



# Special Paper N°8

## Digital payments – The rising tide

*“In the next 5 to 10 years, you’re going to see more change in the financial system than you have over the past 10 to 20 years”.*

– Dan Schulman, CEO Paypal, 2021

When we tap our credit or debit card on a payment terminal, few of us think about the complex network of payments companies authorising the transaction and preventing fraud. Behind the scenes, Visa tracks 500 data points on each payment and uses knowledge gleaned from 141bn transactions over its network each year to check the payment is genuine. Digital payments have evolved over six decades since the original ‘BankAmericard’ to a system where almost any device can be used to make payments<sup>1</sup>.

Payment companies are an important part of Troy’s portfolios; Trojan Fund holds both Visa and American Express, with the latter owned since 2014. Trojan Ethical Fund also owns Mastercard.

The combined holdings give exposure to a rapidly growing sector that we expect will continue to generate strong returns for many years.

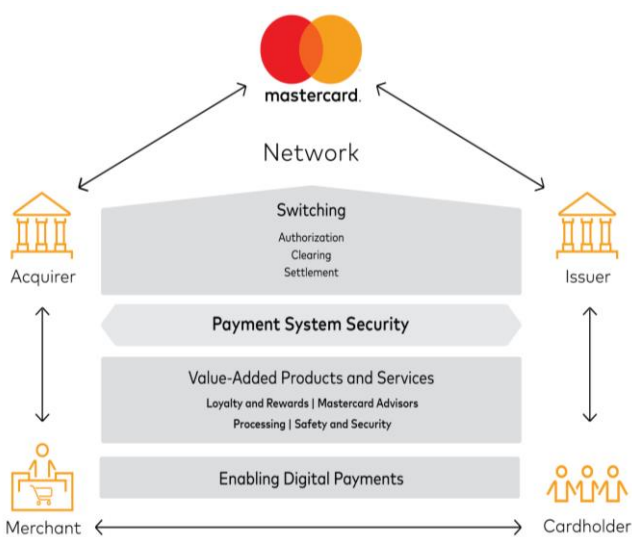
## How money gets from A to B

Most card payments operate over a network called the ‘four-party system’, the parties being the cardholder, the card issuer, the merchant acquirer and the merchant (Figure 1). The cardholder is the person with a debit or credit card and the merchant is the business with a payment terminal. Merchant acquirers are the service providers for the merchant’s side of the transaction, facilitating the authorisation of payments and helping to expand the number of card acceptance points. Card issuers are often high street banks and are responsible for extending payment credentials (debit or credit, linked to a deposit account) to cardholders. The issuer also bears the credit risk for the transaction. When a card is used with the merchant, the card issuer and merchant acquirer communicate through a middleman, known as a network operator, usually Visa or Mastercard.

Visa and Mastercard do not issue cards, nor do they place terminals with merchants. Instead, they connect over 15,000 financial institutions, 70m merchants and 3.5bn cards to ensure a seamless experience wherever the customer wants to pay. They also set the rules for the payments system, including the contracts that determine the allocation of responsibilities and fees to participants.

From the merchant’s standpoint, when you swipe your credit or debit card they receive the price of the goods minus a fee, known as the ‘merchant discount rate’. The fee varies depending on the merchant, country, line of business and transaction size. If a consumer spends \$100 at a local grocer, the latter may only receive \$98. The bulk of the \$2

Figure 1 – Four-party Card Network



Source: Mastercard

<sup>1</sup> Bank of America launched the first credit card in 1958 under the brand ‘BankAmericard’. The pilot would go on to be the foundations of the Visa business.



fees are kept by the card issuer (known as the 'interchange fee') for bearing the credit risk. The merchant acquirer earns a much smaller share, perhaps 10c. The card networks, acting as middlemen, earn around ~13c on each \$100 transaction. The small fees quickly multiply if you are Visa, processing ~\$9tn in payments a year. The company had revenues of \$22bn in 2020.

Almost all card payments operate over the Visa and Mastercard networks, with American Express (Amex) the only other entity with significant global presence. Amex combines the merchant acquirer, card issuer and network operator into a single business. The benefits of the 'three-party system' are that Amex keeps all the fees and they have a direct relationship with both consumer and merchant, giving end-to-end control that enables customised risk models (e.g. large credit lines). The downside is that the model is much more difficult to scale as it must establish its own presence as a regulated card-issuing bank in each new country and build merchant acceptance.

### The rising tide that lifts the industry

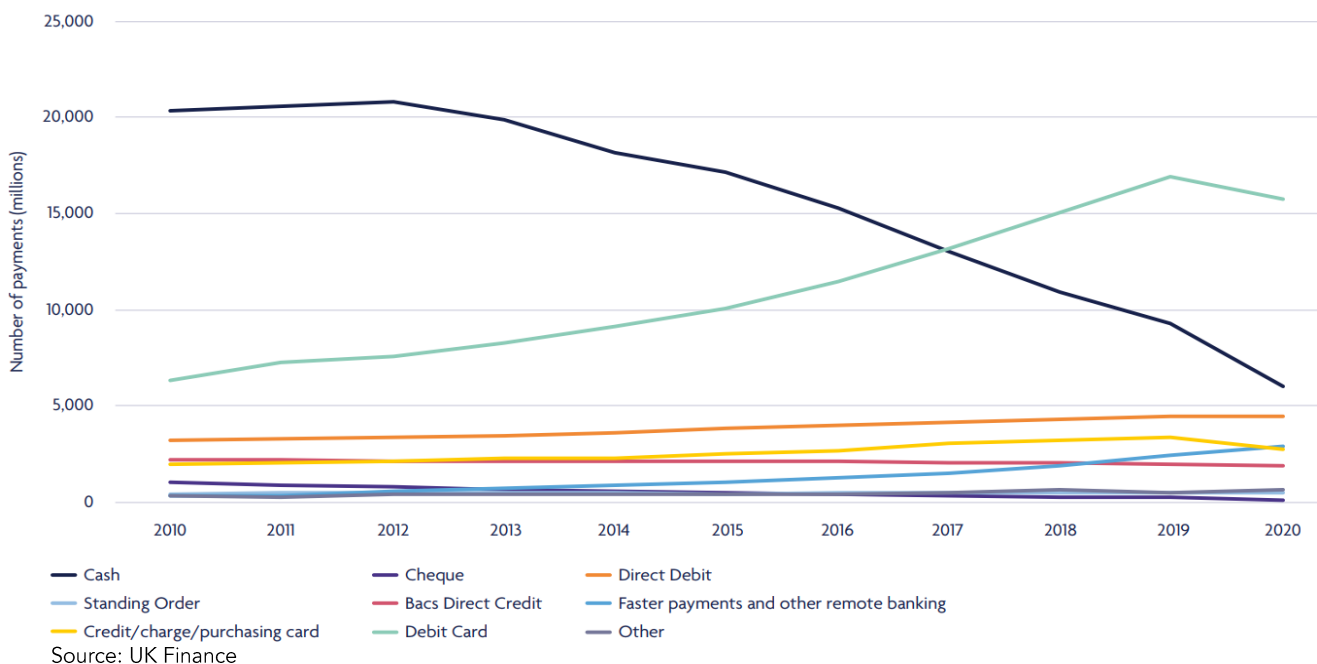
Card payment volumes have grown over the past 20 years in the UK, as cash and cheques have declined (Figure 2). There are several drivers of this growth, but a key factor is the convenience and

ubiquity of card acceptance, meaning it is usually the easiest way to pay for goods or services. Card payments are also trusted by consumers and safety is another factor driving usage. Gone are the days of losing a £10 note; if you lose your card you can instantly freeze it, minimising the risk of any loss. Similarly, if a customer is a victim of fraud, the card networks can often reverse a payment. In several markets, customers also receive highly prized rewards for card expenditure, including free flights and cashback offers.

Growth in e-commerce has also benefitted the card networks, as almost all online payments today utilise a debit or credit card. Despite e-commerce existing for several years, in the US only \$1 of every \$5 spent on retail purchases comes from e-commerce orders. The opportunity to grow card payments remains immense as online shopping continues to take share from traditional offline retail stores.

Meanwhile, contactless technology has accelerated the adoption of cards for new use cases offline. By reducing the time needed to complete a payment, contactless makes card payments suitable for trillions of smaller daily purchases like coffee and travel. The growth in low value contactless payments can be seen in the declining average transaction size, which has fallen

Figure 2 – UK Payment Volumes (millions)





from \$67 in 2011 to \$47 in 2020. These lower value payments are also higher yielding for the card networks, meaning their fee as a percentage of the transaction value is higher. Most transport systems around the world now encourage contactless payments, further driving card adoption and reducing the need for cash.

Card penetration has been increasing at a steady three percentage points a year since 2003, although there is still a long way to go with less than half of personal consumption expenditure (excluding China) on card. The coronavirus pandemic offered unexpected challenges, and opportunities, for the card networks. In the short term, their highly profitable cross-border business was adversely impacted by travel restrictions. However, the pandemic also entrenched consumer preferences for card, as cash became a potential vector for virus transmission and lockdowns forced a shift to e-commerce. Many merchants that had

previously resisted having a card terminal made the switch, improving acceptance. Early data from the US suggest that 2020 saw as much as seven percentage points of cash decline (Figure 3).

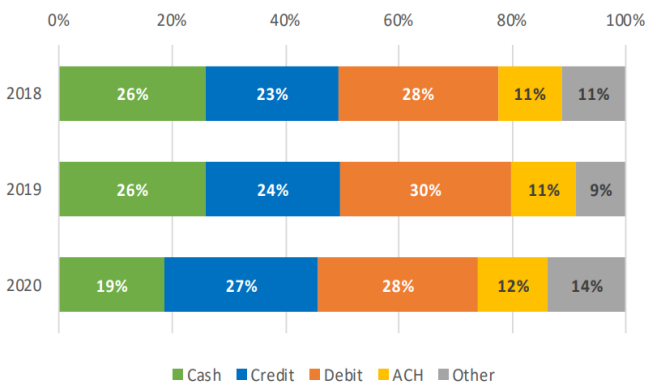
Similar trends in card growth can be seen in many countries around the world, although most are starting from a lower base (Figure 4). Moreover, with consumer spending still below pre-pandemic levels in many areas, the acceleration in digital payment adoption brought about by Covid-19 is yet to be reflected in the card networks' revenues. Markets that have lower card penetration today offer years of growth for the networks, even as card use increases. The profit opportunity from a combination of GDP growth, inflation and secular card adoption is, in our view, underappreciated by many. Card usage is a rising tide that should lift the payment industry for many years.

**Is everyone winning?**

Whilst many companies are growing at a consistently high rate, not everyone is winning. Some businesses that have failed to invest sufficiently are facing ever-greater competition from fintechs and challengers that are appearing across the four-party card network.

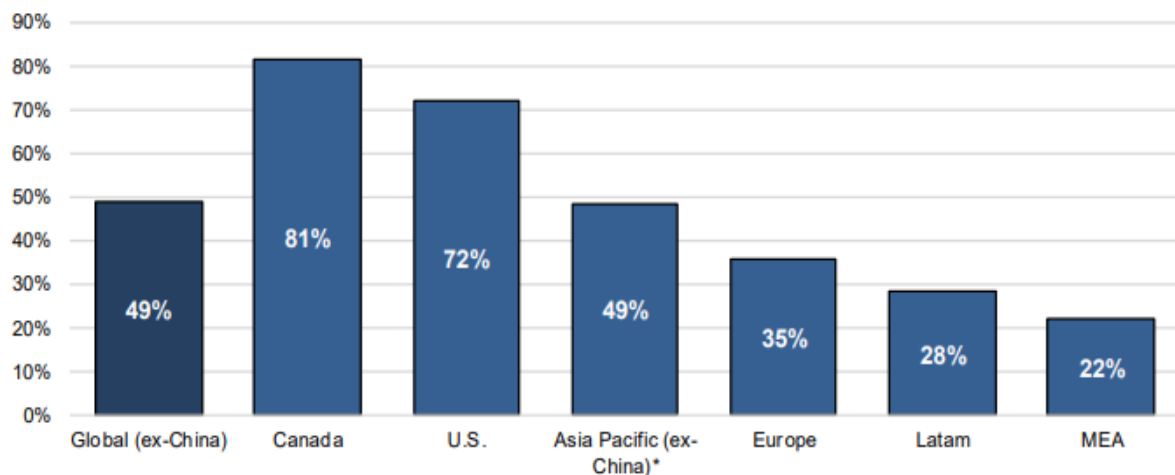
On the card issuer side, traditional high-street banks are competing with digitally native banks and e-money institutions like Monzo and Revolut in the UK. These newer companies are unburdened by the legacy systems that larger banks have amassed over decades. Their modern technology

Figure 3 – US Share of Payment Method Use by Year



Source: Cash Product Office, Federal Reserve

Figure 4 – Card Penetration of Personal Consumption Expenditure by Region



Source: 2020, Moffett Nathanson



infrastructure means they are able to offer a better experience and more competitive prices on products such as international transfers.

Merchant acquirers are also facing intense competition. In the past a merchant acquirer relied upon large sales teams to physically visit shops around the country and sign up merchants to a contract for a card terminal. The card terminals were bulky and expensive pieces of dedicated equipment for authenticating card payments. An ever-growing number of shops now operate exclusively online; companies like Stripe, Adyen or PayPal offer similar services to a merchant acquirer but are tailored for e-commerce stores. They typically offer a better checkout experience for consumers and let merchants accept payments faster than traditional merchant acquirers. The disruption is also happening in bricks and mortar stores, with companies like Square offering iPhone connected payment terminals for as little as £16. Competition amongst merchant acquirers and fintechs is good news for the card networks, as they increase adoption by providing more acceptance points and improve the customer experience.

## Healthy competition

In recent years, various innovations have emerged, casting doubt over the continued centrality of the card networks. These have come in the form of wallets such as Apple Pay and PayPal as well as a host of new business models, from Uber to Airbnb. To-date, these players have all partnered with the networks, leveraging the scale that Visa, Mastercard and American Express have built up over decades. The barriers to entry for card networks are immensely high. To launch your own payments network you need to convince thousands of commercial banks to give you access to cardholder accounts, while simultaneously convincing millions of merchants to accept your payment method. Neither side is keen to sign up to the network until the other party is present.

There are some hard to predict threats to the card networks. These include nationalism in the form of government-backed payment networks, such as UBI in India, as well as anti-trust regulation restricting acquisitions. We monitor these closely, but feel confident that both are manageable.

A recent challenge has come in the form of the 'buy now, pay later' (BNPL) businesses. These companies offer small loans at the checkout of stores that typically enable consumers to spread the cost of goods over three or more monthly payments. In the short term, BNPL benefits the card networks, as the pricing structure means three small payments earn Visa or Mastercard almost twice as much as a single large one. In the long term, some investors are concerned that BNPL providers could exert pricing pressure as they grow to be a significant merchant for card payments. For now, at least, that looks unlikely, as the large BNPL providers combined only accounted for ~0.4% of total card volumes. Another concern is that the BNPL companies move to a 'closed loop' system, sidestepping the card networks. While this is possible, past disruptors like PayPal have opted to continue to partner with the card networks, recognising the benefits of their immense scale in merchant acceptance.

## Innovation

The card networks are often referred to as 'card rails', analogous to a train track moving money from A to B. However, there are other ways of transferring money, with cheques and bank transfers commonly used for business-to-business (B2B) payments. These non-card payment rails are often inefficient and expensive with transfers taking several days to clear. The opportunity in B2B alone is vast, with over \$120tn in annual payment volume, ~3-4x the size of the entire consumer-to-merchant payments market.

Interbank payment infrastructure is often facilitated by an Automatic Clearing House (ACH). Historically, ACH has been used for transfers from businesses to customers (B2C) and business to business (B2B). Although ACH technology has improved, particularly its speed, it is still far behind the card networks in areas like fraud prevention. The card networks are trying to improve efficiency in these markets by launching Visa Direct and Mastercard Send, which reverse the traditional consumer-to-business (C2B) payment flow to allow consumers to receive payments using their existing debit cards.



Visa has seen strong traction from companies using Visa Direct for remittance and disbursements, with companies like Uber offering daily payments to drivers using the technology. Remittances and disbursements represent \$60tn in annual volumes alone. Visa Direct also enables instant transfers for peer to peer (P2P) services like PayPal, Venmo and Square in the US. Estimates suggest that \$500bn in payment volumes already run through Visa Direct and Mastercard Send products in 2020.

Visa and Mastercard are addressing the vast B2B payment pool through products like virtual cards and reconciliation software. Virtual cards allow a company to generate a card number that is authorised only to make a single payment to a specific retailer. Products like Visa BPN and Mastercard Track are B2B products designed to assist with data flow on larger payments between companies. Traditionally a bank transfer must be reconciled with an invoice or purchase order between the two parties. The reconciliation process is manual and therefore expensive. The new Visa and Mastercard products should enable the vast majority of B2B payments to be automatically reconciled, offering significant savings to enterprises. Each new product launch expands the total addressable market for these businesses, extending the duration they can maintain high levels of growth.

As of today, the bulk of Visa and Mastercard's business continues to be built on payments over the card network. However, both companies are increasingly embracing 'non-card rails' and value-added services. Mastercard has acquired Vocalink, a business that runs the BACS payment system in the UK and is applying its technology to bank account-based transfers that do not use the card networks. Similarly, Visa has a bank transfer service called B2B Connect that aims to simplify and speed up large cross-border transfers. Both Visa and Mastercard have also launched data analytics and cyber security products that generate service revenue, now comprising ~30% of the latter's net sales. The willingness of these companies to embrace competing technologies, as opposed to fighting them, gives an insight into a culture of innovation and openness at both businesses.

## Conclusion

A considered analysis of threats like BNPL serves to remind us that the payments industry is not a zero-sum game and consumer habits take a long time to change. Mastercard and Visa compete directly with one another, but both have been able to grow at a healthy rate. Similarly, the card networks compete with non-card payment methods, but there is room for both, and cards remain dominant. It is worth remembering that despite all of the advantages of cards, 26% of payments in the US were still in cash in 2019. People's habits take decades to change, especially in a highly regulated industry that slows new entrants. The structural growth drivers highlighted earlier are far from mature. The remarkably stable market shares of the payment networks are testament to the high recurring revenues in the sector. As the payment industry continues to evolve, we are confident that the card networks have the necessary attributes and culture to overcome any challenges they may face.

Marc de Vos

October 2021





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