



UK
FINANCE

UK PAYMENT MARKETS SUMMARY 2023

September 2023



UK PAYMENTS IN 2022 AND FORECASTS TO 2032

The UK's payment markets have historically tended to evolve slowly over time. People are creatures of habit, and this is no less true for the way that we pay for things than it is for other aspects of day-to-day life. Once we have found a set of payment methods that we are comfortable using and that help us manage our finances effectively, it can take a great deal for us to change to a different way of doing things.

In recent years, we have seen more significant changes to the way that people in the UK pay for things. For one thing, the global Covid-19 pandemic and associated lockdowns from 2020 onwards led to significant changes in patterns of payments in the UK. Lockdowns resulted in large sections of the economy shutting down completely for parts of the year. In those parts of the economy which remained operational, many businesses switched to home working arrangements, reducing expenditure on travel and city centre spending.

As a result of these measures, 2020 saw a significant fall in the number of payments made in the UK. However, as lockdown restrictions were lifted during 2021, the economy reopened and the total number of payments being made in the UK returned to pre-pandemic levels.

And so we came to 2022, which featured two underlying forces pulling the economy in different directions. On the one hand, the post-pandemic recovery continued, with travel and shopping habits returning towards their pre-pandemic patterns, and some elements of delayed consumption (such as spending on foreign holidays) starting to be seen in the spending choices made by consumers.

Throughout this recent period, people had been making greater use of contactless payments, online banking and mobile wallet channels, largely at the expense of cash payments. However, as 2022 progressed, global energy price rises fed into growing concerns about the rising cost of living. The second half of the year in particular was characterised by falling consumer confidence in the economy, increasing inflation and a consequent change in spending patterns. Some consumers paid down outstanding credit card balances and others appeared to turn back towards cash as a payment method that would help them to manage limited budgets.

These are not the only trends in spending behaviour that appear to have been occurring in the UK over the past few years. Spending data for 2022 suggests that there has been a shift towards a greater granularity of transactions; that is, towards an increasing number of

transactions that are each worth a lower individual amount, without necessarily increasing the overall amount spent. There are a variety of factors operating here, including:

- Increased shopping visits – anecdotal evidence suggests that many consumers are making larger numbers of small visits to supermarkets, rather than doing one large shop per month. This leads to a larger number of transactions for the same amount of shopping.
- As lockdowns have ended, there has been some move back to working in corporate locations. However, homeworking still remains far above the levels seen prior to the pandemic, with the result that purchases of travelcards and season tickets for travel have fallen enormously, with travellers increasingly likely to pay separately for each individual journey. Whilst the number of journeys has fallen following the pandemic, the total number of payments for travel has therefore increased.
- Use of multiple accounts – anecdotal evidence suggests that some consumers may be holding an increased number of bank accounts, for example by opening additional accounts with challenger banks. Those accounts are then each used for different purposes, resulting in an increased number of payments as compared with a situation where one account (and one debit card) can be used to make all payments, which would then be more likely to be consolidated into a smaller number of purchases. Use of multiple accounts also tends to increase the number of transactions for transferring funds between accounts.
- Increasing use of Buy Now Pay Later (BNPL) services – where BNPL is used to pay for an item, this multiplies the number of payments made. For example, an item that would otherwise have been paid for using a single card payment will instead result in an account transfer from the BNPL provider to the retailer and then a series of card payments from the customer to the BNPL provider. As such, the number of payments associated with a single purchase will be increased.

The cumulative impact of all of these competing forces is that the total number of payments made in the UK increased significantly in 2022, driven predominantly by an increase in the number of debit card payments.

The total number of payments made in the UK increased to 45.7 billion payments in 2022, compared with 40.4 billion payments in 2021.

Both debit card and credit card payments rose in 2022. Further, the share of payments made using cards, which had increased to 57% of all payments during 2021, increased further to 59% of all payments in 2022. Contactless payments continued to be popular, with almost four out of ten (37%) of all payments made in the UK during 2022 being made using contactless.

Considering cash, the long-run trend in cash payments over the past decade has been of a continuing decline, with payments transitioning in particular to debit cards. In 2020, the pandemic resulted in cash use falling by 35% compared to the previous year. Since 2017 cash use had been declining by around 15% each year, so 2020 represented an acceleration of this decline. In 2021, it appears that there was some return to use of cash. Much of this was to be expected; many parts of the economy with traditionally high levels of cash use were closed or heavily restricted during lockdown, and in those parts of the economy that remained open, many retailers encouraged the use of contactless payment options, amid fears about cash being a vector for Covid-19 transmission. The reopening of the economy and lessening of fears about Covid-19 transmission appear to have led to some consumers returning to using cash as their preferred payment method.

In 2022, growing fears about inflation and the rising cost of living led to some consumers turning back to increased use of cash as a way of managing a limited budget. As a result, the total number of cash payments made in the UK during 2022 increased to 6.4 billion payments from 6.0 billion payments in 2021. However, due to the greater increase in the total volume of payments in the UK, the proportion of payments made using cash still fell slightly, from 15% of payments to 14% of payments. Nevertheless, cash remained the second most frequently-used payment method in the UK during 2022.

Throughout the Covid-19 pandemic, strong growth was seen in Faster Payments, and this continued in 2022. Both businesses and consumers increasingly used online and mobile banking to make payments and to transfer money. Mobile banking in particular continued to grow strongly amongst consumers, with customers extending their use beyond just checking balances to now making payments and managing their finances more generally.

Over the next decade further market developments, such as those brought about through Open Banking and the anticipated New Payments Architecture for the UK, may bring extensive changes to the UK's payments landscape. UK Finance will continue to monitor and analyse how these developments may affect future payment markets.

Data from 2021 suggest that trends in payments behaviour have returned towards their pre-pandemic patterns.

Both debit card and credit card payments, which had declined in 2020, rose once again in 2021. Further, the share of payments made using cards, which had increased to 52% of all payments during 2020, continued to increase in 2021, with 57% of all payments in the UK being made using cards in 2021. Contactless payments continued to be popular, with almost a third (32%) of all payments made in the UK during 2021 being made using contactless.

Considering cash, the experience of the past couple of years has shown interesting impacts due to the pandemic. The long-run trend in cash payments over the past decade has been of a continuing decline, with payments transitioning in particular to debit cards. In 2020, the pandemic resulted in cash use falling by 35% compared to the previous year. Since 2017 cash use had been declining by around 15% each year, so 2020 represented an acceleration of this decline. In 2021, it appears that there was a reduction in the rate of decline in cash use. Much of this was to be expected; many parts of the economy with traditionally high levels of cash usage were closed or heavily restricted during lockdown, and in those parts of the economy that remained open, many retailers encouraged the use of contactless payment options, amid fears about cash being a vector for Covid-19 transmission. The reopening of the economy and lessening of fears about Covid-19 transmission appear to have led to a reduction in the rate of decline, particularly when compared with the experience of 2020. Having said this, the total number of cash payments made in the UK during 2021 still declined by 1.7% compared with 2020. Cash remains the second most frequently-used payment method in the UK, being used for 15% of all payments made during 2021.

Throughout the Covid-19 pandemic, strong growth was seen in Faster Payments, and this continued in 2021. Both businesses and consumers increasingly used online and mobile banking to make payments and to transfer money. Mobile banking in particular continued to grow strongly among consumers, with customers extending their use beyond just checking balances to now making payments and managing their finances more generally.

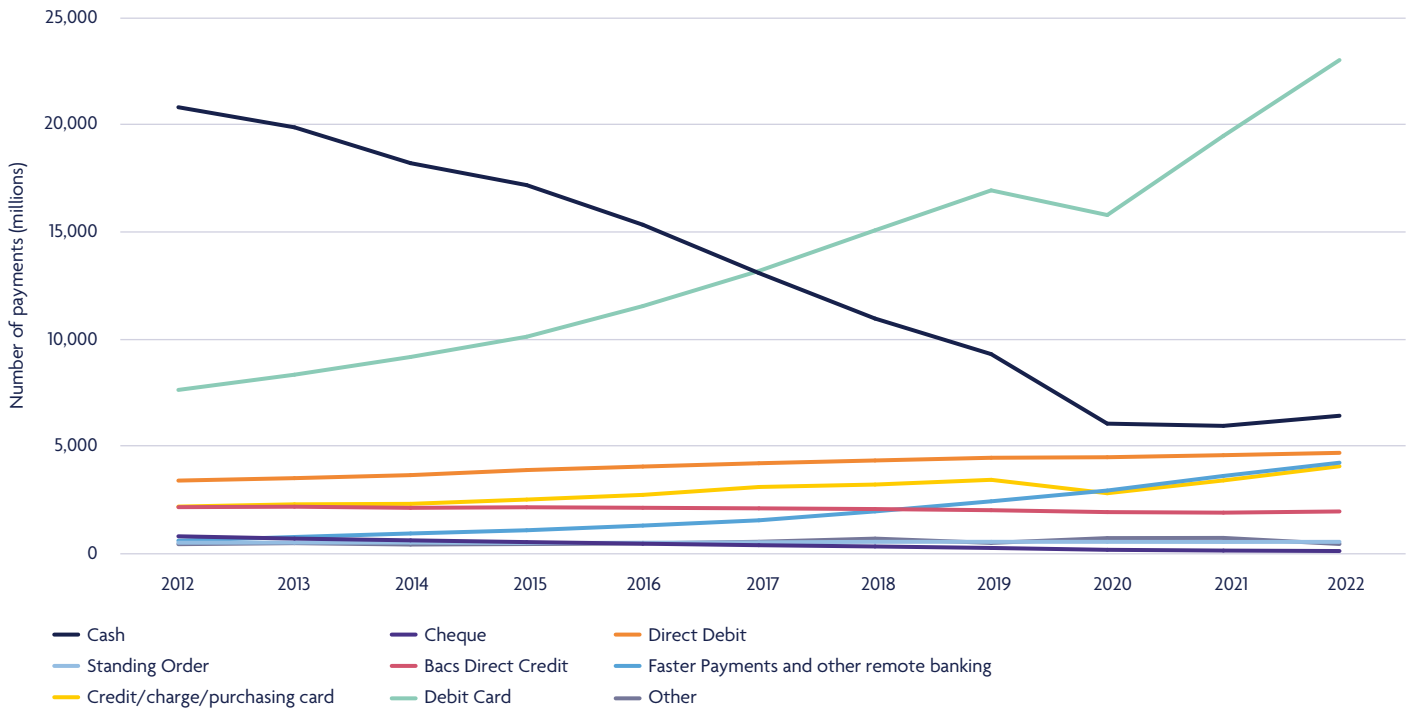
Over the next decade further market developments, such as those brought about through Open Banking and the anticipated New Payments Architecture for the UK, may bring extensive changes to the UK's payments landscape. UK Finance will continue to monitor and analyse how these developments may affect future payment markets.



59%

In 2022 59% of all payments in the UK were made using cards

Chart 1.1 Payment volumes (millions) 2012 to 2022



Nearly nine out of ten payments were made by consumers. Spontaneous purchases accounted for 85% of payments made by consumers, with the other 15% of their payments being made to pay for regular bills and commitments.

Commercial organisations, government and not-for-profit organisations (collectively referred to using the shorthand “businesses” throughout this report) made almost 6.2 billion payments during 2022, a 12% increase compared with 2021. Payments to individuals accounted for 44% of all payments made by businesses, with the remainder being payments to other businesses.



There are a wide variety of payment methods available in the UK. Each payment method provides specific benefits to the participants in the transaction. Payers generally choose the method that best meets their needs in any given situation, albeit sometimes influenced by the preferences of the payee.

Debit cards



50%

Debit cards accounted for half of all payments made in the UK in 2022

In 2022, debit card payment volumes increased considerably to just over 23 billion payments (from 19.5 billion payments in 2021). As a result, debit cards reached an important milestone in 2022, with half of all payments (50%) made in the UK being made using debit cards. The overwhelming majority of the population (over 95%) now hold a debit card and most people use them to make payments.

As noted above, debit card volume increases were driven by a number of factors, with a general tendency towards a larger number of payments for a lower average value per payment. These factors include:

- Increased frequency of shopping trips with lower value transactions per trip
- Decreased use of travelcards and season tickets, with an increased use of individual payments for each journey using public transport
- Increased use of multiple bank accounts, with different cards used for different types of purchases
- Increased use of Buy Now Pay Later services, which multiplies the number of card payments made in relation to a single purchase.

Throughout 2022, contactless payments continued to grow in popularity, contributing to the ongoing increase in use of debit cards. More detail on contactless payments is given below. Debit cards are also one of the main payment methods used to pay for online shopping, something which has been increasing over time, and still remains above its pre-pandemic levels.

Over the next decade, debit card payment volumes are forecast to continue to increase in use. This growth will be driven by the continuing rise of contactless payments, the ongoing growth of online shopping and ever-increasing levels of card acceptance amongst businesses of all sizes, but particularly amongst smaller businesses. It is forecast that over 27 billion payments will be made using debit cards in 2027.

Credit cards



65%

of adults in the UK have a credit card

There were 4.1 billion payments made using credit cards in 2022, up from 3.4 billion payments in 2021. During the pandemic, spending had declined due to (a) sectors of the economy with high credit card spend being essentially closed (such as holidays, travel and entertainment) and (b) reductions in consumer confidence. As lockdowns were relaxed during 2021, opportunities to make payments using credit cards

increased, and this trend continued in 2022, with many consumers starting to make purchases that they had deferred during the pandemic (for example, returning to taking foreign holidays). Having said this, consumer confidence has not returned to pre-pandemic levels, and cost-of-living fears in particular may be making consumers more cautious about taking on additional unsecured debt.

By 2032 credit card payment volumes are forecast to reach 5.0 billion payments. Future growth will be closely tied with wider economic conditions, which determine consumer appetite for taking on unsecured debt.

Contactless payments

Percentage of all payments made via contactless cards



7%

2016

21%

2019

37%

2022

During 2022 the number of contactless payments made in the UK increased to 17.0 billion payments, up from 13.1 billion payments the previous year. This was driven by:

- contactless limit increase to £100
- some retailers continuing to encourage consumers to use contactless at point-of-sale
- the continued roll-out of card acceptance devices especially among smaller businesses
- consumers becoming increasingly comfortable and familiar with making contactless payments
- continuing growth in popularity of mobile contactless payment services such as Apple Pay and Google Pay

At the end of 2022 there were 147 million contactless cards in circulation, with 91% of debit cards and 88% of credit/charge cards in the UK having contactless functionality.

Since January 2020, every bank-issued payment terminal in the UK has been capable of accepting contactless payments. Along with many smaller businesses now accepting card payments this has increased the number of locations where consumers can pay using contactless.

During 2022 supermarkets were the most popular location to make contactless payments with them accounting for almost two-fifths (38%) of all contactless payments. Retail in total accounted for seven out of ten (69%) contactless payments made in the UK.

Contactless payments were used extensively throughout the UK in 2022, with 87% of people making contactless payments at least once a month or more frequently. People of all ages used contactless payments, and even when considering people of retirement age, almost 9 out of 10 (87%) used contactless at least once a month. The group showing the highest rate of use was the 35-34 age group, where 90% of people regularly made contactless payments. Though small differences remain across age group and region, the majority of people in all age groups and across all regions make contactless payments. We expect contactless payments to remain popular over the next decade.



37%

of all payments in the UK were made via contactless methods in 2022

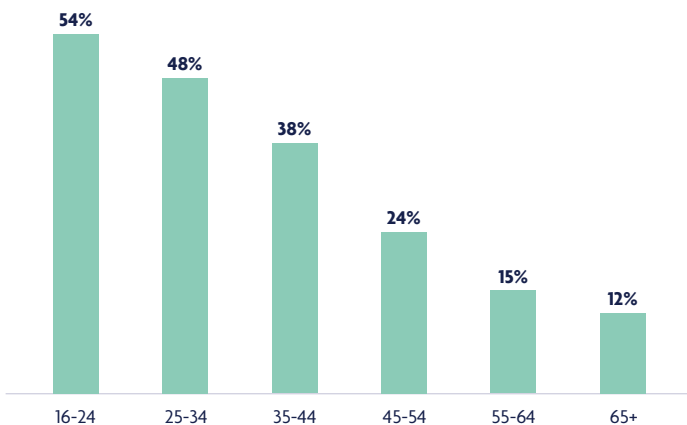
Mobile Wallets

As well as using contactless cards other devices such as mobile phones and watches can be used to initiate contactless payments, or to make payments for online shopping.

Nearly a third (30%) of the adult population reported being registered for at least one mobile payment service in 2022. Of those registered for mobile payments 94% of these people used the services to make payments during the year. Three quarters (76%) of these registered users made payments every month.

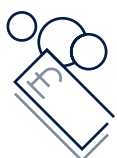
Similar to most new technological innovations, UK Finance market research found that younger people are more likely than older people to use one of Apple Pay, Google Pay or Samsung Pay. We expect that, over the next decade, older age groups will start to catch up with younger age groups in terms of adoption of mobile payments, a pattern that is regularly seen following the introduction of new payment and IT services.

Chart 1.2 Proportion of each age group registered to use mobile payments, 2022



Cash

Cash as a % of all payments



61% 54% 34% 14%

2007 2012 2017 2022

Cash payments have been showing a long-term decline, with payments migrating away to debit cards in general and contactless cards in particular.

Nevertheless, even though cash payments have been declining over the past two decades, there have been occasional brief periods where the volume of cash payments has increased slightly. These tend to be during periods of economic uncertainty or recession, and reflect the fact that some consumers find cash to be a useful payment method when they are trying to manage a limited budget. We saw this, for example, in 2008 during the financial crisis. And we saw this again in 2022 as the rising cost of living led some consumers to attempt to manage their spending.

In 2022, the volume of cash payments rose to 6.4 billion payments, up from 6.0 billion payments in 2021. Despite this, the proportion of payments made using cash still fell slightly, from 15% to 14% of all payments in the UK, reflecting the growth in debit card payments over the same period. Cash remains the second most frequently-used payment method in the UK, behind debit cards.

During 2022 there were 21.6 million consumers who used cash only once a month or not at all, instead relying on cards and other payment methods to manage their spending. This was a slight decrease from 23.1 million consumers the previous year, reflecting the increase in use of cash among those people who like to use cash when trying to manage a limited budget as the cost of living rises. Nevertheless, almost four out of ten UK adults (39%) were living largely cashless lives during 2022.

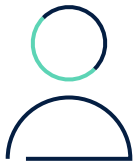
At the same time there were 0.9 million consumers who mainly used cash, choosing this payment method when doing their day-to-day shopping (although the majority still use other payment methods to pay their regular bills). This represented 1.7% of adults in the UK. It should be noted that, whilst these people prefer to use cash when paying for things, they are not necessarily unwilling or unable to use other methods of payment. The majority of them have a debit card, for example. Nevertheless, there remains great diversity in the way in which different people in the UK prefer to manage their finances and conduct their day-to-day spending. This figure has been declining over time, and continued to fall in 2022, declining from 1.1 million people in 2021.

Over the next decade the number of cash payments in the UK is expected to continue the long-run declining trend seen over the last couple of decades, as consumers turn to alternative payment methods. Having said this, the rate of decline is expected to slow as use becomes concentrated amongst people who have a strong preference for cash and in situations where cash has advantages over other payment methods. It is expected that cash payment volumes will remain stable during 2023 as the cost of living crisis continues. Cash payment volumes would be expected to fall once again when stability of prices and consumer confidence in the economy are restored.

It should be noted that, whilst traditionally cash has been used as a budgeting tool by people who are managing limited budgets, increasingly we see younger people budgeting using mobile banking and other technology-based services. This change in behaviour is something that we are monitoring, but which also has implications for the future use of cash in the UK. If these tools did not exist, we might have expected to see an even greater increase in cash use in the UK during 2022 than was actually observed.

In 2032 there are forecast to be around 3.3 billion cash payments made in the UK, accounting for around 7% of all payments. Rather than the UK becoming a cash-free society over the next decade, the UK will transition to an economy where cash is less important than it once was but remains valued and preferred by many.

Buy Now Pay Later



1/8

One in eight people used Buy Now Pay Later in 2022

Around one in eight people in the UK (12% of adults) used Buy Now Pay Later services to purchase something during 2022. Around 14% of female adults and 11% of male adults used at least one BNPL service. Young consumers tend to use BNPL services more than older cohorts and the age group with the most BNPL users in 2022 was 25- to 34-year-olds. Almost one in five adults in this age group (18%) used Buy Now Pay Later services during 2022. In contrast, just 8% of people aged 65 or over used these services in 2022, although this represents a significant increase from the 4% of people in this age group who used BNPL services during 2021.

Direct Debit

Volume of direct debit payments



4.7 billion

Direct Debit payments in 2022

In 2022 there were 4.7 billion payments made by Direct Debit, with an overall value of £1,331 billion. Direct Debit is a familiar, long established and widely trusted method for paying regular bills, and is used by consumers to make around 7 out of 10 of all regular bill payments.

As a well-established method of payment, growth in Direct Debit payment volumes tends to reflect growth in population figures and household numbers. While the volume of Direct Debit payments grew in 2022 this was at a slow and stable rate.

Consumers are far more likely to use Direct Debit than businesses. Businesses tend to prefer to retain more direct control over the timing and amount of their outgoing payments, although may still use Direct Debits to pay for business-critical services. Direct Debit payment volumes tend to be linked to some extent to the economic cycle and consumer confidence.

Due to the established nature of Direct Debit, there is expected to be slow and stable growth over the next decade, with 5.0 billion payments forecast in 2032.

Faster Payments and other remote banking

Faster Payments and other remote banking (millions)



614
2012

1,563
2017

4,251
2022

Remote banking remained popular in the UK in 2022, with 86% of all UK adults using at least one form of remote banking (online banking via a computer, mobile banking via an app on a smartphone or tablet, or calling their bank via a telephone banking service).

Over half of all adults in the UK (53%) used mobile banking during 2022, with almost two-thirds (65%) using online banking (via a computer), and almost one in five (18%) phoning their bank to talk to someone. Some consumers use a combination of different remote banking services, whilst others tend to stick more to their preferred option.

The majority of people in all age groups used remote banking in 2022, ranging from 80% of those aged 65 and over to 95% of people aged 25-34.

Related to the ongoing popularity of remote banking services in the UK, the number of remote banking payments processed via the Faster Payments Service (or cleared in-house by banks) during 2022 continued to grow strongly. The number of payments increased by 17% compared with the previous year, to reach 4.3 billion payments.

Use of remote banking by businesses also contributed to the strong growth in the volume of Faster Payments. In 2022, 42% of all payments made by businesses were made using Faster Payments and other remote banking. This follows Faster Payments overtaking Bacs Direct Credit as the most-used payment method among businesses in 2021. This position as the leading payment method for businesses was consolidated in 2022.



53%

of all adults used mobile banking in 2022

Use of Faster Payments and other remote banking is expected to see strong growth over the next decade as both consumers and businesses increase their use of online and mobile banking. By 2032 remote banking payments processed via the Faster Payments Service or cleared in-house are forecast to rise to 6.0 billion.

Another potential driver for Faster Payments and remote banking over the next few years may come from the continued development of Open Banking products and services. Open Banking raises the potential for services that would allow consumers to pay for online shopping (or indeed in-store shopping) using account-to-account payments rather than paying using a card or PayPal (or similar service).

As such Faster Payments could become an alternative to card payments (and/or PayPal payments). Having said this, these services have yet to be communicated or marketed to consumers on a wide scale, and it is not clear what the consumer appetite might be to change their established payments behaviour, particularly where the benefits to consumers (rather than businesses) are not obvious. Therefore, we remain cautious in our forecasts at present for the potential volume of online (and real world) shopping payments that could migrate to Faster Payments.

Standing orders

Standing orders tend to be used in circumstances where a regular payment of a fixed amount must be made, for example, for paying rent or making regular transfer payments from current accounts to savings accounts. In 2022 there were 557 million standing orders, similar to the previous year. This is expected to grow to 575 million payments in 2032.

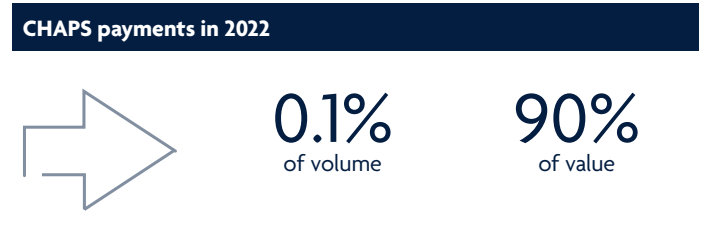
Bacs Direct Credit



Bacs Direct Credit is a popular and cost-effective method for businesses and government to make bulk payments, where both the value and timing of the payment are known in advance. For example, Bacs Direct Credit is a very popular method for paying wages and salaries. The government also uses Bacs Direct Credit to pay nearly all state benefits and pensions in the UK. Almost a third (32%) of all payments made by businesses in 2022 were made via Bacs Direct Credit, placing Bacs Direct Credit as the second most frequently used payment method amongst businesses. This reflects a long run trend away from Bacs Direct Credit. For comparison, ten years previously, in 2012, almost six out of ten payments made by businesses (58%) were made via this method.

The total number of Bacs Direct Credit payments is expected to stay fairly stable over the next ten years, with reductions due to the transition of certain welfare benefits to Universal Credit balanced off against increase use by larger businesses. There are forecast to be 2.0 billion Bacs Direct Credit payments in 2032.

CHAPS



CHAPS is used primarily by financial institutions to make wholesale financial payments and by large corporates to make corporate treasury payments. As a result, in 2022 CHAPS accounted for just 0.1% of the total volume of payments in the UK but 90% of the total value of payments. There were 51 million CHAPS payments processed in 2022, worth a total of £98.6 trillion. CHAPS payment volumes are closely related to the state of the UK economy. As such, future CHAPS payment volumes will depend largely on the economic outlook for the UK and the future of cross-border trade and investment.

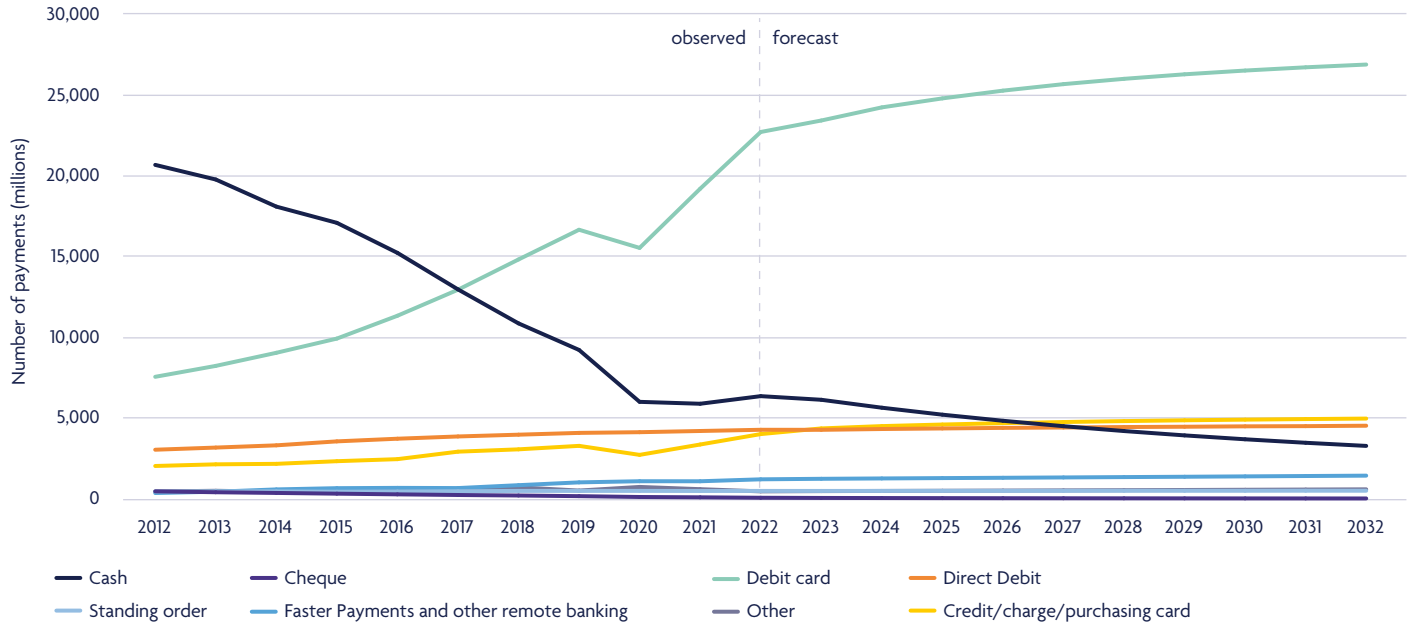
Cheques



The number of cheques used to make payments continued to decline over the past year, falling by 14% compared with 2021 to reach a total of 129 million cheques. Both businesses and consumers continue to choose alternative payment methods instead of using cheques. Cards and remote banking transfers in particular are increasingly being used where previously a cheque may have been written. Despite this decline cheques remain valued by those who choose to use them, as they provide a convenient and secure method of paying someone when you do not know the recipient's bank account details.

The Image Clearing System (ICS) was introduced by the Cheque and Credit Clearing Company in October 2017 and fully rolled out in September 2019. One of the main benefits from this is the cheque clearing process will now complete much faster, so cheque recipients will see the money appear in their account more quickly. It also allows for cheques to be deposited via a mobile phone with a camera (using mobile banking services). Despite this introduction cheque use continues to decline across the UK and is expected to continue to do so over the next decade, reaching 66 million payments in 2032.

Chart 1.3 Payment volumes (millions) 2012 to 2032



Forecasts for payments in the UK to 2032

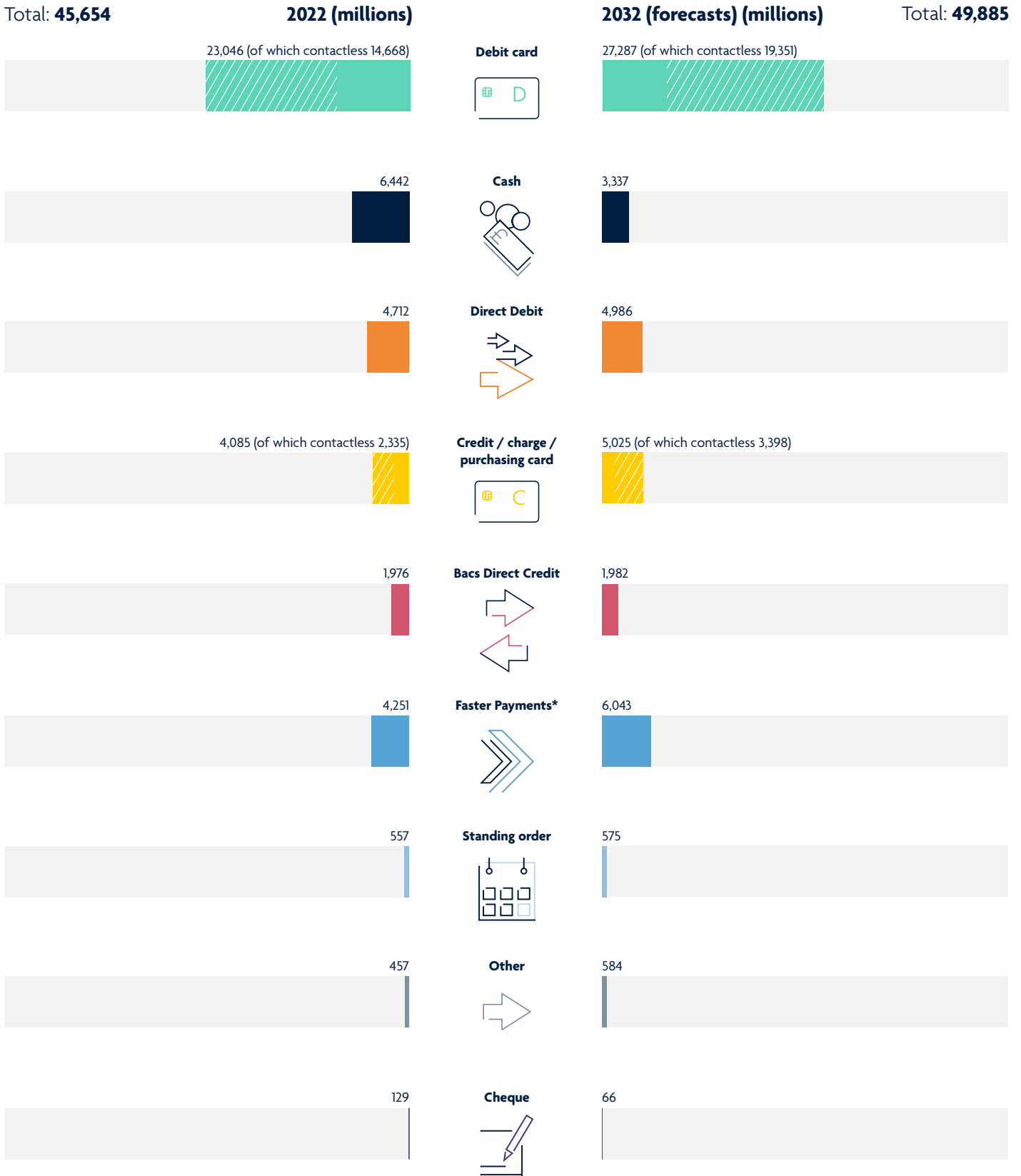
Over the last decade, a series of key payment trends have been observed in the UK:

- Increasing debit card payments
- Continued decline in cash payments
- Ongoing growth in Faster Payments and other remote banking payments

The past three years have been a tumultuous period, with a global pandemic, social and technological change, and a cost of living crisis all greatly impacting the way that we live. It is currently too soon to determine exactly how these different factors will have impacted the underlying long run trends in payments behaviour. For the time being, our forecasts are based on the continuation of the underlying long-run trends that were dominating prior to the pandemic, albeit allowing for some flexibility as society evolves. As more evidence about consumer choices is observed over time, this will feed into revised forecasts for the future of payments in the UK.

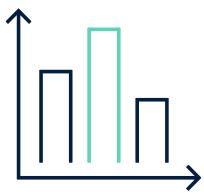
Our forecasts for development of payment volumes over the next ten years can be seen in the chart below.

Total payment volumes in the UK (millions) 2022 vs 2023 forecasts (excluding CHAPS)



*and other remote banking

PAYMENT MARKETS HEADLINES



45.7 bn

payments made in 2022, the second consecutive year of strong growth

2022

- Debit cards were the most used payment method with 23 billion payments, accounting for half of all payments in the UK
- Contactless debit and credit card payment volumes totalled 17 billion
- Cash payments increased for the first time in a decade, rising by 7% to 6.4 billion payments. Cash accounted for 14% of payments and remained the second most frequently used payment method in the UK
- Faster Payments and other remote banking totalled just over 4.3 billion payments, 9% of all payments in the UK
- 45.4 million adults used cash machines in 2022 but frequency of use fell, with 52% of adults using cash machines at least once a month
- Cheque volumes continued to fall in 2022 accounting for less than half a per cent of payments made in the UK
- 86% of adults used remote banking. 65% of UK adults used online banking and 53% used mobile banking
- Bacs Direct Credit volumes increased by 3% to 2 billion payments
- Direct Debit volumes rose 2% to 4.7 billion payments, 10% of all payments
- 12% of people used Buy Now Pay Later services in 2022, unchanged from the previous year
- The value of CHAPS payments was £98.6 trillion.

2032 (PROJECTED)

- Debit cards expected to reach 27.3 billion payments in 2032
- Contactless debit and credit card payment volumes expected to exceed 22.7 billion payments and represent 46% of all payments made in the UK
- Cash use expected to halve, resulting in less than 7% of payments being made using cash
- Faster Payments and other remote banking to grow to 6 billion payments
- Cheques to continue to decline to account for just 0.1% of overall payments
- Use of remote banking is expected to continue to increase to reach 93% of adults in the UK by 2032
- Bacs Direct Credit expected to remain stable at almost 2 billion payments
- Direct Debit forecast to see moderate growth and reach 5 billion payments in 2032.



59%

In 2022 card payments accounted for 59% of all payments in the UK

65%

In 2032 card payments are forecast to account for 65% of all payments in the UK

*excluding CHAPS