# 2
# Europe: The Shift from Cash to Non-Cash Transactions

*Janina Harasim*

## 2.1 Cash and non-cash transactions in European countries – general trends

### 2.1.1 Use of cash and non-cash payments: areas of predominance

Traditional payment systems were built around cash. Non-cash payment instruments, including payment cards, used most often besides cash in retail payments, occurred quite recently, as it was in 1940–1950s. Innovative payment instruments that may become an alternative for cash have even a shorter history.

Currently, cash and non-cash payments are perceived as equivalent even though the spheres and scopes of their circulation are different. Generally, supply of cash and non-cash payments as well as the scale and range of their use depend on many factors such as regulatory framework, interests of parties involved in payment execution (payment services providers – PSPs, acquirers, clearing and settlements agents, as well as end users of payment services, including consumers and merchants), economic and social determinants (for example, the level of economic wealth or diversity in incomes), cultural factors (for example, the importance of personal relationships) or technological ones (access to the Internet and mobile devices).

Non-cash payments are predominant in transactions concluded between legal persons. Payments between public institutions (G2G) or between enterprises (B2B) are conducted largely in non-cash form which results first of all from the fact that non-cash transactions are safer, more comfortable and cheaper. They enable to reduce huge costs (cash involves several social costs to individuals – especially the poor – as well as business and the government) and the size of the shadow



J. Górka (ed.), *Transforming Payment Systems in Europe*

economy. In transactions between a legal person and a natural person, the use of non-cash instruments is not so common. This is because, even if B2C and G2C payments (for example payment of salary or social benefits) take the non-cash form, transfers in the reverse direction, for example payments for purchase of goods and services or regular payments (like bill payments, credit instalment repayment and payment of insurance premiums) are still often executed using the cash – see Table. 2.1.

Therefore, payments made with the participation of consumers are the area where cash is used most frequently. Moreover, P2P (person-to-person or peer-to-peer) transactions are the sphere of largest cash predominance. Cash is also relatively often used in C2B (consumer-to-business) transactions executed face-to-face at a physical point of sale or in remote way, most often on the Internet. This type of transactions will be further referred to as retail payments. They will be approached as low-value payments made by consumers, so they will not include low-value payments made between enterprises (B2B), between enterprises and public institutions (B2G) or between public institutions (G2G).

*Table 2.1* Usage of cash and non-cash instruments by type of the settlement

| | | **Creditors*** | | |
|---|---|---|---|---|
| **Details** | | **Consumers (C or P)** | **Enterprises (B)** | **Public institutions (G)** |
| Debtors* | **Consumers** (C or P) | **P2P**<br>Mainly cash<br>Rarely CT | **C2B**<br>Cash, Cards<br>DD (paying bills)<br>rarely CT | **C2G**<br>Cash or CT |
| | **Enterprises** (B) | **B2C**<br>Mainly CT,<br>rarely cash | **B2B**<br>Mainly CT<br>Possible legal limits on cash usage | **B2G**<br>Mainly CT |
| | **Public institutions** (G) | **G2C**<br>Mainly CT<br>Rarely cash | **G2B**<br>Mainly CT | **G2G**<br>Mainly CT |

*C – Consumer or P – Person/Peer, B – Business, G – Government
CT – Credit Transfer
DD – Direct Debit

*Source*: Own work.

Retail payments have a lot of specific features. They are:

- typically made in large numbers by large numbers of transactors and typically relate to purchases of goods and services in both the consumer and business sectors;
- made using a range of payment instruments much wider than large-value payments and in more varied contexts, including, for example, payments made in person at a point of sale as well as for remote consumer and commercial transactions; and
- characterised by extensive use of private sector systems for the transaction process and for clearing (Bank for International Settlements, 2002, p. 6).

### 2.1.2 Pace of development of non-cash transactions and changes in payment mix

Recent years have been a period of almost continuous increase in the number of non-cash transactions all over the world. However, the growth is quite diversified and reaches significantly higher levels in regions clustering developing countries (CEMEA – Central Europe, Middle East and Africa, Latin America and developing countries of Asia), in comparison with regions gathering mostly developed countries – see Table 2.2. In the latter group double-digit paces of increase in the volume of non-cash transactions were reported only in developed countries of the Asia-Pacific region. In Europe and Northern America the pace of growth in non-cash transactions was relatively low, which can be partly explained

*Table 2.2* Non-cash transactions by region – number and growth, 2008–2012

| Regions | Number of Worldwide Non-Cash Transactions by Region (Billion) | | | | | CAGR (%) |
|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2008–2012 |
| Emerging Asia | 11.8 | 13.6 | 16.4 | 19.5 | 23.9 | 19.3 |
| CEMEA | 11.7 | 15.3 | 19.4 | 23.3 | 28.8 | 25.2 |
| Latin America | 18.9 | 23.8 | 25.6 | 29.3 | 32.5 | 14.6 |
| Mature Asia-Pacific | 22.0 | 26.3 | 27.2 | 30.1 | 33.5 | 11.0 |
| Europe (including Eurozone) | 74.2 | 77.2 | 80.8 | 84.2 | 87.6 | 4.3 |
| North America (US and Canada) | 111.2 | 113.1 | 116.6 | 124.0 | 127.9 | 3.6 |
| Global | 249.8 | 269.4 | 286.0 | 310.4 | 334.3 | 7.6 |

*Sources*: Capgemini and RBS (2013, p. 7), Capgemini and RBS (2014, p. 7).

by the fact that non-cash turnover is already significantly developed there.

After the financial and economic crisis of 2008 to 2009 in the majority of world regions, a clear slowdown of the pace of growth in non-cash transactions was reported (Capgemini *et al.*, 2011, p. 9). In the years that followed, this pace started to grow again, however, mainly in developing countries. In the USA, in 2011 it reached as much as 6.4% (in comparison with the previous year), but in 2012 it was already by half lower (only 3.2%). This was caused, among others, by impact of new interchange fee regulations which limit the maximum permissible interchange fee that a covered issuer can collect from merchants for a debit card transaction.[1] In the same period in Europe a smaller decline was reported in the pace of increase in non-cash transactions – from 4.3% in 2011 to 4.0% in 2012. However, the situation in Europe was really diversified. The rate of growth of non-cash transactions was in 2011 (in comparison with the previous year) definitely lower in the countries of the Euro Area than in other EU countries. In the first group Spain and Ireland reported even the fall in the volume of non-cash transactions in comparison with 2010 (respectively by 1% and 0.8%), whereas the highest growth in number of these transactions occurred in Finland (10%) while the average rate in Europe was on 4.2%. In the countries outside the Euro Area the volume of non-cash transactions was growing the fastest in Poland (14.6%), as well as in Great Britain and Denmark (7.6% each) (Capgemini *et al.*, 2013, p. 8). In 2012 the pace of growth of non-cash transactions in Europe was influenced, among others, by actions taken by governments and banks aiming at discouraging the use of cash for low-value transactions (for example the Netherlands or Sweden).

A diversified level of development of non-cash transactions in particular regions is accompanied by huge differences in application of particular payment instruments – see Figure 2.1. Basic non-cash payment instruments include credit transfer, direct debit, payment cards and cheques. Differences in the range of their use are mainly the result of diversity of payment cultures, which were shaped for years under the influence of historical, economic, social, psychological and technological, etc., factors.

Increase in payment cards use and decline in the share of cheques are a common feature of changes that have been occurring over recent years. As a result, payment cards became a fundamental instrument used in non-cash payments across the globe. However, their share in the total number of non-cash transactions was very diversified – the largest in

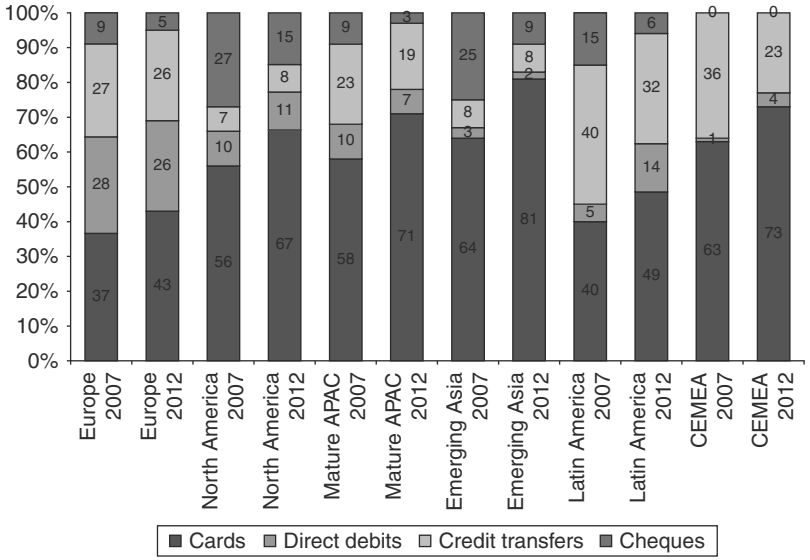


*Figure 2.1* Change in payment mix by region, %

*Note:* APAC – Asia and Pacific .

*Sources*: Capgemini and RBS (2013, p. 11), Capgemini and RBS (2014, p. 9).

the countries of Emerging Asia (over 80%) whereas the lowest, which is quite surprising, in European countries, where it reached 43% in 2012.

However, there are no more similarities between regions. And if in Northern America and in the countries of Emerging Asia, cheques are the second payment instrument with respect to importance, in the regions of Latin America, CEMEA and Mature APAC, between 19 and 32% of non-cash payments is made via credit transfer. The use of direct debit was in these regions relatively small (the largest in Latin America where it reached 14% in 2012) similarly to cheque usage.

In Europe the payment mix is totally different. Although also here payment cards are the basic instrument of non-cash payments, their predominance is not as evident as in other regions. A relatively high share of direct debit and credit transfers that reach a similar level (26% of the total number of non-cash payments in 2012) is a typical feature of the payment mix in Europe. Cheque usage appears to have declined, and in 2012 it reached 5%. The volume of transactions made by particular payment instruments is shown in Figure 2.2.

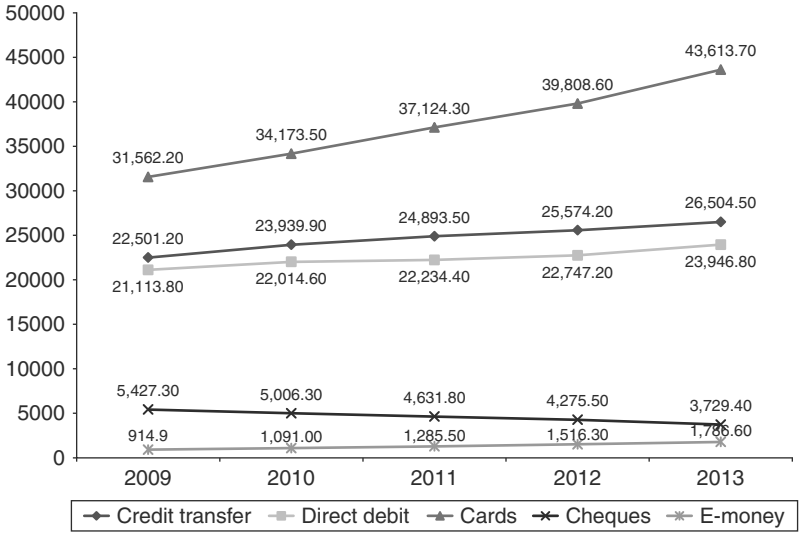


*Figure 2.2* Use of non-cash payment instruments within the EU, number of transactions

*Source*: EBC Statistical Data Warehouse (ECB, 2015).

Nevertheless, European countries differ significantly with respect to the scope of use of particular non-cash payment instruments. Generally payment cards and direct debit are much more often used in the EU-15 countries, and credit transfer is more popular in the new EU countries – see Table 2.3.

Further growth in non-cash turnover seems to be an irreversible trend. A.T. Kearney predicts (A.T. Kearney, 2013, p. 3) that in the nearest future in Europe, which represents a third of the total number of non-cash transactions in the world, the volume of non-cash payments will grow faster than in recent years. This should result, among others, in the decline of the share of cash in retail payments from around 70% in 2015 to 60% in 2020 – see Figure 2.3.

### 2.1.3 The share of cash in performed payments and major areas of its use

However, it ought to be stated that rapid growth of non-cash transactions does not necessarily mean cash displacement in money circulation (Górka, 2009, p. 53). In contemporary monetary systems, the size

*Table 2.3* Countries of the largest share of particular payment instruments in the number of non-cash transactions, 2013

| Payment instrument | 1st position | | 2nd position | | 3rd position | | EU | Euro area |
|---|---|---|---|---|---|---|---|---|
| | Country | Share (%) | Country | Share (%) | Country | Share (%) | Share (%) | Share (%) |
| Credit transfer | Bulgaria | 80.1 | Hungary | 57.5 | Croatia | 55.8 | 26.5 | 25.9 |
| Direct debit | Germany | 49.8 | Spain | 41.1 | Austria | 36.2 | 23.9 | 29.0 |
| Card payments | Denmark | 71.8 | Portugal | 67.6 | Estonia | 66.9 | 43.6 | 37.5 |
| Cheques | Malta | 26.3 | Cyprus | 16.4 | France | 13.6 | 3.7 | 4.4 |
| E-money | Luxemburg | 87.7 | Italy | 5.4 | Greece | 2.2 | 1.8 | 2.3 |
| Others | Italy | 6.5 | Hungary | 1.2 | Austria | 0.9 | 0.4 | 0.6 |

*Source*: Own work based on European Central Bank (2015).

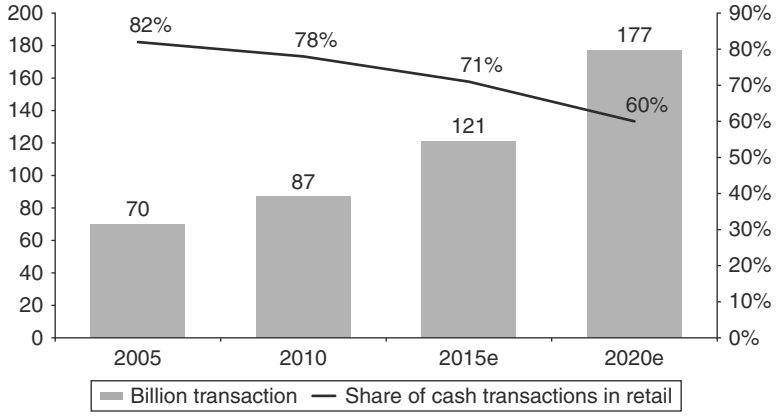


*Figure 2.3* Growth of non-cash transactions in Europe and share of cash, 2005–2020e

*Source*: Based on A.T. Kearney (2013, p. 3).

of money supply and the share of cash in circulation are the result of a specific game between central bank (increasing or decreasing the amount of money in the banking system and influencing the money supply by e.g. modifying reserve requirements), commercial banks (creating money through giving loans in cash and non-cash form) and non-banking entities (deciding about storing of their resources in cash or non-cash form). Among the latter, there are consumers who have a decisive impact on the share of cash in circulation.

This thesis seems to be confirmed by the data of the Bank for International Settlements. It shows that rapid growth of non-cash transactions in recent years has been accompanied by an increase in the value of banknotes and coins in circulation in relation to GDP, particularly in the countries that have relatively high levels of this rate – see Table 2.4. It occurred in almost all countries or regions included in the table except for India. Apart from India, the fall in the value of this rate was reported in Sweden and the Republic of South Africa, among others: a slight growth was reported in Korea, Mexico and Turkey, whereas in Canada, Australia and Great Britain its level was relatively stable in the analysed period (Bank for International Settlements, 2014, p. 443).

Cash still remains a basic payment instrument in many regions – it is almost exclusively used by inhabitants of Latin America, Asian countries (except for developed countries of the Asia-Pacific region) and Africa. According to McKinsey, in 2007, 98–99% of payments in

*Table 2.4* Banknotes and coins in circulation: value as a percentage of GDP

| Region | 2008 | 2013 | Change (%) |
|---|---|---|---|
| Euro Area | 8.50 | 10.23 | +1.73 |
| Hong Kong SAR | 10.88 | 14.29* | +3.91 |
| India | 12.27 | 11.49 | –0.78 |
| Japan | 17.17 | 19.74 | +2.57 |
| Russia | 10.61 | 12.46 | +1.85 |
| Singapore | 7.74 | 8.49 | +0.75 |
| Switzerland | 9.13 | 11.40 | +2.27 |
| United States | 6.05 | 7.40 | +1.35 |

*Note*: * data for 2012

*Source*: Bank for International Settlements (2013, p. 439) and (2014, p. 443).

Indonesia, India, Columbia, Russia, China and Mexico were made in cash (Denecker *et al.*, 2009, p. 10). Until recently, also the BRIC countries were the region characterised by definite predominance of cash. However, in recent years the development of non-cash transactions in the majority of the BRIC countries resulted in the fact that Brazil, China and Russia were among the top ten countries with the largest volume of non-cash payments (Capgemini *et al.*, 2012, p. 6). Europe and developed countries of the Asia-Pacific region are the areas where cash usage is relatively small, similarly to the USA.

The share of cash within the M1 money supply is one of the basic measures of cash turnover. In the European Union for several recent years the level of this rate has been quite stable and fluctuated within the range of 17.1–19.7%, whereas in the Euro Area its evident growth from 10.5% in 2001 to 17–18% between 2008 and 2009 was observed – see Figure 2.4. Increase in the share of cash in M1 particularly observed in 2008 confirms the thesis that financial crises and economic breakdowns are accompanied by the loss of trust in non-cash payments and growth of trust in cash, or at least growth in demand for cash. The relatively high share of cash in M1 remaining after 2008 can therefore be considered to be a sign proving the lack of conviction that the economic situation was stabilised, but it can also be a result of low interest rates persisting in Europe.

European countries are characterised by significant differences with respect to the share of cash in narrow money. The countries of very high, over 30%, share of cash in 2013 included Romania, Hungary and Bulgaria, whereas on the other side in Sweden and Great Britain this rate was below 5% – see Figure 2.5.

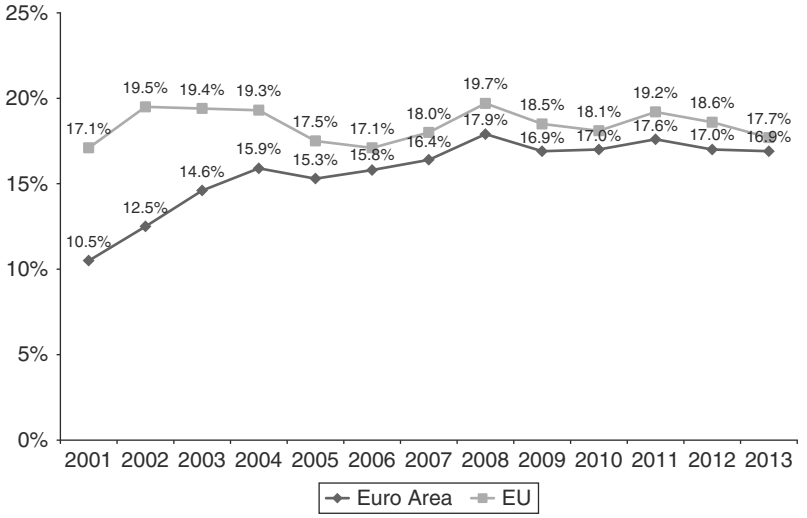


*Figure 2.4* Cash value as a percentage of narrow money (M1), 2001–2013

*Source*: EBC Statistical Data Warehouse (ECB, 2015).

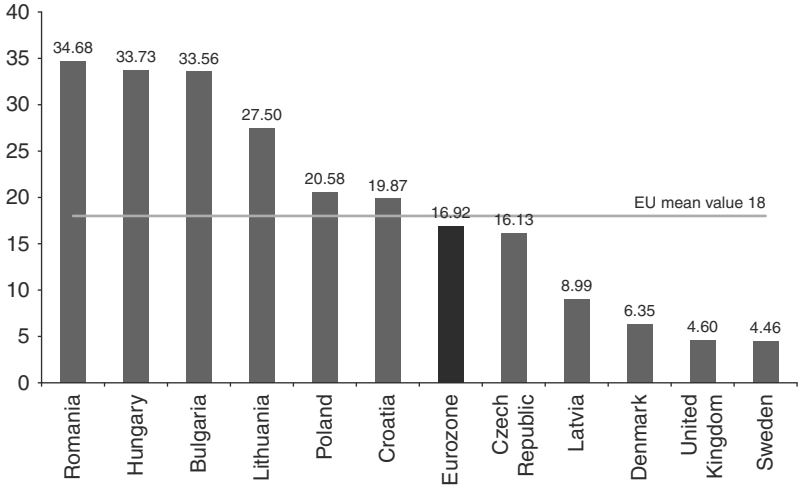


*Figure 2.5* Cash value as a percentage of narrow money (M1): cross-country comparison, 2013

*Source*: EBC Statistical Data Warehouse (ECB, 2015).

It should be emphasised that the countries characterised by high share of cash in narrow money are at the same time the countries of relatively high rate of financial exclusion (measured by the number of bank accounts and the number of non-cash transactions per inhabitant).

Nevertheless, the still very strong commitment of societies in many European countries to cash is first of all proved by significant share of cash payments in the total number of payments (its share in the value of payments is much lower). According to McKinsey, in 2007 the share of cash in retail payments in European countries was relatively high, yet significantly diversified. The highest level of this rate, even higher than 90% was reported in the countries of Central and Eastern Europe (for example, it was 94% for Poland), but Germans also paid in cash quite frequently (75%). The lowest rates of cash usage were reported in Finland, Sweden and France where its share in retail payments reached respectively 47%, 54% and 55% (Denecker *et. al.*, 2009, p. 10). In the following years this rate was falling, but the decline was rather slow. According to the European Central Bank, in 2012 the average rate for the EU countries reached 59.7%, while for the countries of the EU-15, it reached 54.5%, and for the remaining countries, 75.8%. The gap between the country with highest share of cash in retail payments, that is, Greece (96.6%) and Luxembourg with the lowest share (29.1%), reached 67.5 percentage points. On the basis of ECB data, it can be stated that the countries in which cash is still of major importance in payments include mainly the countries of Southern Europe, such as Greece, Italy, Malta, Cyprus and Spain, and the countries of the new Member States, including Bulgaria, Romania, Lithuania, Poland, Czech Republic and Slovakia. In the first group, apart from cultural factors, it can result from the fact that they are countries of developed tourism, and in the second from a relatively short period of development of non-cash transactions. On the other side, there are small developed countries of Western Europe (Luxembourg, Denmark and the Netherlands) and Scandinavian countries (Finland and Sweden) – see Figure 2.6. The differences between indicated groups of countries are really significant – in the first, the share of cash in total number of transactions falls within the range between 75 and 97%, whereas in the countries of developed non-cash transactions this rate reaches 29–38%.

Cash is a preferred form of payment, particularly in low-value transactions made at the point of sale. Its share is the highest in the case of the so-called micropayments.[2] They are transactions of very low value, in case of which the use of a payment card is uneconomical. Propensity to pay in cash is inversely proportional to the amount of payment. As

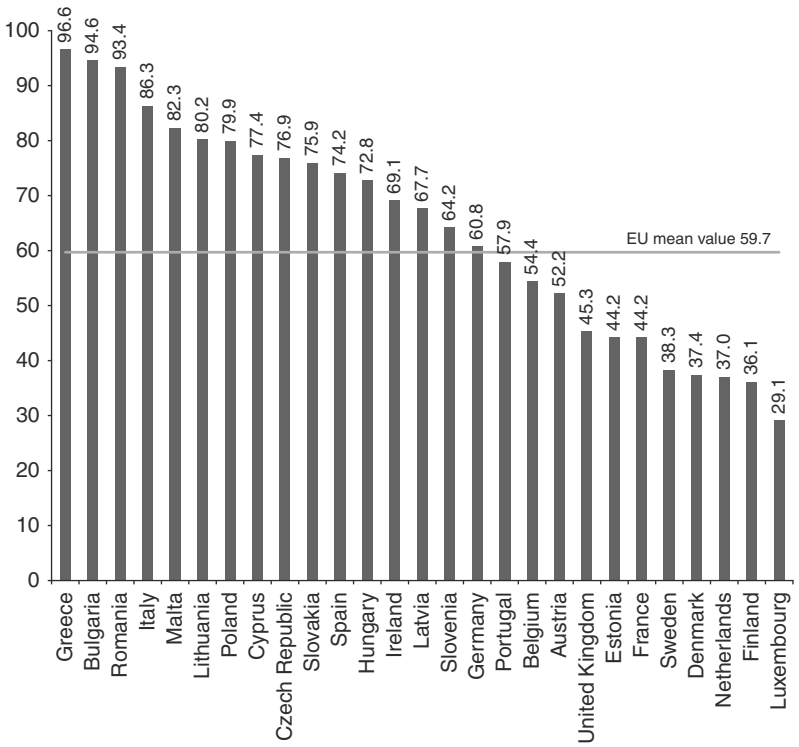


*Figure 2.6* Share of cash in retail payments in EU countries (%), 2012
*Source*: Based on (Schmiedel *et al.*, 2012, p. 22).

research shows, cash is used mainly in cafes, snack bars, fast food restaurants and in P2P payments, while doing shopping in small shops, in urban transport, vending machines and while making payments for services (for example leisure activities) (Deutsche Bundesbank, 2012, p. 40 and pp. 52–57; Koźliński, 2013, pp. 121–143 and pp.165–169; Sveriges Riksbank, 2015).

Such a high share of cash transactions is unfavourable from the macroeconomic point of view, due to high costs and difficulties in reducing the shadow economy. In 2006, the European Payment Council (EPC) assessed the costs of cash in EU at more than EUR 50 billion per year, that is 0.4–0.6% of GDP (European Payment Council, 2006, p. 7). Similar conclusions were formed by European Central Bank that, on the grounds of results of research conducted in thirteen EU countries,[3] assessed that in 2012 these costs amounted to EUR 45 billion. This made

0.96% of GDP in the countries participating in the study. The costs of cash transactions are incurred by central banks and commercial banks. They are associated with the issuing of banknotes and coins, distribution, maintenance of cash transaction infrastructure as well as destruction of banknotes and coins and so on.

A little hope for changing consumers' attitudes towards cash is given by research conducted in April 2015 by ING Group, in which half of the Europeans declared that they used cash less frequently than a year before. The hope is even greater because, among the countries where the rate of such people is higher than the European average, there are countries of high cash usage, including Turkey, Poland, Spain and Romania. On the other hand, the lowest rate of people declaring less frequent use of cash was reported in Austria and Germany – see Figure 2.7.

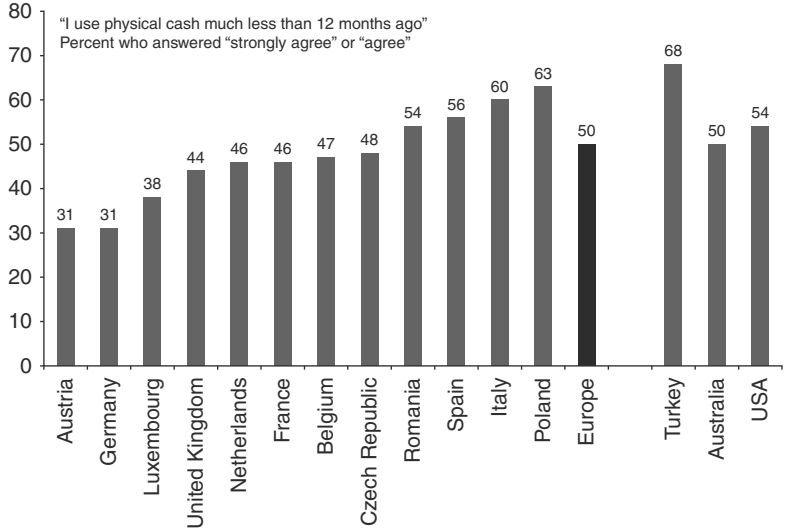


*Figure 2.7* Share of people declaring less frequent use of physical cash, %
*Source*: ING (2015, p. 21).

## 2.2 Challenges to overcome in order to reduce cash usage

### 2.2.1 Why we pay in cash and how this can be changed

There are many reasons for frequent use of cash in retail payments; however, apart from habit, the most important of them are associated

with the features of cash that are highly valued by consumers such as anonymity and comfort as well as low cost of making payments.

Anonymity is one of specific features of cash because in comparison with other payment instruments, cash does not leave any traces of conducted transactions. So for people willing to stay anonymous, cash remains the best method of making payment. Paying in cash is also comfortable; while comfort is perceived first of all as ease of use, however, it is also often associated with the speed of payment. The awareness of actual possession and the possibility to access cash at any time is an additional factor that is very important for many people and contributes to the use of cash.

Costs associated with use of cash are diversified, and the method of their assessment and perception significantly depends on what position the assessing person occupies in cash circulation. Consumers perceive cash as free, which results from the absence of additional payments related to cash payments that non-cash payments are often charged with. However, this way of thinking is wrong. It is a consequence of the same level of prices of purchased goods and services, which is irrespective of the payment instrument used. This is because some payment costs (for example *interchange fee*) are hidden in the price of goods and services, while this mostly concerns non-cash payments. Therefore, the customer who pays cash indirectly is bearing the costs of payment infrastructure necessary for non-cash payments that they do not use. Cash also seems to be free of charge for the majority of merchants who do not include the costs associated with internal cash transactions within the company in the structure of costs. Due to the aforementioned reasons, using price stimuli (that usually prove to be efficient in influencing the change of users' behaviours) for reducing cash payments may be really difficult.

Thus, reducing cash transactions will not be easy and will create many challenges to overcome – see Figure 2.8.

It demands firstly providing the access to basic financial services including a payment account to the largest possible part of society. However, it ought to be stated that it does not need to be a standard bank account. This is because the increasingly growing number of non-bank PSPs offer the possibility to make payments with the use of innovative forms of payment with no use of a bank account, or with the use of this account, but only as a source of liquidity. Therefore, it is about providing the consumers with the right of access to basic accounts allowing for non-cash payments which can also be offered by non-banking financial institutions including payment institutions.

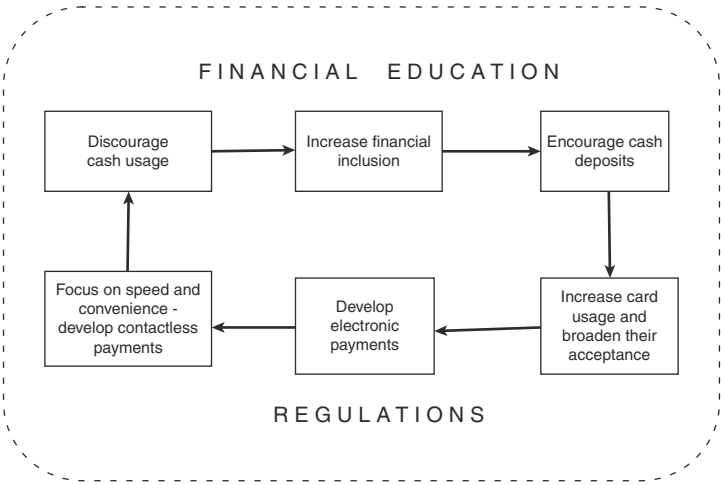


*Figure 2.8* Challenges to overcome in order to reduce cash usage
*Source*: Own work.

Decreasing use of cash is also favoured by:

- shift from paper-based payments (cheques or 'paper' credit transfer and direct debit) towards electronic payments (payment cards and credit transfer as well as direct debit made in electronic way, also referred to as ACH payments); and
- development of payment innovations, particularly those that may become a substitute for cash in face-to-face transactions.

Government-led initiatives including regulations fostering non-cash payments will also be very helpful. They should be supported be general measures promoting the convenience, speed and safety of non-cash payments and educational actions aiming at encourage electronic payments. Major types of actions favouring reduction of cash transactions, and thus development of non-cash transactions, are presented in Section 2.2.2 –2.2.6 of the chapter.

### 2.2.2 Increasing financial inclusion

Paying cash may be a question of choice, but sometimes it is the consequence of the lack of access to a bank account, and so it is a derivative of financial exclusion. The European Commission defined financial exclusion as 'a process whereby people encounter difficulties accessing and/

or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society in which they belong' (European Commission, 2008, p. 9). Numerous studies prove that the lack of access to financial services can lead to poverty traps and inequality (Banerjee and Newman, 1993; Aghion and Bolton, 1997; Beck *et al.*, 2007). Therefore, financial exclusion generally leads to social exclusion, although this relationship also happens to be reverse. Thus, providing all interested parties with access to basic financial services, including an account that allows for execution of non-cash payments, is the initial condition for reducing cash transactions; this is described with the notion of financial inclusion. In developed countries financial inclusion is usually defined very generally as the ability of an individual, household or group to access appropriate financial services or products (The UK Cards Association, 2015). On the other hand, in developing countries it is emphasised that it is about providing, first of all, the weakest and the poorest with accessibility to basic financial services while noticing that they should be simple, convenient, transparent and cheap. In this way financial inclusion is defined by the Reserve Bank of India and The Banking Association South Africa[4] – among others. A growing body of research shows that financial inclusion can have significant beneficial effects for individuals, providing both an economic and a political rationale for policies that promote financial inclusion. A formal account makes it easier to transfer wages, remittances and government payments. It can also encourage saving and open access to credit.

Despite growing interest in the subject of financial inclusion, the methodology of its measurement is still quite poorly developed. At the beginning, the number of bank accounts per inhabitant was considered the main measure of the rate of financial inclusion, but this measure had many limitations (Allen *et. al.*, 2012, p. 3). The World Bank developed more perfect measures of financial inclusion, taking into consideration also non-banking institutions that can keep accounts enabling non-cash payments. The access to an account at a formal financial institution – a bank, credit union, cooperative, post office or microfinance institution is the basic measure of financial inclusion applied by the World Bank. For most people, having such an account is perceived as an entry point into the formal financial sector.

It might seem that the problem of lack of access to financial services does not concern Europe, but in reality it turns out that even the highly developed countries are not free of it. According to the World Bank in 2011 account penetration differed enormously between high-income and

developing economies: while it was nearly universal in high-income economies, with 89% of adults reporting that they have an account at a formal financial institution, it was only 41% in developing economies. Among regions, the Middle East and North Africa had the lowest account penetration, with only 18% of adults reporting a formal account. Account penetration in the region varied sharply across groups with different individual characteristics – the rate of owners of accounts was growing together with the level of affluence and education; it was also higher among city inhabitants than among village inhabitants; furthermore, it was possessed more often by men than women (Demirguc-Kunt *et al.*, 2013, p. 2).

According to data published three years later, the scale of financial inclusion improved in all groups of countries, although not to the same extent. In 2014 in highly developed countries 94% of adult citizens had an account at a formal financial institution, whereas in developing countries the figure was 54%. However, in the latter group there are enormous differences between particular regions – account penetration ranges from 14% in the Middle East to 69% in East Asia and the Pacific. The category of mobile money account, which is rare on the world scale, was distinguished for the first time in the report. Having it as the only account was declared by only 1% of the respondents; 1% also had a mobile money account and an account at a formal financial institution. However, there are regions in which mobile money accounts are much more popular, like for example in Sub-Saharan Africa, where 12% of adults and as much as a third of account owners have just the mobile money account. In thirteen African countries penetration of mobile money accounts is 10% or more, and this rate is the highest in Kenya (58%). This is the result of the development of the M-Pesa mobile payments system. Outside Sub-Saharan Africa ownership of mobile money accounts remains limited. In South Asia the share of adults with a mobile money account is 3%, in Latin America and the Caribbean 2%, and in all other regions less than 1% (Demirguc-Kunt *et al.*, 2015, pp. 11–13).

In Europe the share of people who have a formal account amounted in 2011 to 86% (at world average of 50%) (Demirguc-Kunt and Klapper, 2012, p. 11). This means that around fifty-eight million European consumers aged over 15 did not have a bank account at that time. Out of this number approximately twenty-five million people wanted to open such an account. The share of EU citizens who did not have a bank account was significantly diversified and ranged between 1% in Netherlands and Sweden (in Denmark and Finland this rate was close to zero) and 55% in Romania. On average, in the European Union 14% of the population did not have a bank account.

A lot of people having no payment account say they do not need or want one. This was stated by 56% of people who did not have an account; elderly people (aged 55 and more) and retired people were predominant in this group. This response was also more common among people of lower levels of education. Sharing another's payment account is a further common reason why 9% of consumers have no account, 7% occurred to be too young to open it and 5% were refused to open the account due to various reasons, including lack of regular income, bad credit history, inadequate documentation or with no explicit reason (European Commission, 2012b, p. 25).

In 2014 the scale of financial inclusion in European countries increased significantly both in the countries of the EU-15 and in the remaining countries – see Figure 2.9.

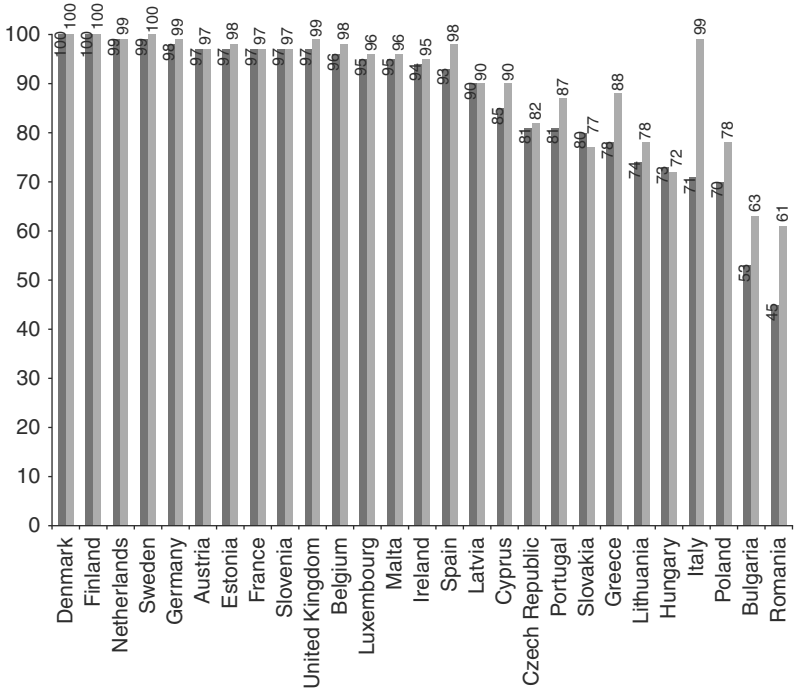


*Figure 2.9* EU citizens with a payment account, 2011, 2014

*Sources*: Demirguc-Kunt and Klapper (2012, pp. 50–52), Demirguc-Kunt *et al.* (2015, pp. 83–84.

At the same time, the largest improvement was reported in Italy, Romania, Bulgaria and Poland in which, three years before, the rate of people having an account at a formal institution was relatively low.

The lack of access to a bank account has negative consequences both for PSPs and for consumers. PSPs have fewer incentives to offer their services on the internal market or to enter new markets, which limits competition, and consequently influences increase in prices and decrease in the quality of services offered to consumers. The lack of access to a basic payment account in turn makes it impossible for consumers to make a full use of the internal market while hampering, for example, cross-border and remote transactions. Therefore, the European Commission developed a project of a directive regulating the problem of access to the payment account with basic features, payment account switching and comparability of fees related to payment accounts. The Payment Account Directive (PAD) was accepted in April 2014 by the European Parliament and published in July 2014. Member States will have two years (until 18 September 2016) to implement the Directive into national legislations, after which the rules become effective. The aim of this Directive is to enable consumers who want to open and use a payment account to access basic payment services anywhere in the EU for their everyday payment transactions. This ought to allow, among others, for reduction of the financial exclusion.

The Directive on Payment Accounts concerns three areas:

- access to payment accounts: these provisions provide all EU consumers, without being residents of the country where the credit institution is located and irrespective of their financial situation, with a right to open a payment account that allows them to perform essential operations, such as receiving their salary, pensions and allowances or payment of utility bills and so on;
- payment account switching: by establishing a simple and quick procedure for consumers who wish to switch their payment account from one to another payment service provider within the same Member State and to assist consumers who hold a payment account with a bank and want to open another account in a different country; and
- comparability of payment account fees: by making it easier for consumers to compare the fees charged for payment accounts by payment service providers in the EU.

Member States are obliged to ensure that bank accounts with basic features are not offered only by credit institutions keeping current

accounts only with the use of Internet tools. The same principles, associated with the access to the account, also ought to be applied towards consumers who, while not being the citizens of a particular Member State, do not have a permanent residential address but stay in its territory legally. These people many times had a limited possibility to open an account with basic features by means of which they could make any payments.

However, it ought to be stressed that consultations regarding current account with basic features showed significant differences concerning the issue of what institutions and on what rules payment accounts with basic features should be offered. The consent concerned only the issue that EU citizens ought to have the right (but not be obliged) to open such an account; however, if it is about possible measures to improve access to such an account and increase transparency of fees related to payment account, the attitudes were rather diversified. The discussion also concerned features of such an account while the availability of borrowing facilities (overdraft) was especially criticised.

Finally, it was accepted that payment accounts with basic features would be offered by credit institutions and other PSPs and that the PAD would concern ten to twenty payment services that are most commonly used by consumers and generate the highest costs for them. Services within the account ought to be executed free, or the fees applied should be reasonable (their amount ought to correspond to the national level of income and consider averaged fees collected by credit institutions in a particular Member State).

However, efficiency of the PAD in increasing the scale of financial inclusion will mainly depend on detailed solutions, including price policy of the institution offering such accounts. This is because already nowadays there are cheap, most often free, Internet accounts that still have not solved the problem of the lack of access to financial services. This results from the fact that using them requires having the access to a computer and the Internet and also elementary skills related to using them. Yet, the majority of people who do not have bank accounts are elderly people and/or less-educated, who usually do not have such possibilities and skills. Because of the same reasons, these people will not be able to make use of, among others, price comparison websites being an elementary tool also allowing for comparison of fees related to payment accounts.

However, finally it should be mentioned that analyses conducted in many countries, especially those with a large share of cash in their money supply (including Poland) prove that in the long term an

increase in the use of banking services translates into an increase in the share of non-cash in M1 (and thereby decline in the share of cash), yet it does not need to bring decrease in the amount of cash money (Gumuła, 2013, p. 47). This happens, among others, when opening an account is a result of for example a legal obligation. The use of banking services favours increase in non-cash turnover when deposits are accumulated on the account and when it is used to make payments. This is because the fact of having an account does not change payment habits and preferences.

### 2.2.3 Development of electronic payments

Developing electronic payments is another way to reduce cash usage. Rapid growth of electronic payments is a result of a series of many factors among which the most important include dynamic development of communication and information technologies and expansion of e-commerce and social and cultural changes, particularly changes in the lifestyle and behaviours of contemporary consumers among them.

Development of technology cannot be stopped. Furthermore, for more than a hundred years, the rate of adoption of new technologies has been getting shorter. And if in the case of the airplane it took sixty-eight years to gain fifty million users, and it the case of the radio it was thirty-eight years, the Internet reached this number of users in seven years, and contactless cards in four years, and in the case of mobile applications in banking, predictions indicate it will take only two years – see Figure 2.10.

Modern technologies significantly influence the way of doing shopping and using financial services – they lead to us buying them in a remote way more frequently, mostly on the Internet (EFMA and McKinsey & Company, 2012, p. 5). However, the development of modern communication and information technologies has had the largest impact on the way payments are made. It is associated with a specific feature of payment service that is not a separate financial service, but a final element of transactions consisting most often in the purchase of goods or services. And if it is so, its form ought to be extremely adjusted to the nature and method of a 'basic' transaction – because then its value and usability for the selling party and the buyer are achieving the maximum.

We can distinguish two groups among them: electronic payments based on traditional payment instruments (card payments and ACH payments, that is, e-credit transfer and e-direct debit), and electronic payments that are a result of payment innovations (for example

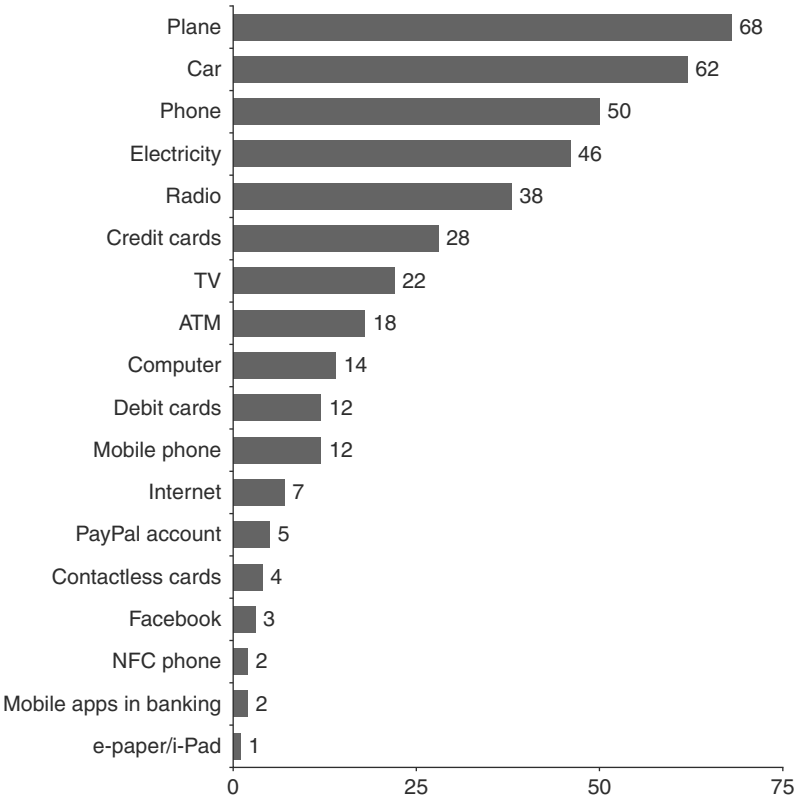


*Figure 2.10* Adoption rate* of new technology innovations

*Note*: * Years needed to gain 50 million users.

*Source*: Own work based on King (2013, p. 299).

contactless cards, mobile payments or online payments). It needs to be emphasised that ACH payments can replace cash in face-to-face transactions only in a limited degree. Much larger possibilities in this field are offered by payment innovations, including particularly contactless payments. A slightly different situation is observed in the case of remote transactions. In e-commerce, relatively seldom is payment made in cash; however, development of innovations allowing for replacement of existing forms of payment is also progressing slowly. It seems obvious that in the case of transactions conducted online also the process of payment ought to take place online. It is understood by such companies

as PayPal or Google that offer their customers the forms of payment taking into account the transaction context that is adjusted to the purchasing process. The largest possibilities are provided in this respect by mobile payments because a mobile phone (usually smartphone) can be used not only for payment, but also to immediately gather information that can be useful in relation with the purchase we want to make (information about the account balance, debt level, dates of repayment of credit instalment falling in the nearest future or information about competitive prices of goods/ services).

Despite fast development of online payments, as it is shown by research conducted by A.T. Kearney, in European e-commerce payments are still mostly made by payment cards. The largest group of countries – called 'card markets' where online buyers prefer paying with cards includes Denmark, the United Kingdom, France, Norway, Spain and Switzerland, i.e., countries of high card penetration. Germany is the country in which ACH payments are predominant – its online market is dominated by credit transfer (both prepayments and by invoice) and direct debit. According to A.T. Kearney, it does not result from consumers' or merchants' preferences, but rather from the absence of targeted, convenient solutions. The most modern forms of payments are applied in the so-called ObeP (online banking e-payment) markets: the Netherlands, Sweden, Finland and Poland where banks have provided convenient ways to pay online from bank accounts (A.T. Kearney, 2013, pp. 9–10).

The need to popularise online payments that enable consumers to complete transaction in a safe, fast and convenient way is increasingly more urgent because e-commerce is dynamically growing in the world – for the last five years average annual growth of the rate of e-commerce sales in the B2C segment has been higher than 20%. According to the E-commerce Foundation, global e-commerce sales, that in 2010 reached USD 820 billion, should grow to USD 2.25 billion in 2015 (E-commerce Foundation, 2014b, p. 18). In 2013, Europe – in which 565 million (69.2%) inhabitants use the Internet, and nearly one third do shopping online – was the market located in the second position in the world with respect to the size of turnover (USD 361.1 billion), after the Asia-Pacific region, and before the USA – see Figure 2.11. Great Britain, Germany and France are the three largest e-commerce markets in Europe – in 2013 they represented nearly 61% of total e-commerce turnover in Europe (E-commerce Foundation, 2014a, p. 19). At the same time, the European e-commerce market has a large development potential that allows for forecasting equally dynamic development of electronic payments in their most innovative way.

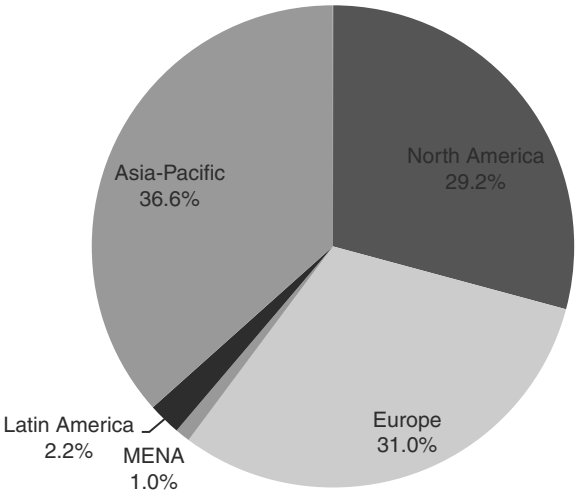


*Figure 2.11* Share of regions in global B2G e-commerce, 2013
*Note*: * MENA – the Middle East and North Africa region.
*Source*: E-commerce Foundation (2014b, p. 14).

Evolution of consumers' payment habits, which is a result of deep social and cultural changes, is the third factor favouring replacement of cash and payments based on paper documents with electronic payments. Significantly easier access to information among consumers makes them become more aware and demanding; they have the skill to acquire, process and then use knowledge which results in the fact that they want more and more to be co-creators of products and services they make use of. The greatest turning point in consumer behaviours takes place under the influence of mobile technologies. Mobile devices such as tablets and smartphones, initially intended for a small group of people fascinated with technological innovations, became mass consumer products. They are used not only for communication, but also constitute a source of information, entertainment and education, or a way to access location or financial services.

The hierarchy of consumer values is also changing – for an increasingly larger group their own needs are becoming most important. This feature is the most evident among the youngest, a very promising group of consumers, often referred to as Generation Y, Millennials, Peter Pan or Boomerang Generation, whose habits (including payment habits) are just currently being shaped. The term Millennials generally refers

to the generation of people born between the early 1980s and the early 2000s. They are distinctive – connected, practical, tech-savvy and socially aware. The Generation Y opportunity is imminent and vital – their annual spending is expected to be $2.45 trillion by 2015. As the affluence, influence and financial appetite of this demographic group grow, financial institutions need to attract its members and win them as customers for the long term. Generation Y, similarly to their forerunners, the Generation X, prefer financial services offered at low cost; they value convenience, ability to perform more activities online and quicker service (Deloitte, 2008, p. 5). Convenience perceived as ease of use of the payment instrument is becoming for contemporary consumers one of the fundamental features they expect also in the field of payments. In face-to-face transactions, convenience means accepting many payment solutions with a short processing time. In online transactions, consumers' expectations are similar. Comfort means ease of use and speed, together with the ease of registering and checkout (A.T. Kearney, 2013, p. 9).

However, it should be stressed that studies on demanded features of payment instruments show that consumers also really value other features of payment instruments such as safety or the cost of use. This is confirmed by results of over 100 research projects that have been conducted all over the world since the middle of 1990s, the aim of which was to identify factors influencing the adoption (that is the decision to acquire or use a specific payment instrument for the first time) and the continued use of various payment instruments. Although the identified variables seem to differ depending on the circumstances of payment and the socio-demographic characteristics of the respondents (the most important of them is the age), those cited as the key factors are costs, security and perceived ease of use (European Central Bank, 2012, p. 78).

Finally, it ought to be emphasised that if electronic payments are to replace traditional payments based on paper documents and cash, it should be assessed by consumers better in terms of convenience but also safety and cost, or with respect to a majority of these features. It is not going to be easy because in many countries, especially those less wealthy, with strong preference for using cash in which societies show strong attachment to cash, like for example in Poland, cash is considered the most comfortable and safest form of payment that at the same time allows for better control of expenses in comparison with non-cash payments. In these countries, the use of cash in daily payments largely results from a habit, but also from the absence of financial knowledge and lack of trust in financial institutions. The change in these habits

needs time as well as development of incentives aiming at this change with accompanying educational measures.

### 2.2.4 Innovative payment instruments as a substitute for cash

Displacing cash in face-to-face transactions may become in the coming years easier, thanks to the development of payment innovations. This is because they largely fill the gap that banks were not interested in as they were focused on traditional, classical payment instruments offered for many years. The gap is formed by low-value payments, particularly micropayments that are still made with the use of cash.

The significance of payment innovations is still rather small; however, forecasts show that by 2020 their share in the number of non-cash transactions in Europe may even reach 20% – see Figure 2.12. At the same time, the share of credit transfers and direct debit is expected to fall by more than one-fifth and the share of debit and credit cards will remain quite stable.

The majority of payment innovations occurring recently favour development of non-cash transactions, yet only a few may become direct competitors for cash. Identification of this type of innovations among all that have been occurring in the market recently is not easy due to

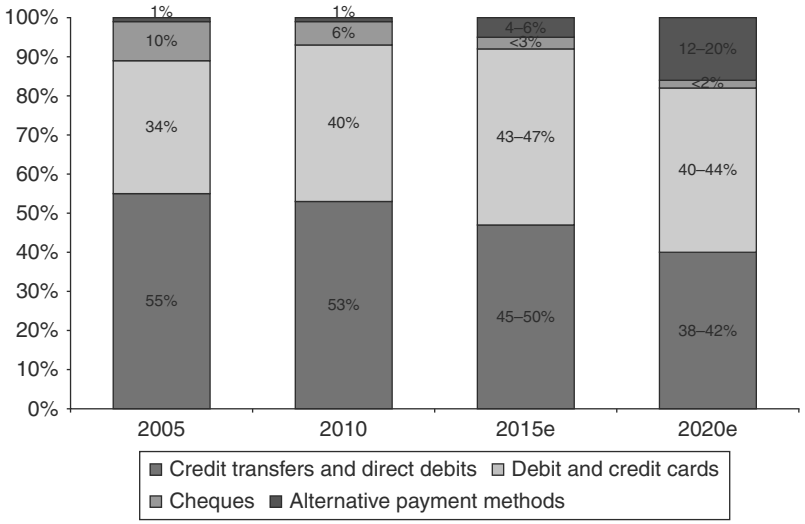


*Figure 2.12* Change in payment mix in Europe, 2005–2020e

*Source*: Based on A.T. Kearney (2013, p. 6).

their large number and diversity. In recent years two large-scale surveys aiming at identification of innovations in retail payments have been conducted.

As a result of the survey conducted by the World Bank in 2010 among 101 central banks, 173 payment innovations were identified. P2B payments and P2P payments were the most common types of payment offered by the providers of innovative payment instruments and methods. Less than 10% of the instruments and methods support government payments. New instruments and methods of payment, mainly implemented by non-banking PSPs, are usually initiated via electronic channels and have well-developed price models. However, their fundamental drawbacks include very limited interoperability, absence of direct connection to the clearing and settlement infrastructure and relatively low level of safety (World Bank, 2011, pp. 44–45).

In a similar survey conducted a year later by CPSS, 122 innovations in retail payments were reported by thirty central banks. They could be divided into process-oriented and product-oriented innovations. Process-oriented innovations are mostly focused on back-office processes, the area of the payment process where innovation is generally only observed by payment service providers. These innovations are aimed at increase in effectiveness of the payment process. On the other hand, product-oriented innovations apply the intuitive features of a payment instrument that are obvious from the user's point of view. The innovations that can be further categorised by, for example, types of device used to initiate payment (for example cards or mobile phones) or channels that enable its completion (for example Internet, mobile phone network or POS). In a report from the Bank for International Settlements five types of product-oriented innovations were distinguished: innovations in the use of card payments, Internet payments, mobile payments, electronic bill presentment and payment (EBPP), and improvements in infrastructure and security (Bank for International Settlements, 2012, pp. 12–15).

Innovations occurring in the retail payment market usually are product-oriented (new payment instruments) or process-oriented (new methods/ways to made payments perceived as the process including its initiation, processing, settlement and clearing, and receiving payment). The majority of new solutions recently occurring on the retail payment market are incremental innovations (for example contactless cards or EMV cards). On the other hand, radical innovations appear much more rarely – this category includes mobile payments, online payments,

e-money and virtual currencies (Harasim and Klimontowicz, 2013, pp. 88–89).

Considering the pace of development and the rate of adoption of the basic types of payment innovations, it should be stated that contactless payments constitute the most promising alternative for cash. They include contactless cards (based on RFID technology) and mobile proximity payments, and especially NFC (Near Field Communication) payments – see Table 2.5. E-money and virtual currencies are going to have much smaller potential in this field in the nearest future. On the other hand, innovative payment instruments used in online transactions are first of all a competition to traditional non-cash payment instruments such as payment cards (mainly credit cards), credit transfer and direct debit.

*Table 2.5* Payment innovations as a substitute for cash

| Payment instruments | Innovation range | | Transaction type | | Substitute for cash |
|---|---|---|---|---|---|
| | incremental | radical | face-to-face | online | |
| Contactless cards | X | | X | | +++ |
| Proximity mobile payments (NFC) | | X | X | | +++ |
| Remote mobile payments | | X | | X | + |
| Online payments | | X | | X | + |
| e-purse/e-wallet (e-money) | | X | X | X | ++ |
| Virtual currencies | | X | | X | ++ |
| e-credit transfer | X | | | X | + |
| e-direct debit | X | | | X | + |
| EMV cards | X | | X | X | + |

*Source*: Own work.

### 2.2.5 Determinants of diffusion of contactless payments

However, many factors determine whether contactless payments will become a real competition for cash. They can be divided into three major groups (see Figure 2.13):

- factors resulting from specific features of payment market,
- conditions on the part of payment services providers,
- conditions on the part of payment services users – consumers and merchants.

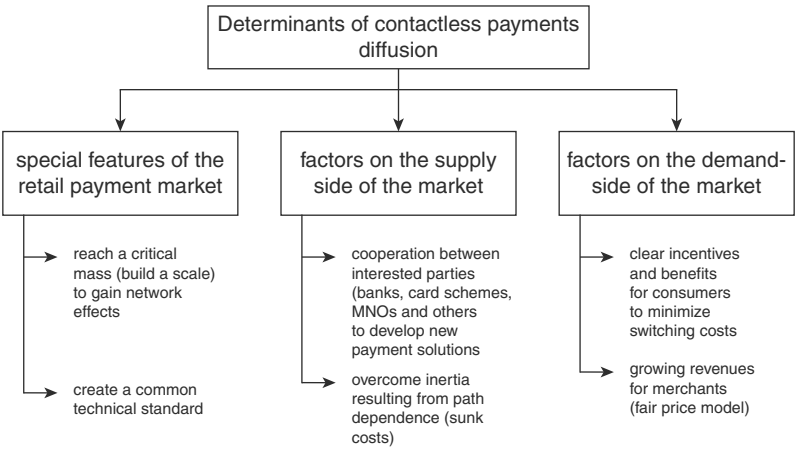


*Figure 2.13* Determinants of contactless payments' diffusion
*Source*: Own work.

Reaching a large customer and merchant base quickly is crucial to succeed in payment innovations. As regards contactless payments, conditions associated with specific features of the payment market are in a short period more advantageous for contactless cards than for mobile proximity payments. In the case of cards, reaching the critical mass is much easier because the contactless function is usually added (frequently free of charge) to newly issued cards, which brings fast growth in the number of cards. Dissemination of contactless cards is also favoured by a relatively low number of applied technological standards; two of them have fundamental importance here: PayPass technology implemented by MasterCard and PayWave implemented by Visa. Poland can serve as an example of a fast achievement of critical mass with reference to contactless cards, where at the end of 2009 there were 320 thousand contactless cards in circulation. This represented around one % of issued payment cards, whereas five years later, the number of cards with contactless function reached 25.7 million and their share in the market increased to 71.3% (National Bank of Poland, 2015, p. 10). However, the British market is the largest market of contactless cards in Europe. In 2014 there were fifty-eight million contactless cards in circulation there. According to the UK Cards Association (The UK Cards Association, 2015), UK consumers used their contactless cards 319.2 million times in 2014 and spending on contactless cards more than trebled over 2014, reaching a record £2.3 billion (it was more than double that of all the previous six years combined).

The situation is slightly worse in the case of mobile proximity payments. Even though the number of smartphones and tablets is dynamically growing, it is not equivalent with fast adoption of mobile payments. The multitude of technological solutions is one of the major reasons for this situation. However, so far none of them has become a standard that might be adopted by a majority of market participants. The greatest hopes are recently associated with NFC technology, but for the time being, a universal standard has not been developed yet. Experiences of the countries of South-Eastern Asia, including Japan, where mobile payments are developing rapidly, show that overcoming these obstacles (and thereby the possibility of critical mass achievement) demands not a competition, but cooperation of all interested parties (telecoms, banks and technical solutions providers). However, as previous experiences show, it is not easy because their interests are often contrary. The situation is different if we consider contactless cards, and different in the case of mobile proximity payments.

Banks (in cooperation with cards schemes) are leaders in the implementation of contactless cards while occupying the predominant position in the market of retail payments. Contactless cards are an incremental innovation and are not a competitor for other payment instruments offered by banks; on the contrary, they complement each other and make their offer richer. This is because the majority of payments with the use of traditional payment cards are between USD 15 and 150, whereas contactless card is used in low-value payments in which cash has been mostly used so far. The contactless function is generally added to newly issued debit or credit cards, which allows market players (merchants, merchant processors, merchant acquirers, card networks, card processors, issuers and many other suppliers) further mitigation of sunk investments in equipment, software and people.

On the other hand, new competitors from outside the sector (for example mobile devices producers or telecoms) are initiators of mobile proximity payments. The ability to identify customers' needs that have not been properly satisfied by traditional payment instruments ought to be considered the largest competitive advantage of new PSPs (Sullivan and Wang, 2007). New competitors also have significantly developed customer databases that are much larger in numbers than of single banks. For example, Apple has over 500 million customers, the largest mobile network operator, Vodafone, has around 400 million customers, while Citigroup and Santander have 'only' about 100 million customers each. New PSPs know perfectly the purchasing habits of consumers and can identify their needs in an excellent way. Their interest in the retail payment market results from the willingness to offer the customers an integrated package composed

of products offered by them and simple payment instruments enabling making payments. Therefore, payment ought to be ideally integrated with the selling process and made in the way that is most 'friendly' for a customer. Experience gained in the retail sector results in the larger flexibility, innovativeness and simplicity of instruments proposed by them. In comparison with traditional payment instruments offered by banks, they satisfy to a larger extent the needs of customers in terms of speed, cost and simplicity of payment while ensuring at the same time a relatively high level of protection from abuse and faster and easier procedures concerning refunds or complaints. Moreover, new competitors make decisions, implement new solutions and react to market changes faster than banks (Harasim, 2013, pp. 97–98).

The latter group of factors determining success of contactless payments is associated with expectations of their users. There are two groups of end users in two-sided markets: consumers and merchants. For consumers the most important are convenience and usefulness of payment (including its speed and ease of use), as well as security and cost, whereas for merchants relationship between profits obtained from acceptance of a particular payment instrument (for example in the form of increased income) and incurred costs (for example in the form of payments for POS terminals or other services associated with supporting payments) are particularly important.

From the consumer's point of view the largest advantages of contactless payments are their ease of use and speed. This is confirmed by both national and foreign research. The results of studies conducted in 2010 by Edgar, Dunn & Company show that speed of making payments and reduction of queue waiting time were considered by respondents to be the most important advantages resulting from implementation of contactless payments. It ought to be stated here that these benefits must occur simultaneously – because if the queue waiting time is not reduced, the fact that payment will last a few seconds shorter will not be important any longer (Edgar, Dunn & Company, 2011). Research conducted in Poland showed that all forms of contactless payments (that is contactless card, off-line contactless card, RFID sticker on telephone and NFC phone with PIN) are faster than payments made via traditional cards. However, only off-line contactless cards proved to be competitive in relation to cash in terms of speed (Polasik *et al.*, 2013, p. 13). The convenience of contactless payments is also associated with the absence of the necessity to sign confirmation of transaction or to enter a PIN. On the other hand, the absence of the need to carry cash that so far has been necessary to make low-value payments represents larger safety even though contactless payments are not considered as a very safe form of payment.

Large-scale adoption of contactless payments can also bring a lot of benefits to the merchants. Major profits gained by them are associated with the possibility of income increase. This is because reduction of service time allows for serving a larger number of customers which is particularly important in the case of mass services of restaurants, transport and so on.[5] Moreover, consumers making contactless payments in general spend more (by 20–30%) than those who pay in cash and are more satisfied which results in further purchases. Acceptance of contactless payments also allows for reduction of costs related to cash, including its insurance or losses from theft. But many merchants perceive these costs as fixed costs and envisage only limited savings resulting from their reduction. Weighting these savings against the fees they pay for card acceptance, some merchants assess critically the economic viability of contactless cards. Despite of this, the majority of merchants understand that suitably deployed contactless technology has substantial benefits for end users, particularly in specific merchant sectors (Edgar, Dunn & Company, 2011, p. 18). Apart from financial benefits, merchants may gain more information about consumers' preferences and their purchasing habits, which could be helpful while creating loyalty programs or in other marketing activities.

It could be noted that some expectations of consumers and merchants are similar and can be the source of mutual benefits (for example those associated with the speed of payment), but others remain contradictory, like for example those concerning the cost of payment. Therefore, development of business models considering the interests of all market players, including a price strategy that assumes proper division of costs between interested parties, is going to be of key importance in payment innovations adoption. However, generally in practice, in the early stages at least, one way to reach a critical mass may be a pricing strategy that lets the less price-sensitive side of the market subsidise the more price-sensitive one (Bank for International Settlements, 2012, p. 19).

### 2.2.6 The role of regulatory framework in reducing the cash usage and fostering the growth of non-cash transactions

Regulations may affect the payment market and its participants in a different ways. In this chapter the notion of regulation is approached broadly. It comprises not only the government regulations, but also bottom-up initiatives that have the nature of self-regulations[6] undertaken by market participants (most often PSPs, for example SEPA) and all initiatives and programs, which could be helpful for reducing the cash usage (for example Digital Agenda for Europe). A large number of regulations concerning the payment market, their diversified nature (top-down

or bottom-up) and scope (global, regional or national) make it difficult to assess their influence on the cash usage and the development of non-cash transactions. This is because regulations implemented recently are aimed at various issues mostly related to increase in market efficiency. Furthermore, a lot of them refer at the same time to many aspects associated with provision of payment services for example access to market, its transparency, standardisation, innovation, consumer protection and so on. According to Capgemini, RBS and EFMA the regulations reflect some trends in the payment market clearly observed in recent years. They include systemic risk reduction and control, transparency of services, innovations, standardisation and convergence (Capgemini *et al.*, 2012, p. 27). Table 2.6 shows the most important European and worldwide regulations directly or indirectly referring to the payment market and the way they influence its shape and functioning, while considering the most important trends observed in payment markets in recent years.

*Table 2.6* Influence of regulatory framework on the payment market

| **Sphere of regulation** | **Examples of impact of regulation on payment market** | **Selected regulations** |
|---|---|---|
| Systemic risk reduction and control | Searching by banks for the most stable, long-term sources of financing (including resources on retail customers' accounts and prepaid cards) (+)<br>Reduction of efficiency of payment systems due to increase in the costs of payment processing and slowdown of the process of direct processing on the way from the ordering entity to the beneficiary (STP – Straight Through Processing) (–)<br>Growth in safety and reliability of payment systems, and trust in payment instruments (+) | AML/ATF (2005)<br>Basel III (2010) |
| Transparency of services | Increase in transparency of the structure of payment costs and prices of payment services (+)<br>Reduction of the possibility to collect hidden fees (e.g., interchange fees, debit-card swipe fees) (+)<br>Reduction of bank revenues (–) | PSD (2007)<br>PAD directive (2014)<br>MIF Regulation (2015) |

*Continued*

*Table 2.6* Continued

| Sphere of regulation | Examples of impact of regulation on payment market | Selected regulations |
|---|---|---|
| Innovations | Increase in competitiveness in the market and change in its subjective structure (through admission of non-banking suppliers of payment services or establishment of cooperation between banks and other entities from outside the financial sector in the case of innovative forms of payment, among others) (+)<br>Occurrence of new payment instruments / forms of payments (e.g., mobile payments and online payments) (+)<br>Change in preferences of the users of payment services and their payment habits<br>Increase in the scale of using financial services (financial inclusion) through development of non-cash transactions and related infrastructure (+)<br>Popularisation of non-cash transactions and services accompanying them (e-invoicing) in settlements with public institutions (+) | PSD (2007)<br>EMD directive (2009)<br>The Digital Agenda (2010)<br>PAD directive (2014) |
| Standardisation | Facilitation of achievement of critical mass in the case of new solutions (+)<br>Stimulating competition through development of a common market standard (+)<br>Automation of the payment service, reduction of its costs and creation of new sources of income (+)<br>Reduction of diversity of payment solutions applied in domestic and foreign settlements (+)<br>Reduction of motivation to implement innovation after popularisation of a common standard (–)<br>Difficulties in making changes in existing standard or replacing it with another one (–) | SEPA<br>SEPA – SCT, SDD and SCF standards |
| Convergence | Increase in competitiveness in market through blurring the differences between various types of settlement and clearing systems | TARGET2 evolution<br>ACH Frequent Settlement |

*Note:* (+) – Positive impact, (–) – Negative impact.

*Source*: Own case study on the basis of Capgemini and RBS 2013).

While making an attempt to assess regulations impact on the cash usage at the beginning, it ought to be emphasised that only a small part of regulations shown in Table 2.6 directly refers to cash transactions. The limitation on cash payments in Europe has been installed in the anti-money laundering legislation (AML/ATF). This limit amounts to EUR 15,000; however, it concerns payments made between professional entities (entrepreneurs). However, in EU legislation there are no uniform regulations reducing the use of cash in payments made by consumers. Still, regulations introducing amount limits for making cash payments, also binding for natural persons, exist in some EU Member States – see Table 2.7. Payments higher than the limit determined by law must be made in non-cash form, and in Denmark it is additionally required that they should be made electronically.

*Table 2.7* Cash payment restrictions in European countries: an overview

| Country | Date of introduction | Cash limits | Reporting entities |
|---|---|---|---|
| Belgium | 1 January 2014 | 3,000 EUR | |
| Bulgaria | 16/22 February 2011 | 15,000 BGN | Natural persons and entrepreneurs |
| Czech Republic | 1 January 2013 | 350,000 CZK | Natural persons and entrepreneurs (with exceptions) |
| Denmark | 1 July 2012 | 10,000 DKK | Natural persons and entrepreneurs |
| France | 1 January 2002 | 3,000 EUR<br>15,000 EUR | Residents and non-resident traders<br>Non-resident consumers |
| Greece | 1 January 2011 | 1,500 EUR<br>3,000 EUR | Payment between entrepreneur and consumer<br>B2B payments |
| Hungary | 1 January 2013 | 1,500,000 HUF | Legal persons |
| Italy | 6 December 2012 | 1,000 EUR | |
| Portugal | 14 May 2012 | 1,000 EUR | |
| Slovakia | 1 January 2013 | 5,000 EUR<br>15,000 EUR | Natural persons (being not entrepreneurs) |
| Spain | 19 November 2012 | 2,500 EUR<br>15,000 EUR | Residents (at least one side is entrepreneur) |

*Source*: Own work based on European Consumer Centre France (2014) and National Bank of Poland (2013).

It should be stressed that in the majority of the countries these limits have occurred quite recently, or they have been tightened in recent years. Furthermore, generally the countries that limit the use of cash suffered more than other countries as a result of crisis; it can also be supposed that the limits were the response to decline in trust in non-cash transactions for the benefit of trust in cash, which is a phenomenon quite typical of the periods of economic uncertainty. However, counteracting terrorism and money laundering as well as the phenomenon of tax avoidance, but also, even though in a smaller degree, the phenomenon of tax evasion on income coming from business activity were fundamental reasons for implementation of limits on cash usage. These limits also provide the possibility to trace the flow of financial resources while ensuring their larger transparency. The efficiency of these limits is questioned by some people (for example Beretta, 2014), and it seems that they do not have significant impact on reduction of the cash usage in the field of its previous predominance, that is, in low-value face-to-face transactions.

Reduction of cash usage is more favoured by regulations which stimulate the development of electronic payments and payment innovations including those that could be an alternative for cash. Over several recent years, dynamic development of regulatory framework has been observed all over the world, although Europe, unlike many emerging markets such as India, China and Brazil, presents conservative attitudes as regards regulations aiming at stimulation of innovations. For many years both EU and national regulations have been strengthening the traditional structure of the market, with a predominant role for banks in the whole payment execution process, while creating barriers for non-banking PSPs in access to each of its stages. Despite growing pressure concerning transparency of costs of payment services and their prices, there were no definite actions taken by regulators aiming at ensuring fair redistribution of incomes and costs between particular groups of market participants. Therefore regulations were a serious barrier for increase in efficiency of the payment market, particularly in the area of retail payments.

The situation was not significantly changed by the most important regulations concerning payments implemented in recent years in the European Union, that is, the PSD or SEPA. They concern mainly traditional payment instruments (direct debit, credit transfer and payment cards). Although payments made electronically (they do not include cash payments or those based on paper documents) are the object of the directive, it does not create conditions for development of innovations. During consultations conducted in 2010 concerning the E-Commerce

Directive, payments have been identified as one of the main barriers to the future growth of e-commerce. On the other hand, in 'Green Paper. Towards an Integrated European Market for Card, Internet and Mobile Payments', the lack of a concrete European framework addressing the main concerns, such as technical standards, security, interoperability and the cooperation between market participants and risks perpetuating a fragmented e-payments and m-payments market in Europe were considered the major barrier for development of e-payments and m-payments. Furthermore, for both e- and m-payments, (potential) market participants seem reluctant to invest as long as the legal situation regarding scope for applying collective fee arrangements, such as for payment cards, has not been settled (European Commission, 2012a, pp. 5–6).

Regulations aiming at stimulating competition in the payment market and increasing its efficiency, such as the MIF Regulation or PSD2, started to occur in Europe only recently with significant delay in comparison with other regions. Regulations included in the MIF Regulation foster competition and in the Revised Directive on Payment Services (PSD2) that is to be adopted in 2015, ought to provide support for development of innovations. As the European Commission declares: *The new measures will ensure that all payment providers active in the EU are subject to supervision and appropriate rules. This should create the right incentives for the emergence of new players and the development of innovative mobile and Internet payments in Europe. This means more choice and better conditions for consumers and businesses* (European Commission, 2015). A definite majority of regulations occurring recently, while opening access to new markets for new PSPs, leads to defragmentation of the payment process. As a result, the payment value chain will be disaggregated and a payment process will be handled by specialised PSPs. Establishment of legal frameworks for payment innovations stimulates their development, establishes trust in them and encourages using them in payments. This, in turn, may lead to change in payment habits, particularly in reducing cash transactions.

## 2.3 Conclusions

The moment we may stop using cash seems to be really close. This statement is supported by many factors including dynamic development of ICT technologies, expansion of e-commerce and also social and cultural changes. The changes comprise growing virtualisation and digitalisation resulting in changes of lifestyles and behaviours of contemporary consumers. In the opinions of many entities, cash is becoming a relic of

the past, a payment form that does not match contemporary lifestyles and the speed of life. It is also not adjusted to the type of concluded transactions and the way they are conducted. However, are we really ready to abandon cash? And if we are, what should it be replaced by?

The analysis conducted in this chapter does not give an explicit answer to this question. It is certain that financial institutions, including banks or card schemes, and recently also other PSPs engaged in development of payment innovations, are major supporters of elimination of cash from circulation. In many countries also state authorities aim at reducing cash usage. Their major goal is to limit the shadow economy and reduce the costs of cash circulation. However, it seems that theses aims are not shared by a quite big group of consumers. In many countries people show strong commitment to cash and still perceive it as the most convenient, the fastest, the cheapest and safest payment form, particularly in P2P or C2B transactions. Cash also has an additional value that must not be ignored – anonymity. It ensures privacy to consumers, which is currently becoming a rare and increasingly appreciated good in the world where mass surveillance is becoming a general practice.

As a result, in Europe we can find countries such as Sweden or Denmark where the use of cash is low and is still decreasing, and also such as Greece, Bulgaria or Romania where more than nine per ten retail transactions are conducted with its use.

Due to these reasons, replacement of cash by other payment instruments is not going to be as easy and fast as it may seem. Considering the pace of development and the rate of adoption of the basic types of payment innovations, it should be stated that contactless payments constitute the most promising alternative for cash in face-to-face transactions. They include contactless cards (based on RFID technology) and mobile proximity payments, and especially NFC payments. Their popularisation mostly depends on consumers' willingness to change existing payment habits and fast establishment of a large merchant base. Achievement of the first goal demands holding intense educational actions leading to increase in the scale of financial inclusion and activities aiming at reducing barriers in access to basic financial services (for example payment account with basic features). Reaching a large merchant base quickly demands in turn development of business models considering interests of all market players, including a price strategy that assumes proper division of costs between interested parties. However, before this happens, it is necessary to develop the technical standards that might be approved by a majority of market players. In the case of contactless cards this barrier has actually been overcome; however, in

the case of mobile proximity payments it is still an obstacle to reaching critical mass in the market.

## Notes

1. In the summer of 2011, the Federal Reserve Board of Governors issued a final rule governing debit card interchange fees. This regulation, named Regulation II (Debit Card Interchange Fees and Routing), was required by the Durbin Amendment to the Dodd-Frank Act. The regulation, which went into effect on 1 October 2011, limits the maximum permissible interchange fee that a covered issuer can collect from merchants for a debit card transaction. The Board's Regulation II provides that an issuer subject to the interchange fee standard (a covered issuer) may not receive an interchange fee that exceeds 21 cents plus 0.05% multiplied by the value of the transaction, plus a 1-cent fraud-prevention adjustment, if eligible.
2. There is, as yet, no single, precise definition of micropayments. In the payments industry they are defined as transactions under 5 USD, but in the case of PayPal in the UK it is the amount below 5 GBP.
3. They were: Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Portugal, Romania, Spain and Sweden.
4. Financial inclusion is the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost in a fair and transparent manner by mainstream institutional players (Reserve Bank of India, 2011). Financial inclusion includes access to and usage of a broad range of affordable, quality financial services and products, in a manner convenient to the financially excluded, unbanked and under-banked, in an appropriate, but simple and dignified manner with the requisite consideration to client protection. Accessibility should be accompanied by usage which should be supported through the financial education of clients (The Banking Association of South Africa, 2015).
5. A board member of an American fast food restaurant chain estimated that reducing the time of payment with the use of POS by one second allows for increasing the annual company turnover by USD one million.
6. *Self-regulation* may be forced by the very state (like for example SEPA), but it can also be initiated by market participants for the purpose of protection of their interests (for example agreement concerning *interchange fee*). At the same time, the results of self-regulation can be varied for particular groups of participants in the payment market (generally different for suppliers and users of payment services).

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