T3, 2018	Previous four-month period
Amount of transactions per day	83.3	71.2
Amount of deposits per day	36.9	32.1
Amount of withdrawals per day	46.4	39.0
Number of transactions per day	21.3	17.6
Number of deposits per day	8.8	7.0
Number of withdrawals per day	12.6	10.6

Source: Sveriges Riksbank

Number of eligible assets per country code

Number of collateral assets

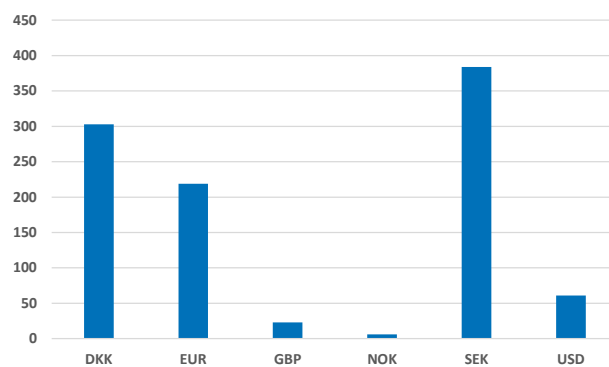


At closure on 28 December 2018.

Source: Sveriges Riksbank

Number of eligible assets per currency

Number of collateral assets

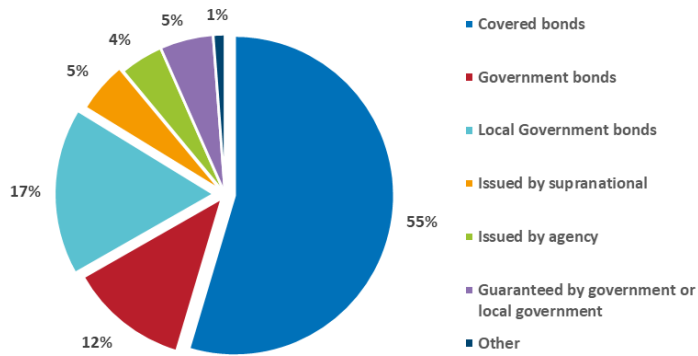


At closure on 28 December 2018.

Source: Sveriges Riksbank

Number of eligible assets

Per cent per security type

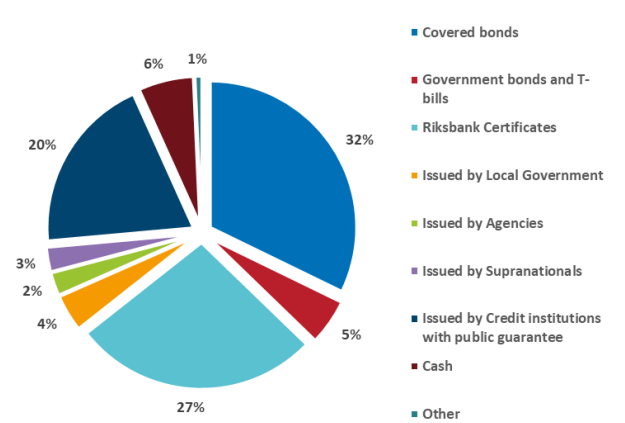


At closure on 28 December 2018.

Source: Sveriges Riksbank

Collateral value pledged for credit in RIX

Per cent per security type

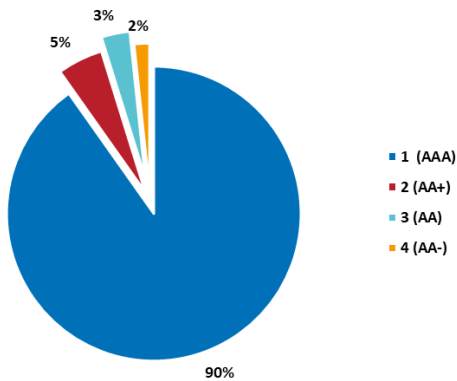


Mean value per day, calculated using the mean value every hour for each day respectively.

Source: Sveriges Riksbank

Distribution of holdings per rating level

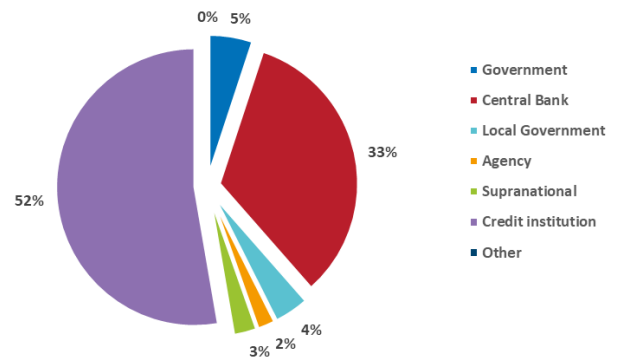
Percentage per rating level



Mean value per day, calculated using the mean value every hour for each day respectively.

Source: Sveriges Riksbank

Distribution of holdings per issuer type

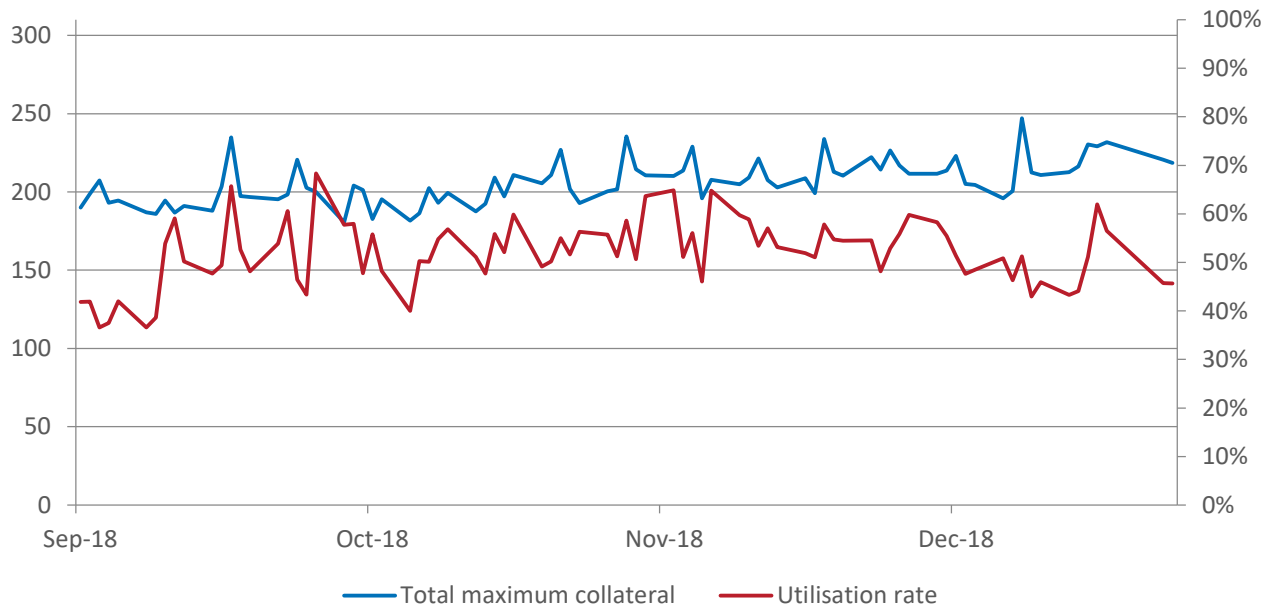


Estimated as a mean value per day, calculated using the mean value every hour for each day respectively.

Source: Sveriges Riksbank

Total maximum collateral and utilisation rate

SEK billion and per cent



The total maximum collateral is calculated as the total of the highest value of each institution's pledged collateral. The utilisation rate is calculated as the sum of the maximum utilised credits for each institution as a proportion of the total maximum collateral.

Source: Sveriges Riksbank



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