



This document is the original author manuscript of a paper submitted to an IFIP conference proceedings or other IFIP publication by Springer Nature. As such, there may be some differences in the official published version of the paper. Such differences, if any, are usually due to reformatting during preparation for publication or minor corrections made by the author(s) during final proofreading of the publication manuscript.

Cash is King, isn't it? Payment Preferences and Switching Intentions of German Customers

Matthias Murawski, Serena Scomparin and Markus Bick

ESCP Business School, Berlin, Germany
{mmurawski,mbick}@escp.eu,
serena.scomparin@edu.escp.eu

Abstract. In China, the traditional wallet with cash and credit cards is a distant memory as everything is done through the same app: WeChat. In Germany going out cashless and the idea of paying for coffee with the smartphone seems – at least partly – like science fiction, although research shows that cash is considered “inconvenient”. Starting from a reflection on the two diametrically opposed examples, we attempt to firstly investigate the current payment preferences of German customers, before we secondly elaborate aspects regarding switching to alternative payment methods, i.e., mobile payments. We are wondering: Why do German customers prefer cash payments? and Which factors could affect the switch from cash to mobile payment methods for German customers? To answer these questions, we conducted a three-round Delphi study with eight experts and found, for example, that cash is still preferred because it is more practical as it is accepted by every merchant in Germany. Regarding the switching intentions, one major finding is that large retailers and other key players need to adopt mobile payments as their preferred system, so that customers can become more familiar with it.

Keywords: Cash Payments, Customer Preferences, Delphi Study, Mobile Payments, Switching Intentions

1 Introduction

Digital innovations have been leading major changes causing entire systems (e.g., the payment system) to restructure. The race toward the shift to cashless economies has created pressure on firms and boosted the development of micro-payments that could potentially eliminate the inconvenience of using cash [1]. In China, for example, by simply scanning a QR Code from their WeChat account, customers can pay with their smartphone no matter if in the small mom-and-pop store around the corner or at a restaurant. Approximately 56% of Chinese transactions at the point-of-sale (POS) are dominated by third-party mobile payments, a share that is contented between only two non-bank service providers [2]. Very different however is the situation in Germany. Here mobile wallets are not only uncommon, but cash is the often preferred and sometimes even the only accepted form of payment. The comparative analysis carried out by Korella (2017) confirms that German customers prefer to use cash for small sums (up to 50 €) while cards are adopted for higher amounts [2]. Even in the context of the

Covid-19 pandemic with its considerable impact on payment behavior [3], German customers hardly use mobile wallets. While there is a general shift from cash to cards, mobile wallets are used by approximately 13% of German smartphone owners only [4]. The ubiquity of smartphones has led to the exploration of new applications. Mobile payments for this matter refer to any purchase transaction carried through a mobile device [5, 6]. By storing several financial applications that allow such functionality, smartphones have now developed into micro-wallets [7], effectively substituting in some cases physical wallets [8]. Originally introduced to facilitate personal funds transfers between accounts and to allow e-commerce transactions, mobile wallets such as WeChat Pay and Alipay revolutionized customer behaviors and selection criteria [9]. In fact, omnipresence of smartphones, ease of transactions and hostility towards fees became the main reasons why users accepted this new format despite not being managed by the well-trusted banking sector [9]. Reasons for adoption of mobile payments have been investigated by information systems scholars. Pousttchi & Wiedemann (2007), for instance, explore factors influencing the adoption of mobile payments by the German market and find that user-friendliness and usefulness are two fundamental criteria [10]. Although convenience can improve the habitual use of digital wallets, privacy and security remain major concerns among consumers [1]. Yet in practice when approaching a checkout, people dispose of different instruments. Under this assumption, mobile wallets compete against the already well-known means of payment. Although Alaeddin et al. (2018) emphasize the possibility that mobile wallets could take over their physical equivalent, little further analyses can be found on this effect [8]. This is particularly true for the “cash- and card-oriented” German market. In addition, many existing studies addressing the German payment market were published before 2010 (e.g. [10]), emphasizing the need of an updated investigation. Filling this gap would not only be of value for researchers, but also for practitioners. In this context, we formulate the following two research questions (RQs): *RQ1: Why do German customers prefer cash payments? RQ2: Which factors could affect the switch from cash to mobile payment methods for German customers?*

Owing to the partly forecasting perspective of the research, the future-oriented conventional Delphi method is applied. The results of our qualitative research help to investigate the transition to cashless systems and the implications for the acceptance of the merge between social networking apps and mobile wallets as a new payment instrument in contrast to cash. This paper is composed of six sections. Section 2 contains the theoretical background. The research methodology is then outlined in section 3. Section 4 summarizes the results while section 5 compares them to existing academic knowledge and briefly discusses practical implications for managers. The paper concludes with section 6.

2 Theoretical Background

2.1 Definitions

Mobile payments in technical terms are an information technology, but also a mean for customers to handle payments [10]. Mobile payment methods “include payments made

using a mobile phone, either in-store or not in-store, as well as using an app to conveniently send and receive money without entering an IBAN” [11, p. 47]. They allow commercial transactions [12], which are operated through a credit card or a *mobile wallet*, meaning software applications for mobile devices that enable payment transactions [5]. In some cases, physical wallets have almost been replaced by mobile wallets allowing the customer to carry out in-store payments directly from their smartphone [13]. A *digital wallet* differs from traditional digital representation of cards, because it can also be financed through intra-wallets transfers or by direct connection to the bank account [9]. It allows to store sensitive data and credentials for mobile transactions [13]. Also, it allows to perform electronic transfers of different types [9], while mobile wallets are generally more suitable for transactions where the physical wallet is needed [14, 15]. Nonetheless the two terms *digital* and *mobile wallets* are very often used interchangeably as a synonym for mobile payments at the point-of-sale (POS) terminal [9].

Mobile payment systems are of two types depending on the communication technology. Gerpott & Meinert (2017) identify remote payment systems that are suited for purchases of digital and physical goods through online transactions (e.g., one-click bank transfer) or established mobile communication services (e.g., pay by call). They describe proximity payment systems as limited to purchases for goods at the POS in-store through short-range communication. This can be code scanning, like in the case of WeChat Pay where customers scan a QR code assigned to the merchant. The second type, already common in Germany with contactless cards, is Near Field Communication (NFC) where the payment is made by simply placing the mobile device within a maximum of 10 cm distance from the NFC POS terminal [15]. The limitation of NFC is that it only supports transactions up to a certain country-specific threshold above which the transaction needs to be authorized with a PIN code [15]. Many predict that PINs will soon become obsolete and that they will be replaced by biometric recognition which uses physical characteristics, such as fingerprints, face, voice, etc. as authentication measure [16]. Given that NFC technology in Germany is already present for contactless cards, mobile wallets could take advantage of this already available system. As this study aims at understanding the transition to alternative payment formats, a particular emphasis is given to payments for purchase, where mobile wallets offer a direct alternative to cash and credit cards, rather than payment of bills [5]. Cash is mainly used for those daily operations of small amounts, usually below 50 €, to pay for goods from a physical store [11]. Therefrom, the terms mobile payment and mobile wallet are used interchangeably to describe payments that are carried to a merchants’ POS terminal using a service provided by a third-party payment on the mobile device.

2.2 Switching intentions

In the shopping experience, the checkout phase is the moment customers become aware of the total price and finalize the payment [14]. While evidence shows that at the moment of the decision, most people in Germany still rely on cash for transactions at the manned POS [4, 11], some scholars investigated the presence of card and mobile premium effect resulting in higher willingness to pay for card or mobile payment transactions [14, 17]. In this scenario the decision of using mobile wallets cannot be analyzed

in absolute terms, but rather relative to traditional instruments. According to the result found by Deutsche Bundesbank (2018) in a study with more than 2,000 individuals who responded to a questionnaire and filled a so-called payment diary, more than 90% of the respondents consider each of the following features as essential criteria for choosing a payment instrument: protection against financial loss, clear overview of spending, ease of use, familiarity and privacy, [11]. Rapidity (86%) and width of merchants' acceptance (82%) show less but still high values, but cash remains however the instrument able to fulfill most of all the requirements [11]. Results by Beutin & Harmsen (2019) confirm that skepticism toward mobile payments is driven by concerns on sharing confidential data with third parties and the risk of its misuse [18]. Past experiences are also key to understanding what drives purchases. The repetition of a behavior in a given context creates a direct association between the two, such that when a similar context is presented, the same response is triggered through memory recollection: this is what Wood & Neal (2009) referred to as *habit* [19]. The repetition of a consumer behavior can either be a form of habitual response, driven by context cues and performed regardless of people's goals, or the expression of a specific preference [19]. Habits are usually used as a default response when people are under time pressure or distracted, and they usually require multiple interventions to be changed [19]. Emphasizing on past experiences can be useful on two sides: first, it can shed light on whether repetitive use of cash is driven by habits or specific preferences. Second, it could be a leverage factor to enhance adoption, because people that have already used smartphone to pay are more likely to use it repeatedly [20]. Customers will constantly seek for higher transparency and speed [21]. From the customers' view, transparency in a payment method is found in the form, meaning the ease of the overall experience and in the amount, the ability to track liquidity spent [22]. Falk et al. (2016) explain how cash fulfills both requirements due to the tangible possession, and how mobile payments are perceived even less transparent than cards which intangible nature makes it harder to keep track with liquidity [14]. The challenge for mobile wallets, when competing with an instrument of such trial usage, is creating an adequate user interface that is attractive and simple [7]. At the same time however, Lu (2019) points out that mobile wallets benefit of two types of convenience as opposed to cash: first, service providers can effectively bring their service closer to customer by leveraging on ubiquity of smartphones; second, they avoid the pain of handling cash (i.e., having change or dividing the bill at the restaurant) [7].

3 Research Design

Mobile payments can be considered as an information technology [10] and given this assumption the topic is usually studied through the application of technology acceptance models [e.g., 23]. Although quantitative methodologies are the most common for exploring customers' approach to IT systems [5], for this study the Delphi methodology was chosen. Owing to the complexity of the research question which requires experts from different fields of expertise and since the topic would benefit more from the subjective judgments of a selected group than pure quantitative analyses, the Delphi method was considered appropriate. Furthermore, Loe et al. (2016) posit that in Delphi studies consensus among experts'

opinions can be considered accountable for accurate forecasts [24]. Because the objective of this research is to postulate on the prospect of new payment formats in Germany, the future-oriented premise of the Delphi method fits our study appropriately.

3.1 Data collection

The first distinctive characteristic of a Delphi study is the selection of the participants. Experts are pivotal to the success of the research; hence the panel was studied in terms of panel composition, group size and recruitment criteria. The conventional Delphi method usually relies on experts in one given area [24]. Given that mobile payments are part of a regulated ecosystem influenced by the interconnections of different stakeholders [25], a more diversified panel was considered more appropriate. Experts were therefore selected from different areas (see Table 1). In general, the size of the panel in Delphi studies varies depending on the topic assessed and based on the recruitment criteria used. The review on the application of Delphi method by Worrell et al. (2013) finds that the size of the panel can be of four participants if there are ideal circumstances, or else between ten and 30 members under typical circumstances [26]. In the case in which experts are selected from different sectors, then a group of five to ten members is considered acceptable [27]. Owing to the heterogenous composition of our panel, this research considered a panel size between five and eight acceptable. This study included both academicians and practitioners to guarantee a broader variety of perspectives. Aside from expertise, two more criteria were included: first a proficiency level of English, to prevent errors arising from language barriers; second, familiarity with the German market given the emphasis of the study. A total of 20 experts were contacted through direct email, LinkedIn, and personal networks, of which eight (three Germans, five Europeans) agreed to participate. Table 1 reports the list of members with the respective qualifications and area of expertise.

The second and third core characteristics of a Delphi study are anonymity and group communication. It is essential to prevent members from becoming aware of each other's identity to foster expressions of opinions free from pressure or influence as fears of embarrassment or public commitment are removed [28]. At every stage of the study, experts were given the opportunity to provide comments, modifications and suggestions to be integrated in the results and returned to the panel for further evaluation.

The goal of the first phase of data collection is related to the discovery of the issue. In order to avoid imposing pre-existing knowledge or the researcher view and to instead analyze data that is the result of the consolidated answers of the panel, round 1 was constructed following the conventional method. In a first step, several open questions were developed based on literature:

- Why do people prefer cash over mobile wallets for day-to-day operations?
- What are the main negative aspects users associate with mobile wallets?
- What are the main positive aspects users associate with mobile wallets?
- What are other external implications that influence the adoption and diffusion of mobile wallets?

Table 1. Panel of experts

	<i>Sector</i>	<i>Field of expertise</i>	<i>Position</i>
A	Strategic management	Academic, professional & research background in strategy, innovation and entrepreneurship.	Academic professor & practitioner
B	Business development	Partner in international consulting and trade company. Experience in business development.	Practitioner
C	Customer behavior	Academic, professional & research background in international marketing, pricing, quantitative methods and research methods.	Academic professor
D	Financial services	Manager in a company for financial services. Experience in legal consulting.	Practitioner
E	Payment methods & fin. services	Director of CRM and Fintech in firm of financial services. Experience in digital payment, mobile wallet, fin-tech, banking	Practitioner
F	Retail	CFO in a food retail and wholesale company. Experience in financial sector.	Practitioner
G	Traditional banking	Head of acquiring in banking group. Experience in payments and business innovation	Practitioner
H	Mobile payment	Research background in mobile payment, banking & payment industry.	Academic professor

To enhance clarity, in the introduction respondents were asked to consider (1) that the analysis of the customer segment focuses on Germany, and (2) that the primary emphasis of this study is on a customer perspective, although other factors may be considered relevant. Experts were then given approximately two weeks to answer and to send the completed word version via email. The objective of the following rounds is to validate the importance and to establish a ranking for the issue, that is assessing and ranking the responses based on their importance [29]. Due to the nature of the initial questions, round 2 was constructed partially as a ranking list, where experts were asked to place items in order of importance, and partially in the form of statements. In the former case, categories for the ranking were proposed in randomized order to address the primacy effect bias pointed out by Skinner et al. (2015) [30]. In the latter case, consensus was measured using a 7-points Likert type scale. Here, numbers represented the degree of agreement, from 1=extremely disagree, to 7=extremely agree. Differently from the previous step, this phase was carried through an online platform (*SurveyHero.com*) and responses were collected over a period of one week. The final stage had the same architecture and format of the previous one, but this time the data was adapted to reflect the results of the previous round and to include the anonymized comments. Therefore, results of the previous round, including anonymized modifications, were sent back to the experts who this time, could deliberate based on the results from the consolidated responses of all the members. The data collection took place in March and April 2020.

3.2 Data analysis

The answers from round 1 were analyzed following the „Grounded Theory re-envisioned” by Charmaz (2006) [31]. Codes and categories were developed from the raw data instead of coming from preconceived knowledge; collection and analysis of data happened simultaneously; constant comparative methods across data were used to find similarities and differences. The aim of the second and third round was to assess the degree of consensus within the panel, which can range from 55 to 100% agreement. Complete agreement is usually an unrealistic condition and when reached too quickly it could be a synonym that the topic is saturated or that the presentation of the results induced to a given answer [30]. Under these assumptions, this study considered a general agreement of 70% to be adequate. The majority of Delphi studies rely on central tendency measures and percentages as quantitative data analysis techniques [24]. For the ranking type results this was used in combination with Kendall coefficient of concordance, which is a non-parametric measure ranging from 0 to 1 (e.g., *0.1 = very weak agreement*, *0.9 = unusually strong agreement*) and is an indicator of the degree of agreement achieved. For what concerns the Likert scale, a different approach was used. In this case, analysis was organized such that, any score above 5-points was considered as agreement and 70% needed to be achieved to have consensus. In addition to the above-mentioned methods, measures of central tendency, such as mean and standard deviation were also used.

During round 2 the experts provided comments and modifications which were to be incorporated in the results for round 3. To do so, two approaches were followed as explained by Sekayi & Kennedy (2017) [29]: if suggestions were to clarify or to complete the statement, without however changing the meaning of the original sentence, the latter was amended accordingly. However, when the modifications proposed were to alter completely the message, a new additional statement was created to the side of the old one. The results of the Likert scale evaluation are presented using Delphi diagrams elaborated by Pousttchi et al. (2015) [21].¹

4 Findings

The study was made possible by the participation of eight experts (see Table 1). Although all the chosen members participated to R1, the following rounds only counted seven experts for R2 and six for R3 as two of them dropped out.

4.1 Reasons for customers to choose cash

The results for this area of contribution demonstrate that understanding the prioritization process behind customers’ decisions is neither evident nor easy to assess (Table 2). The following remarks build the answer to *RQ1*. At the end of R3, the group ranking confirmed that people still use cash instead of mobile payment, because the former is more practical as it is accepted by every merchant (mean=8.67) and not because it is believed to have lower transaction costs

¹ More details are introduced along with Figure 1.

(mean=3.16). The iteration also estimated that such payment preference is influenced by the cultural heritage (mean=8.5) and existing habitual behavioral patterns (mean=7.83). For this specific classification, “ease of use” referred to the speed of the transaction. By placing it fourth, experts effectively affirmed that customers prefer cash at the checkout, because they assume it to be faster than using mobile wallets. During R2, two respondents highlighted a strong similarity among four categories representing the perceived risk, namely “security” of the transaction, “trust” in electronic payments, “data protection” for the hostility toward sharing personal data and “traceability” as the reluctance toward feeling constantly controlled.

Table 2. Main findings why customers choose cash instead of mobile payment

R2	SD	Mean	Mean	SD	R3
Availability	3.41	9.51	8.67	2.58	Availability
Habit	3.44	9.14	8.5	2.81	Cultural background
Cultural background	3.82	8.71	7.83	3.06	Habit
Trust	0.79	6.57	6.16	2.32	Ease of use
Traceability	3.82	6.29	5.83	2.79	Perceived privacy
Ease of use	4.31	6.29	5.5	3.08	Control of liquidity
Control of liquidity	3.51	6	5.33	2.42	Tangible possession
Tangible possession	3.63	5.86	5	2.83	Data protection
Security	3.50	5.71	5	3.22	Security
Awareness	3.73	4.71	3.33	2.07	Awareness
Data protection	2.19	4.14	3.16	2.48	Perceived costs
Costs	2.94	3.57			
W=0.28			W=0.31		

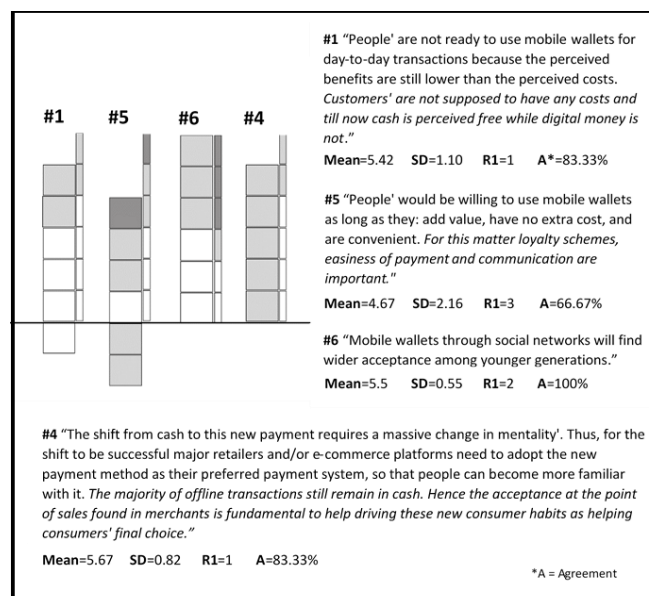
Having considered the proximity in the position of “trust” and “traceability” we proceeded to combining them in a new category named “perceived privacy”, which ranked fifth in R3. We also changed the reason “costs” (R2) to “perceived costs” (R3) following consistent remarks from the experts. Despite such remarks, the expert group seemed to consider each item differently, assigning distinct weights, exception made for “trust”. In this specific case in fact, respondents seemed to agree that one of the first four reasons why customers prefer cash to mobile payment, is because they do not trust electronic payments (SD=0.79). In round 3 however, only one expert still found the items similar, mentioning that all the categories representing perceived security were to be considered with analogous importance. According to the experts, people today still rely on cash more because they do not trust digital instruments or because they prefer not to leave any trace (“perceived privacy”), rather than because they assume cash will be a safer transaction (“security”). Owing to the divergency of opinions, the panel did not arrive at a sufficient consensus, thus Kendall’s W remained low even after the third round (w=0.31).

4.2 Switching intentions

The findings presented in this subsection present the answer to *RQ2*. Figure 1 summarizes the key results on switching intentions to alternative payment methods according to the suggestion of Pousttchi et al. (2015) [21]:

- Each expert is represented by a square
- Above the horizontal there are the positive ratings while below the negative ones
- The color of each cell is a symbol for the degree of agreement, in which darker shades represents stronger agreement (–, + white; ++ or – grey)
- The major squares represent the responses for round 3 and the small column on the right the results of the previous round.

Fig. 1. Main findings for switching intention



During round 1, six respondents answered positively when asked whether people would be willing to use mobile wallets instead of cash for daily purchases. Interestingly however statement #1, which was first mentioned by one expert only, immediately received full consensus. In R3, despite one member shifted to a weak disagreement, the group answers validated (mean=5.42) that customers are not ready to embrace this new instrument because the perceived costs outweigh the benefits. Item #5 revealed that, while it is shared opinion that providing added value at no extra cost would bring people closer to this new payment format, it is not so evident what such benefits should be. In fact, in R3 two members reconsidered their rating to "I mostly disagree" when considering loyalty schemes and ease as important added values. However, because there is low level of agreement (SD=2.16), this statement cannot be considered valid. Acceptance of mobile wallets through social networks is said to be more important for younger generations (#6). This notion, already mentioned twice in R1, found universal

almost unanimous support by all the members (mean=5.5; A=100%). In fact, this time all members take a clear positive position, although some reconsidered their “extreme” agreement to moderate. One reason for this may be that the existing target of social network is primarily digital natives. Nonetheless, experts are fully aware that this transition would require a big change in the mentality of customers, especially considering that the majority of the ordinary purchases are still settled with cash (#4). This is why in R3 respondents either confirmed or emphasized, with high level of agreement (SD=0.82), that acceptance at the point of sale is key factor to drive new habits. Furthermore, two additional issues were raised during R2 and included in the list of R3 as separate items. One comment provided that customers would consider substituting physical with social wallets because they seek convenience as they strive to make their lives easier.

5 Discussion

Starting from the heavy reliance on cash, before understanding what can drive the adoption of a new payment it is important to investigate what could displace the existing option. In a context in which customers already possess a colored portfolio of payment instruments, mobile wallets would just be an additional way of terminating the shopping experience. Effectively, the major barrier to the diffusion of alternative payment methods is the tough competition against other instruments. Cash in fact, has a much longer history compared to mobile wallets, which are now just starting to enter the German market. Although it may seem evident, this is for cash a great competitive advantage because people are far beyond the familiarity phase: using cash now is the status quo. This research confirms the findings on habitual patterns of Wood & Neal (2009) by proposing that customers are so used to settle small purchases with cash, that whenever they find themselves in a similar situation, they will automatically do the same. The repetitive action however is not only the manifestation of a habit, but also of specific preferences that every customer has [19]. Our Delphi study reveals that customers look for payments that are easy to use, and they can trust. However, because they believe that cash better fulfills both requirements, people still prefer it to mobile payments. The findings also confirm the findings of Soman (2003), according to whom payment methods are transparent if they are easy to process and if they allow to keep track of liquidity [22]. Although it is not a top priority, our study shows people still believe it will be faster to manage their spending when possessing a physical wallet. The preference for material possession therefore also supports Falk et al. (2016), stating that in the eye of the customer the tangible nature of cash makes it feel more transparent than mobile payments [14]. However, the main reason why people persist using cash, it is not because it is perceived less costly than other options, but because people are certain that every merchant will accept it.

While acceptance at the POS is a strength for cash, for the other electronic payments it constitutes a major weakness, especially for mobile payments. Switching to mobile wallets means that one should be able to leave their home only with the smartphone. Logically, people will not feel comfortable with such idea, as long as they know this would prevent them from buying anything. In other words, like already pointed out by

Gerpott & Meinert (2017), availability at the POS is one of the most important concerns for the adoption of new mobile wallets [15]. The results therefore suggest that a greater number of mobile payment POS terminals would help the diffusion of mobile payments. Like for regular mobile payments convenience and speed are two major benefits that customers expect to have if social networks were to offer mobile wallets. Our study supports that the convenience of mobile wallets stems from its ability to eliminate the hurdle of handling change [1], while still considering convenience, ease of use and speed separately. Furthermore, the results suggest that leveraging on the speed that mobile payment options provide could not only influence its usefulness, but also directly impacting the decision to use it. This supports Pousttchi et al. (2015) who estimated a constant increase in the demand for speed and transparency [21].

The results of this study allow to derive some implications for managers. When deciding to provide a substitute it is first necessary to understand what keeps customer from changing. As an incentive to change automatic repetitive behaviors, third party providers should emphasize on the convenience, speed and ease of use that mobile payments provide as opposed to cash. However, it is not sufficient to concentrate solely on the substitution of cash, because other instruments are threatening to address the same target. Contactless cards in fact already propose faster processing, they are accepted by most POS terminals and they are handled by financial services that customers already entrusted with their savings.

6 Conclusion

The main contribution of our study is an updated picture of the current German payment market in terms of customer preferences and switching intentions from cash to mobile payments. It appears that the evolution of payment methods will be influenced by the constant demand for more convenience, as people strive to make tasks easier and faster. In Germany, cash will continue to play an important role for transactions at the point-of-sale, if the technical infrastructure for digital formats remains underdeveloped, because customers do not have enough incentives to change their existing habits.

In terms of limitations of our research, significant payment behavior changes along with the Covid-19 pandemic are hardly covered in this analysis simply because the study has been conducted in the very beginning of the crisis in Germany (March/April 2020). However, recent studies [e.g., 4] reveal that even in times of Corona, cash is indeed partly replaced by cards but the skepticism towards using mobile wallets remains. Thus, objectives and findings of our study are still relevant. Nonetheless, it would be interesting to investigate the long-term effects of the pandemic on mobile wallets usage in further studies. Also, the low consensus of the experts on some of the aspects (see 4.1) is a limitation of this study, so is the stop after three rounds of analysis. Two experts left the panel during the study which is another aspect that could bias the results. Therefore, further investigation (also applying other methods, e.g., large-scale consumer surveys) should be carried out to understand whether it is possible to identify a common explanation to the cash reliance in Germany or whether this behavior is dictated by individual preferences that significantly change from person to person. Despite the one-

dimensional perspective of this study, the results bring forth the necessity to analyze the payment landscape from multiple angles. Thus, a stakeholder analysis may help future research building a more detailed picture of the payment ecosystem. Moreover, it might be value-adding to also integrate the opinions of experts of the Chinese market to better understand the differences between German and Chinese customers.

References

1. Ul, B., F., R., Mehraj, A., Ahmad, A., Assad, S.: A Compendious Study of Online Payment Systems: Past Developments, Present Impact, and Future Considerations. *International Journal of Advanced Computer Science and Applications* 8 (2017)
2. Korella, J.L.: Outcomes of a comparative study on retail payment behaviour in China and Germany, https://www.ecb.europa.eu/pub/conferences/shared/pdf/20171130_ECB_BdI_conference/presentation_korella.pdf
3. Auer, R., Cornelli, G., Frost, J.: Covid-19, cash, and the future of payments. *BIS Bulletins* 3, Bank for International Settlements (2020)
4. Deutsche Bundesbank: Payment Behaviour in Germany in 2020 – Making Payments in the Year of the Coronavirus pandemic. Survey on the Use of Payment Instruments, <https://www.bundesbank.de/resource/blob/858022/648f4ff4f75ba2fe61a32ffd373ce34d/mL/zahlungsverhalten-in-deutschland-2020-data.pdf>
5. Dahlberg, T., Mallat, N., Ondrus, J., Zmijewska, A.: Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications* 7, 165–181 (2008)
6. Ozcan, P., Santos, F.M.: The market that never was: Turf wars and failed alliances in mobile payments. *Strategic Management Journal* 36, 1486–1512 (2015)
7. Lu, L.: Mobile Payments—Why They Are So Successful? *Open Journal of Business and Management* 07, 1131–1143 (2019)
8. Alaeddin, O., Altounjy, R., Zainudin, Z., Kamarudin, F.: FROM PHYSICAL TO DIGITAL: INVESTIGATING CONSUMER BEHAVIOUR OF SWITCHING TO MOBILE WALLET. *Polish Journal of Management Studies* 17, 18–30 (2018)
9. Klein, A.: Is China’s new payment system the future?, <https://www.brookings.edu/research/is-chinas-new-payment-system-the-future/>
10. Pousttchi, K., Wiedemann, D.: What Influences Consumers’ Intention to Use Mobile Payments? *Proceedings of the 6th Annual Global Mobility Roundtable*, 1–16 (2007)
11. Deutsche Bundesbank: Payment Behavior in Germany in 2017—Fourth Study of the Utilization of Cash and Cashless Payment Instruments, <https://www.bundesbank.de/en/publications/reports/studies/payment-behaviour-in-germany-in-2017-737278>
12. Au, Y.A., Kauffman, R.J.: The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications* 7, 141–164 (2008)
13. Shin, D.-H.: Towards an understanding of the consumer acceptance of mobile wallet. *Computers in Human Behavior* 25, 1343–1354 (2009)

14. Falk, T., Kunz, W.H., Schepers, J.J., Mrozek, A.J.: How mobile payment influences the overall store price image. *Journal of Business Research* 69, 2417–2423 (2016)
15. Gerpott, T.J., Meinert, P.: Who signs up for NFC mobile payment services? Mobile network operator subscribers in Germany. *Electronic Commerce Research and Applications* 23, 1–13 (2017)
16. Clearbridge Mobile: How Biometric Authentication is Shaping the Future of Security in Mobile Banking, <https://clearbridgemobile.com/biometric-authentication-shaping-future-mobile-banking/>
17. Boden, J., Maier, E., Wilken, R.: The effect of credit card versus mobile payment on convenience and consumers' willingness to pay. *Journal of Retailing and Consumer Services* 52, 101910 (2020)
18. Beutin, N. and Harmsen, M.: Mobile Payment Report 2019, <https://www.pwc.de/de/digitale-transformation/pwc-studie-mobile-payment-2019.pdf>
19. Wood, W., Neal, D.T.: The habitual consumer. *Journal of Consumer Psychology* 19, 579–592 (2009)
20. Kerviler, G. de, Demoulin, N.T., Zidda, P.: Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers? *Journal of Retailing and Consumer Services* 31, 334–344 (2016)
21. Pousttchi, K., Moormann, J., Felten, J.: The impact of new media on bank processes: a Delphi study. *International Journal of Electronic Business* 12, 1 (2015)
22. Soman, D.: The Effect of Payment Transparency on Consumption: Quasi-Experiments from the Field. *Marketing Letters* 14, 173–183 (2003)
23. Davis, F.D.: Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 13, 319 (1989)
24. Loë, R.C. de, Melnychuk, N., Murray, D., Plummer, R.: Advancing the State of Policy Delphi Practice: A Systematic Review Evaluating Methodological Evolution, Innovation, and Opportunities. *Technological Forecasting and Social Change* 104, 78–88 (2016)
25. Hedman, J., Henningsson, S.: The new normal: Market cooperation in the mobile payments ecosystem. *Electronic Commerce Research and Applications* 14, 305–318 (2015)
26. Worrell, J.L., Di Gangi, P.M., Bush, A.A.: Exploring the use of the Delphi method in accounting information systems research. *International Journal of Accounting Information Systems* 14, 193–208 (2013)
27. Clayton, M.J.: Delphi: a technique to harness expert opinion for critical decision-making tasks in education. *Educational Psychology* 17, 373–386 (1997)
28. Avella, J.R.: Delphi Panels: Research Design, Procedures, Advantages, and Challenges. *International Journal of Doctoral Studies* 11, 305–321 (2016)
29. Sekayi, D., Kennedy, A.: Qualitative Delphi Method: A Four Round Process with a Worked Example. *The Qualitative Report* 22, 2755–2763 (2017)
30. Skinner, R., Nelson, R.R., Chin, W.W., Land, L.: The Delphi Method Research Strategy in Studies of Information Systems. *Communications of the Association for Information Systems* 37 (2015)
31. Charmaz, K.: *Constructing grounded theory*. SAGE, Los Angeles, London, New Delhi, Singapore, Washington DC (2014)