

A brief introduction to RTGS and CHAPS

Introduction

Payments are essential to the efficient functioning of the UK economy. They are used to buy goods and services, receive salaries and benefits payments and withdraw cash from cash machines. Most payments in the UK are now made electronically.

Customers and businesses select one or more payments service providers (PSPs) for their needs – such as a bank or building society, or a non-bank PSP (such as an e-money issuer or merchant acquirer). When a customer makes a payment from their account to a business that has an account with another PSP, the customer's PSP needs to both inform the business's PSP of any information attached to the payment, and pay the business' PSP for the money credited to business' account.

A payment system is the set of arrangements to facilitate the transfer of money between different PSPs. Most payment systems are managed by private-sector **payment systems operators (PSOs)**. PSOs administer the governance, membership, risk management, rules and standards for the payment system, and may appoint one or more infrastructure providers of hardware, software, and communication networks to support operations (or undertake some of these functions itself).

In order to transfer funds between PSPs, a payment system often uses an intermediary, known as a **settlement agent**, with whom all PSPs hold accounts to enable the final settlement of funds between PSPs. The Bank of England ('the Bank') acts as settlement agent for the majority of UK sterling payments systems. The Bank does this through a piece of infrastructure known as the **Real-Time Gross Settlement (RTGS) system**, first introduced in 1996.

In addition to its responsibilities as settlement agent, responsibility for management of the **UK's high-value payment system, CHAPS**, was transferred to the Bank in November 2017.

This document provides a brief introduction of RTGS and CHAPS and their integral role in the UK economy. Further information on RTGS and CHAPS can found on our [website](#) and in the documents listed in Annex 2.

What is CHAPS?

[CHAPS](#) is one of the largest high-value payment systems in the world and provides efficient and irrevocable payments. CHAPS uses **real-time gross settlement** where settlement is risk-free – at the cost of an increased need for liquidity – because each CHAPS payment is settled individually, in real-time, within the Bank's RTGS infrastructure. This model is best suited to high value payments – individual payments each worth millions or even billions of pounds each – with the largest potential systemic risk. CHAPS is primarily used for the same-day settlement of **high-value wholesale payments** as well as **time-critical, high value retail payments** like house purchases.

Since November 2017, the Bank has taken direct responsibility for operating the CHAPS system, setting the rules and technical standards for the CHAPS system and acting as an end-to-end risk manager. The Bank made the decision to directly deliver CHAPS to enhance financial stability in the UK, move to the global norm of 'direct delivery' by the central bank (which acts as infrastructure provider and operator). The Bank now operates RTGS and CHAPS with combined operations, risk and

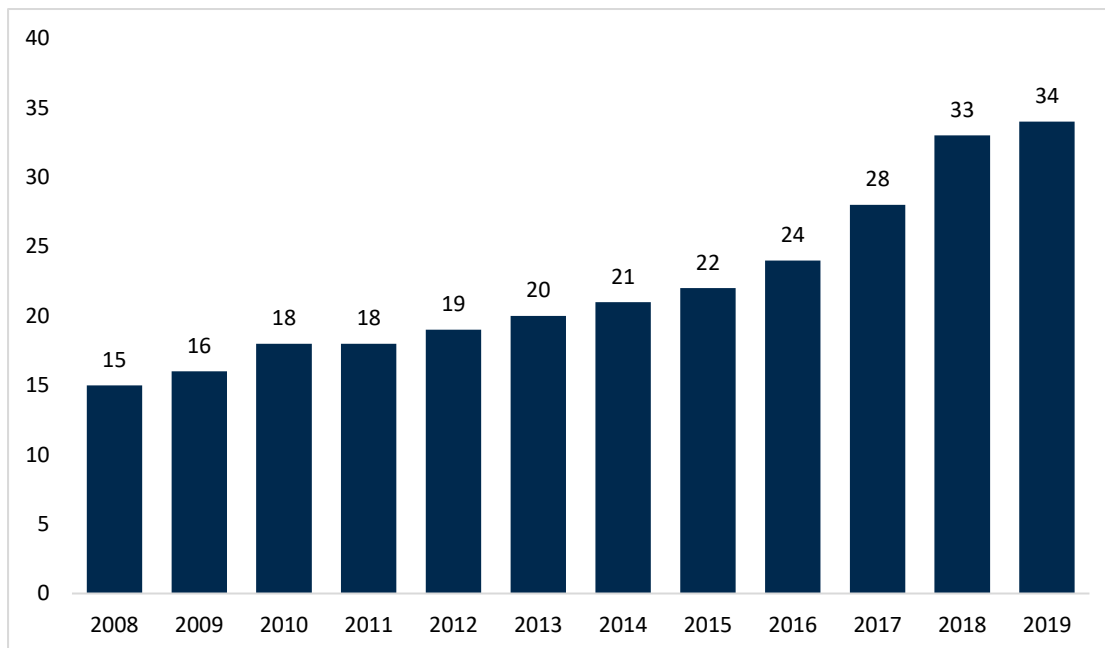
analytical teams, all sitting under an integrated and strengthened set of governance and risk management arrangements.

CHAPS represents around **0.5%** of UK total payment volumes but **92%** of total sterling payment values (this excludes payments internalised within the same PSP). In **2019**, the CHAPS system settled around **£83.4** trillion of payments, equating to an average of **£330 billion** each working day, or equivalent to the GDP of the UK every six working days. The CHAPS system settled an average of around **192,000** payments each day with an average payment value of **£1.7 million**. CHAPS volumes grew by **0.3%** in 2019 to a record **48.6m**.

Who uses CHAPS and for what?

There are over 30 organisations that access CHAPS directly. A full list is available on the Bank’s [website](#), as are details about the requirements for direct access. CHAPS Direct Participants (DPs) include major international payment and custody banks, financial market infrastructures, the traditional UK high-street banks and more recently, ‘challenger’ banks and non-bank payment service providers. Several thousand financial institutions access CHAPS indirectly by making their payments via one or more of the DPs. This is known as agency or correspondent banking.

Chart 1: Number of CHAPS Direct Participants



CHAPS payments are used for a variety of different purposes:

- Financial institutions and some of the largest corporates use CHAPS to settle high-value money market and foreign exchange transactions.
- Corporates use CHAPS for high value and time-sensitive payments such as to suppliers or for payment of taxes.
- CHAPS is commonly used by solicitors and conveyancers to complete housing and other property transactions.

- Individuals may use CHAPS to buy high-value items such as a car or pay a deposit for a house.

CHAPS record days

- Thursday 29 March 2018, the day before the four-day Easter break, and the last working day of the quarter, saw a record **320,034** payments, worth **£463 billion** settled in CHAPS. This beat the 11-year volume record by around **38,000 payments** (13% higher). The **all-time peak value** day was on 18 March 2020, when **£479 billion** was settled in CHAPS. This is in part due to increased trade settlement and is aligned to the quarterly International Monetary Market for futures, options and swaps.

What is RTGS?

The Bank's RTGS infrastructure is an accounting system. It is the infrastructure that underpins settlement of sterling payments, rather than being a payment system itself. Eligible institutions – as defined in the Bank's [Settlement Account Policy](#) - are permitted to hold settlement accounts within RTGS. The sterling balances held in these accounts are used to settle the sterling payment obligations which arise from that institution's direct participation in one or more UK payment or securities settlement systems.

When the Bank acts as a **settlement agent** for payment systems, settlement occurs in **central bank money**. Central Bank money is the ultimate secure and liquid sterling asset as the risk of the Bank defaulting is so low. It therefore offers the lowest-risk way for financial institutions to meet their payment obligations.

As well as providing settlement services, RTGS is also part of how the Bank implements monetary policy decisions as interest on reserves accounts is paid at Bank Rate, and provides secured liquidity to the UK's financial system. Our combined delivery of RTGS and CHAPS therefore contributes to the Bank's mission to promote the good of the people of the UK by maintaining monetary and financial stability.

Table 1. 2019 daily average RTGS settlement values and volumes

Payment System	2019
CHAPS values (£mn)	£329,671
CHAPS volumes	192,292
CREST DvP values (£mn)	£342,119
CREST DvP volumes	11,760
FPS net values (£mn)	£1,026
Bacs net values (£mn)	£3,915
Paper cheque net values ¹ (£mn)	£161
Cheque imaging net values (£mn)	£193
LINK net values (£mn)	£299
Visa Europe net values (£mn)	£2,363
Total (£mn)	£679,586

¹ Until the paper cheque clearing system closed in September 2019.

RTGS settlement services for payment systems and other Financial Market Infrastructure (FMI)

Through RTGS, the Bank currently provides settlement facilities to directly-settling participants of the CHAPS payment system, the payment system embedded within CREST,² five retail clearing systems (Bacs, Image Clearing System for cheques, Faster Payments, LINK and Visa Europe), as well as the Bank's Note Circulation Scheme.³ CREST and the five retail payment systems are operated by external institutions, and not the Bank.

A number of other FMIs also use direct or indirect access to CHAPS to complete the respective payment obligations. Final sterling settlement for [CLS](#), a foreign exchange settlement system that eliminates settlement risk in participating currencies, is carried out through CLS's direct participation in CHAPS. LCH (a central counterparty) and Euroclear Bank are also CHAPS Direct Participants. (Figure 1 outlines the interlinkages between RTGS, CHAPS and FMIs).

The Bank's RTGS currently supports four settlement models: real-time gross settlement, delivery versus payment (DvP), as well as prefunded and standard deferred net settlement.

Real-time gross settlement

The real-time gross settlement model – where payment obligations between settlement participants are settled individually on a gross basis in RTGS throughout the business day - is only used by CHAPS.

Delivery versus Payment (DvP)

DvP is currently only used to support final settlement in CREST. Sterling settlement in CREST takes place in a series of very high-frequency cycles throughout the day. After each cycle, RTGS is advised of the debits and credits to be made to the CREST settlement banks' accounts. We support settlement in CREST by providing intraday liquidity to the CREST settlement banks (a process known as auto-collateralisation). Settlement risk is eliminated as transactions are settled with finality in real time against segregated liquidity.

Net Settlement

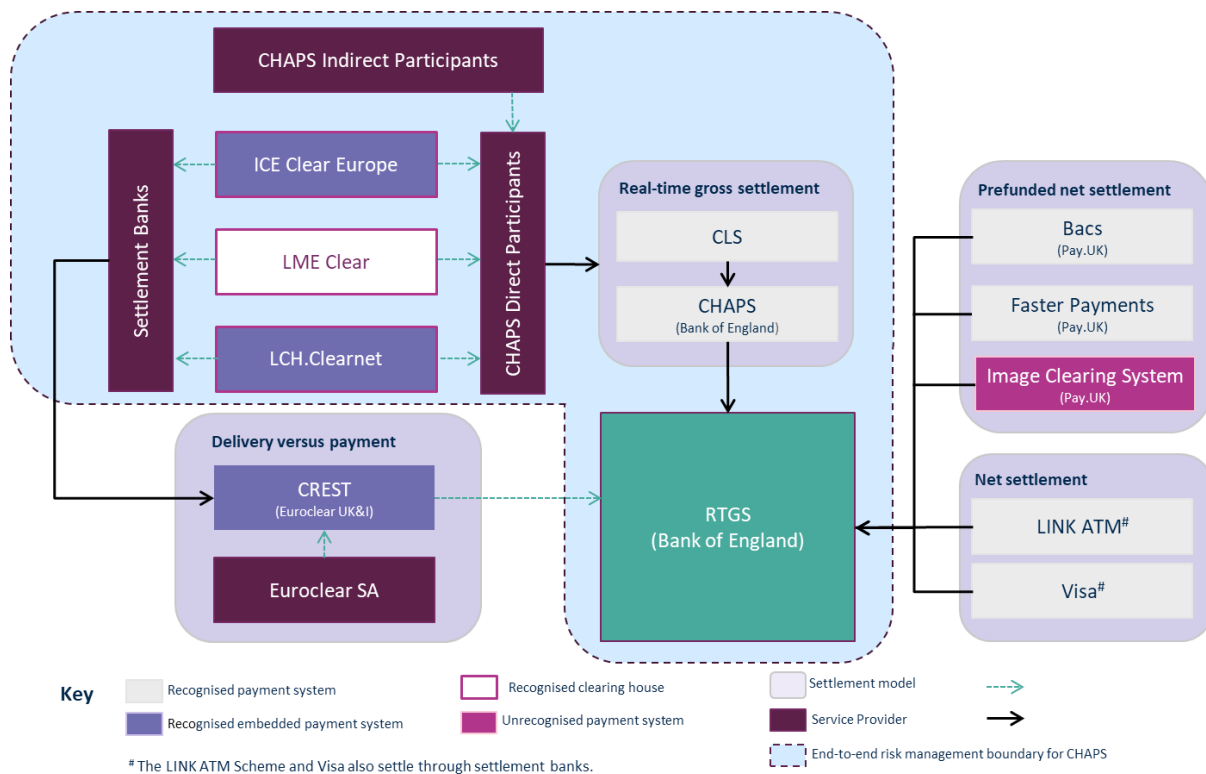
The majority of sterling electronic payments (by volume) are ultimately settled using the Bank's net settlement service. Net settlement systems operate in regular (e.g. daily) settlement cycles. At the end of each cycle the operator calculates each settlement participant's obligations on multilateral net basis, so that each settlement participant either owes or is owed a single value. The operator then sends instructions to the Bank to settle the obligations. The current norm in the UK is for this settlement to take place after information is exchanged on individual payments, and after customers are debited/credited i.e. deferred net settlement

The Bank offers **prefunded** service to support net settlement. This eliminates settlement risk between settlement participants by allowing the payment system operators to cap the maximum possible net debit position of those settlement participants to the amount of cash held by that participant in a segregated 'prefunding' account in RTGS.

² The UK's securities settlement system (CREST) is operated and managed by Euroclear UK & Ireland (EUI). CREST settles UK securities such as gilts, equities and money market instruments in sterling, euro and US dollars.

³ Payments under our [Note Circulation Scheme](#) (NCS) are also settled in RTGS. NCS allows its members – wholesale cash operators – to hold notes in custody for us within their network of cash centres.

Figure 1: Interlinkages between RTGS, CHAPS and Financial Market Infrastructures



RTGS and the Sterling Monetary Framework

In addition to its settlement functionality, RTGS also plays an important role in the implementation of monetary policy, and therefore directly contributes to the Bank’s monetary stability objective.

Where an institution is eligible for the [Sterling Monetary Framework](#) (SMF), the Bank permits it to hold a ‘reserves account’ in RTGS. Balances on these accounts can be held overnight in RTGS, and are **remunerated at Bank Rate**, as decided by the Bank’s Monetary Policy Committee (MPC). Reserves accounts can also be used by SMF participants for settlement of obligations arising as a result of participation in UK payment systems.

Reserves account holders must be banks or building societies that are authorised to take deposits in the UK, investment firms authorised by the [Prudential Regulation Authority](#), or central counterparties. Institutions that are not eligible for the SMF, but are eligible for an account in RTGS (according to the Bank’s [Settlement Account Policy](#)), can hold settlement accounts.

Conclusion: How RTGS and CHAPS contribute to the Bank’s mission

The successful management and operation of RTGS and CHAPS directly supports the Bank’s mission to promote the good of the people of the United Kingdom by maintaining monetary and financial stability in three main ways:

1. By offering settlement accounts to eligible institutions, RTGS plays a vital role in the functioning of the UK economy through supporting safe and efficient settlement of obligations in central bank money across a wide range of payment systems.

2. Reserves held in the RTGS infrastructure – under the Bank’s Sterling Monetary Framework – are remunerated at Bank Rate. RTGS therefore acts as the platform through which the transmission of monetary policy decisions is implemented.
3. CHAPS provides a safe and efficient system for individual high value and often time-critical transactions to settle. The Bank also acts as the end-to-end risk manager for CHAPS with the objective of reducing risks to financial stability. The risk tolerance for the CHAPS system is within the Bank’s overall risk tolerance and the Financial Policy Committee’s (FPC) proposed ‘complete by end of the value date’ [impact tolerance](#) for critical payments.

The Bank, through its operation of RTGS and CHAPS, also seeks to promote efficiency, innovation and competition in sterling payments, wherever that can be safely done without impairing stability.

Annex 1. CHAPS statistics

The charts below show the payment profiles, values and volumes for 2019. CHAPS volumes are lower than other payment systems, but are typically of much higher value, as Chart 2 shows.

Chart 2: CHAPS Payment Profiles 2019

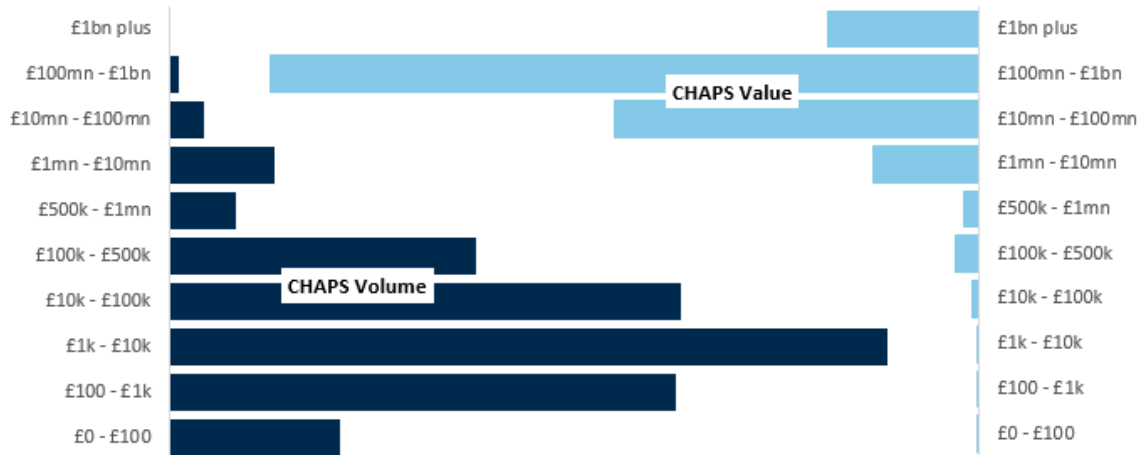
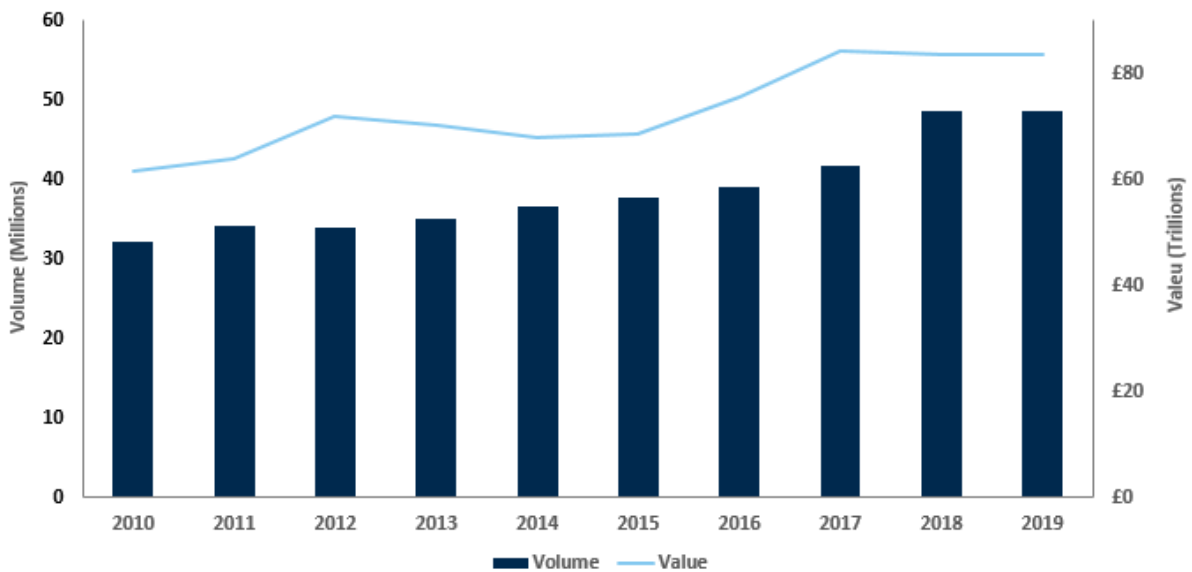


Chart 3: CHAPS annual values and volumes (calendar years 2010 – 2019)



Annex 2. Further Reading

[The Bank of England's Real-Time Gross Settlement Infrastructure](#)

[Bank of England Settlement Account Policy](#)

[Access for non-bank payment service providers](#)

[Cost of Direct Access to CHAPS and RTGS](#)

[Historic monthly CHAPS statistics \(updated to Apr 2020\)](#)

[How has the liquidity saving mechanism reduced banks' intraday liquidity costs in CHAPS?](#)

[Self-assessment of RTGS and CHAPS – December 2019](#)

[Enhancing the resilience of the Bank's RTGS infrastructure](#)

[RTGS and CHAPS service description](#)

[Payment and Settlement](#) page on Bank's website

[Payment and Settlement statistics](#)

[RTGS Renewal Programme](#) pages on Bank's website

[ISO 20022 information](#)

[The Bank of England Market Operations Guide](#)
