



World without cash – changes in conventional banking and payment systems

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Summary

- Cash remains the dominant means of payment in most countries around the world – with its importance being highest in Africa and lowest in Oceania.
- With approximately 60 % of transactions being made in cash, Germany ranged in the upper midfield in Europe in 2020. However, compared to 74 % in 2017, the decline in cash use was massive – probably also due to the COVID-19 pandemic.
- The main winners of this development in Germany are the providers of debit and credit cards. These are used as plastic cards in bricks-and-mortar trade and as virtual cards for processing mobile payments and Internet payment methods.
- New players such as BigTechs and FinTechs are becoming increasingly active with regard to payment transactions and offer products and services for more convenient payments with various additional functions.

players themselves facilitate open banking, i. e. the linking of services from different providers by opening up interfaces as a basis for the development of new types of non-cash payment solutions.

Numerous new players – BigTechs and FinTechs – have already succeeded in entering the financial and banking market, thus having changed the banking ecosystem considerably. Given the presence and market power of US card providers and BigTechs – large companies with established technology platforms, such as Alibaba, Amazon and Facebook – as well as the probably increasing influence of Chinese BigTechs with regard to payment transactions, maintaining the European banking industry’s ability to act is of great importance. The major concern of the central banks in this field is the development of products for different payment situations under a European umbrella brand. In Germany, the German banking industry is working on the integration of several payment solutions into a uniform payment system for all payment situations and channels under the designation #DK.

What is involved

Cash is the only legal tender in Germany and also the one that is the most frequently used. No non-cash means of payment shows a comparably high level of inclusion and privacy protection. In contrast, the use of non-cash means of payment involves more preconditions for consumers than the use of cash: Thus, prior to using the non-cash payment solution, a contract must first be concluded with a private payment service provider. Although the use of cash, for example in bricks-and-mortar trade, is free of charge for consumers – the circulation of cash and the cash infrastructure are not. All these aspects – combined with decreasing costs and improved availability and propagation of basic non-cash payment technologies, consumers’ growing demand for more convenient payment methods with additional features as well as the COVID-19 pandemic – continue to boost the spread of non-cash payment solutions. In addition, legal regulations to open up data repositories and proprietary systems as well as initiatives by the market

Cash – often advantageous for citizens, but ambivalent for other players

In its function as legal tender, cash facilitates the exchange of goods and services and serves as a means of storing value. By storing value in cash, consumers can avoid negative interest rates. However, high cash holdings reduce the central banks’ monetary policy steering options.

Handling cash is easy for citizens and independent of technical and motor skills or of owning a smartphone. This does not

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apply in the same way to the more abstract non-cash means of payment. Moreover, cash can be used as a means of payment even if payment transactions are affected by power and IT failures or cyber attacks.

Another positive feature of cash is that there are no compatibility issues: In bricks-and-mortar trade, it can in principle be used anywhere. Payments are settled immediately.

Anonymous – perhaps too anonymous?

Moreover, citizens appreciate the protection of privacy and the preservation of anonymity when paying with cash. It is a matter of debate whether these attributes make cash particularly attractive for the shadow economy. Germany and Austria – both with a comparatively high cash share in total transactions – have a relatively small shadow sector. Sweden, on the other hand, where cash now plays only a minor role, has a medium-sized shadow sector. For some countries, however, an assumed connection between cash use and shadow economy can actually be confirmed. For example, the Anglo-Saxon countries, Switzerland, the Netherlands and France – as countries with a relatively low cash use – tend to have less activity of black economy than countries such as Spain, Italy and Greece with high rates of cash use.

From the consumer's point of view, the disadvantage of cash is that it can only be used in one's own currency area – apart from countries where, for example, the euro circulates as a parallel currency. But even within the euro area, mobility and possible uses are limited by mandatory declarations and statutory upper limits.

Cash cycle and infrastructure – by no means free of charge

The services for putting cash into circulation as well as the cash infrastructures – most of which are offered by commercial banks as well as cash-in-transit companies – are priced and their costs are passed on to retailers and end customers, first directly via business account fees and then indirectly via consumer prices. A development like that in Sweden, where cash transactions hardly play a role any more, is rather unlikely in Germany in the medium term. However, the question of the costs and the assumption of costs for providing the cash infrastructure might also arise in Germany if cash use continues to decline.

Non-cash payment solutions – drivers, technologies and consumer preferences

In Germany, the trend towards cashless payments is intensifying. According to a survey by the Deutsche Bundesbank on payment behaviour in 2020, debit card payments including contactless payments accounted for 23 % of total transactions (2017: 19.1 %). The share of credit card payments including contactless payments amounted to 6 % (2017: 1.6 %). In 2020, 15 % of payment transactions were contactless payments (11 % with debit cards, 4 % with credit cards). This is 25 times more than in 2017, when only 0.6 % of debit and credit card payments were contactless payments. The share of Internet payment methods including accounted for 2 % (2017: 1.9 %; 2008: 0.1 %). Mobile payment methods did not yet play a role in 2017 and amounted to 2 % in 2020. Both in 2017 and 2020, cryptocurrencies and digital currencies were still a niche market. In the future, the share of card payments and mobile payments in total transactions is likely to grow even more strongly than so far. The German banking industry estimates growth to be 2 % per year (so far about 1 % growth on a multi-year average). The management consultancy McKinsey & Company even assumes a stable annual growth of 5 % for card payments.

A potpourri of different factors is fuelling the increasing momentum for non-cash means of payment. Even before the COVID-19 pandemic, bricks-and-mortar retailers were increasingly offering card payments. On the one hand, this is due to the fact that the prices for card terminals have de-

Taking a glance at Sweden

The amount of cash in circulation is 1 % of GDP – the EU average is 10 %.

In current surveys, it is assumed that only 6 % of transactions are still settled in cash.

In 2012 already, banks introduced the mobile payment platform Swish, which is used by 70 % of the Swedish population.

Swedish government responses to the cash decline include a push for the central bank's digital currency – the e-krona – and a legal obligation for banks to restore cash supply levels from 2017.

creased, because there are several providers in the meantime. On the other hand, Regulation (EU) 2015/751 on interchange fees for card-based payment transactions – which came into force in 2015 – makes this payment method more favourable for retailers.

Moreover, the spread of near-field communication (NFC) technologies (enabling contactless payment with plastic cards or card-based mobile payment methods) and smartphones as a universal tool is of central importance. In the meantime, practically all terminals in the retail sector support contactless payment. This development was driven by the introduction of the contactless Girocard. NFC enables the contactless exchange of data over short distances. The technology combines radio-frequency identification (RFID) and smart cards. Data transmission occurs via inductive coupling of high-frequency magnetic fields. For this, an NFC device acts as an active transmitter and passive receiver of the corresponding data.

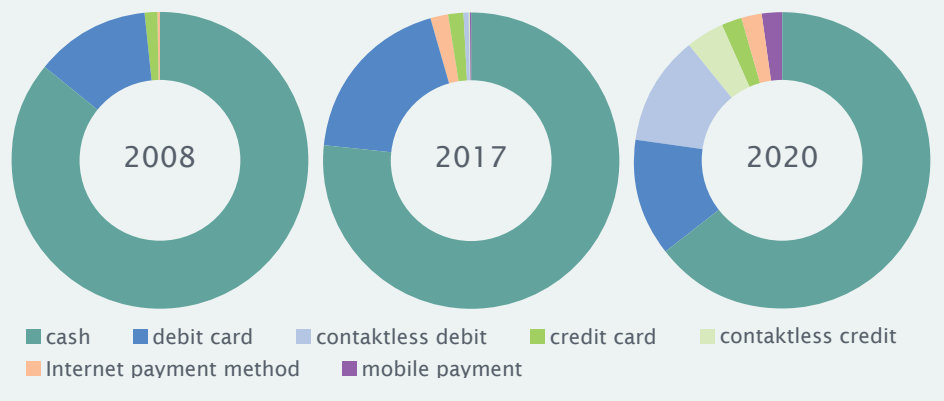
In the meantime, the demands of consumers themselves are also pushing the spread of non-cash means of payment, as aspects such as convenience are becoming increasingly important to them: Contactless payment even of small amounts by card and mobile payment are quick and convenient. Moreover, mobile payment apps offer additional functions (convenient retrieval of payment history, management of coupons and bonuses, etc.). Some apps offer their users complete consumption and service ecosystems, such as the Chinese app WeChat from Tencent. The idea here is that all everyday needs can be covered with an app (e.g. communication, ordering food, organising doctor's appointments, administrative services) and that all this is linked to a payment function (economies of scope).

New players and their motives

A few years ago, it would have been unthinkable for many industry players that BigTechs would challenge the business model of banks and savings banks by intervening in their customer relationships. The motives for offering financial and payment services as well as for the business models pursued are quite different for the individual companies.

Just like WeChat and Tencent, Apple intends to bind customers even more strongly to its own ecosystem. Unlike Google, however, Apple probably does not focus on data-based business models, but on the tangible generation

Share of cash in total transactions compared to that of selected non-cash means of payment in Germany



of fees. Thus, for example, banks and savings banks have to pay a transaction fee (of an unknown amount) to Apple for each transaction via Apple Pay.

Banks and savings banks usually cannot escape the pressure to cooperate that is created by BigTechs, because their customers expect to have access to innovative solutions from Google or Apple for payment transactions.

However, the vast majority of FinTechs (young companies that develop and offer technology-based, specialised and customer-oriented financial services) are more interested in stable partnerships with banks, because these cooperations are in their mutual interest: While FinTechs thus gain access to the banks' broad customer base, scale their offerings faster and can therefore secure their refinancing, banks benefit from the FinTechs' ability to innovate by integrating their solutions into their product portfolio.

Taking a glance at China

Electronic means of payment are increasingly replacing cash.

Besides card payments, Alipay from Alibaba and WeChatPay from Tencent are common payment methods.

The government supports digital business models for payment transactions – also in order to obtain data. Alibaba and Tencent are partners in China's social credit system.

There are reports of first tests in Chinese cities with the e-yuan, the Chinese version of a digital central bank currency.

Security and data protection – a broad field

The question of how non-cash payment solutions compare to cash in terms of security and data protection must be answered in a differentiated way: Thus, paying with debit cards can be rated as relatively secure compared to many other non-cash payment methods, and the level of data protection is also comparatively high. However, credit cards score worse on both counts.

In general, the level of data protection for new payment solutions such as Internet payment methods and mobile payments is lower than for card payments, as data is also collected and processed here that is not directly related to the payment process. In contrast, the level of security for NFC and card-based mobile payments using smartphones is higher than for (contactless) payments with cards, as so-called tokens are used in addition to the general authentication mechanisms. A higher level of security can be ensured if biometric features are required to unlock the smartphone. While stolen contactless cards can be used for a limited number of payments and for limited payment amounts without entering the personal identification number (PIN), this is not possible with a payment app – provided the stolen smartphone is protected with a biometric lock.

Some non-cash payment methods violate the principle of systematic IT security, according to which new login credentials should be used for each login process and service provider that are not known to any other service or third party. However, according to Directive (EU) 2015/2366 on payment services in the internal market, this is admissible.

Outlook

Is it imaginable that in Germany, too, the number of cash transactions could be below 15 % or even lower one day, as it is the case in Scandinavia, Iceland and the UK? And for which rate of use would it no longer be economically viable for retailers and commercial banks to maintain a cash infrastructure?

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Welt ohne Bargeld – Veränderungen der klassischen Banken- und Bezahlssysteme

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These and other questions about the future of payment transactions essentially depend on the following factors: consumers weighing up convenience against privacy, the attractiveness of non-cash payment methods (functional properties, costs of use) for end customers and retailers, and the availability of a central bank digital currency (CBDC). If a digital euro were to become available at the end of the 2020s or the beginning of the 2030s as a legal payment alternative to cash that would presumably be cheaper in terms of infrastructure, a considerable number of retailers – depending on their respective customer structure – would probably no longer offer a cash payment option. And if, in addition, a uniform payment system for all payment channels of the German banking industry as well as a European card system in compliance with European data protection standards were to be offered in future, it would be imaginable that consumers would be more likely to abandon their data protection reservations about non-cash means of payment and continue to turn their backs on cash. Assuming a cash decline of 3 % per year for the next 10 years, however, 30 % of all transactions would still be settled in cash in 2030.

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