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Critical Comparison of Paying with Credit Cards and Debit Cards Instead of Paying with Cash

Ferenc Puskar (h11939192)

LV-Leitung

ao.Univ.Prof. Dr. Rony G. Flatscher

Welthandelsplatz 1, A-1020, Wien

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1 Introduction

In modern times, there is an increasing trend of paying with debit or with credit cards instead of cash. This shift raises important questions about the pros and cons of using cards versus cash. Austria is a country where cash is still widely preferred for payments, as evidenced by the familiar phrase "Nur Bares ist Wahres!" ("Only cash is true!"), known to almost every Austrian.

According to a study by the Austrian National Bank, "nearly all respondents (95%) cannot imagine a world without cash. The transaction and volume shares of payment methods at the point of sale (POS) indicate that while the trend of recent years towards cashless payments continues, cash remains the most used payment method in Austria. "(Faulmann 2023) These studies illustrate that despite the growing popularity of electronic payments, cash remains deeply ingrained in the Austrian culture.

The preference for cash in Austria reflects not only a reliance on tradition but also on concerns about privacy and security associated with electronic transactions. While debit and credit cards offer convenience, cash provides a tangible sense of control over spending and a level of anonymity that some individuals value. The fact that people still use cash even though technology has improved shows that they still trust physical money as reliable.

1.1 Purpose and Scope of the Comparison

In many countries, there is a steady shift from cash to card payments, which might suggest that cash will eventually disappear. However, cash in most countries, including Austria, has remained stable or increased significantly over decades. This seminar thesis explains the differences between cash and credit cards by showing the cultural, and economic factors that influence individual's preferences and behaviors regarding payment methods. It focuses on possible influences such as cash supply, technology and infrastructure, regulations and the different payment behavior and the mentality of consumers. From this, conclusions are drawn where the different payments markets are heading in the future. The data is based on secondary

data taken from various books, journals, research papers and online sources. Regardless of your viewpoint on the future of cash, this thesis seeks to offer a comprehensive understanding of the ongoing transition from cash payments to digital payments. Additionally, it addresses the fees and costs associated with using credit and debit cards in different countries.

1.2 Overview of the work structure

To be able to address the previously developed research questions, the thesis is structured into the following three main parts:

Theoretical Foundations (Chapters 2 to 3)

Analysis and critical comparison (Chapter 4)

Case studies and future trends (Chapter 5)

Chapters 2 to 3 cover the relevant theoretical foundations for the thesis. This includes explanations of the definitions and functions of cash and credit or debit cards. This section is rounded off by explaining the advantages and disadvantages of both payment methods.

Chapter 4 deals with the comparative analysis of cash and credit cards. Various points and aspects are addressed, such as Security, Acceptance and Availability, Costs and Fees, Data Protection and Privacy, Usage Habits, and Trends.

In Chapters 5 case studies and empirical investigations are presented. This includes studies on the use of cash and credit cards, as well as an analysis of preferences among different age groups regarding their payment methods. Additionally, potential developments and challenges are highlighted.

2. Theoretical Foundations

2.1 Definition of Cash and Credit / Debit Card

Cash is a form of currency consisting of banknotes and coins, which can be exchanged for goods and services. It is widely accepted as a medium of exchange in most economies. Cash transactions involve the immediate transfer of physical currency from one party to another, providing an instant and simple payment method.

Debit and Credit cards on the other hand, are forms of electronic payment systems that offer comfort and flexibility in transactions. According to Investopedia, a credit card is a payment card issued to users (cardholders) to enable the cardholder to pay a merchant for goods and services based on the cardholder's promise to the card issuer to pay them for the amounts plus the other agreed charges. (Vgl. Cussen 2024). Similarly, a debit card is described as a payment card that deducts money directly from a consumer's checking account to pay for a purchase. (Vgl. Cussen 2024). Debit cards, primarily in the form of Girocards, are widespread in Austria and are used for cashless payments and ATM withdrawals. For online and international travel, credit cards are more popular among consumers as they are preferred by almost all companies and often include insurance benefits.

2.2 Advantages and Disadvantages of Cash and Credit / Debit Card

When comparing the advantages of using a credit card versus paying with cash, there are several factors to consider. Each payment method comes with its own set of pros and cons, so it's important to carefully consider your options to determine what best suits your needs. While credit cards offer convenience and potential rewards, cash transactions provide a sense of control over spending and can prevent debt accumulation. Ultimately, the decision between the two depends on individual preferences, financial goals, and spending habits.

Advantages of Credit/ Debit Cards

- Whether shopping locally or online, dining out or traveling, using credit cards is increasingly popular. For frequent travelers, having a credit card is often essential, especially as many hotels or car rental agencies require it for security purposes. In the absence of credit card, a significant amount may need to be deposited as a security deposit.
- Credit cards are frequently offered with additional bonuses and benefits. Often, insurance coverage is provided, such as health insurance, trip cancellation. There are also discounts and credit points available with partner companies or the opportunity to collect bonus miles for flights.
- Credit and Debit Cards can be used to get cash from ATMs worldwide and it's a globally accepted form of payment. However, fees of varying amounts may apply abroad.
- Paying with a credit card is both simple and secure. There is a protection called two-factor authentication system, which means that signature alone is no longer sufficient to authorize a payment. In addition, entering a PIN code or authenticating with a fingerprint is required. This makes much more difficult for scammers to misuse credit cards in case of loss or theft.
- You can track what you've spent your money on through your credit card statement.

Disadvantages of Credit/ Debit Cards

- Since credit cards offer so many benefits, they can seem like the best payment method in many situations. But with reward comes risk. By using a credit card, you incur debt with every purchase. If you fail to pay your bills in full every month by the due date, you are charged interest charges that add to your total debt. When using a credit card, it's important to have good money management skills, pay bills on time, and avoid overspending.
- Cashless payments leave a digital footprint both online and offline. This means that information about the location and shopping habits could be tracked.

- In today's unpredictable world, the threat from cybercriminals is very real, prompting ongoing concerns about system vulnerability. One question should always be asked: How resilient is the technology that support a cashless society?

Advantages of Cash

- Paying with cash, the most common form of payment worldwide, offers several advantages that make it an essential aspect of daily transactions. One of the most obvious benefits is the universal acceptance, as cash transactions do not require third-party action for immediate conversion into other forms of value.
- Another advantage is the anonymity that cash offers. Using cash, people leave no digital trace, protecting their privacy and reducing the risk of identity theft and fraud. This level of anonymity is especially crucial for confidential transactions or in nations where governmental monitoring is a concern.
- In addition, cash promotes financial discipline as it makes it easier to control spending. The physical presence of cash allows people to keep a better eye on their budget and make more conscious spending decisions. This can help avoid uncontrolled spending.
- Another important advantage of cash is its reliability, especially in situations where digital payment systems can fail, whether due to natural disasters or technical problems. In such cases, cash remains the only means to conduct transactions and purchase goods and services.

Disadvantages of Cash

- Despite the numerous advantages that cash offers, there are also some disadvantages to consider. One of the most obvious disadvantages is the increased vulnerability to theft and loss. Cash is physical and can be stolen which means that it cannot be reserved.
- Another disadvantage is the limited traceability of transactions. Unlike electronic payment methods where transactions can be easily tracked, cash transactions are more difficult to monitor. Especially in situations where it is necessary to detect fraud or money laundering. For this reason, the first steps have already been taken by the European Central Bank,, In 2016, the European Central Bank (ECB) decided to phase

out the 500-euro note in a bid to impede illegal activities such as weapons and drug trafficking. However, according to Thomas Steiner, the Director of the Austrian National Bank, consumers still desire to use cash in the future: a whopping 93% of Austrians wish for cash to remain in circulation. Only 5% indicated a willingness to do without it.” (N26 2022).

- Finally, cash can also lead to less efficient money supply because it incurs costs for producing, storing, and transporting cash. This can be problematic in remote areas where access to ATMs and bank is limited.

3. Historical Development of Cash and Credit Cards

The evolution of modern financial transactions has been marked by a transformative shift from traditional cash-based economies to the widespread adoption of credit cards. This transition reflects not only technological improvement but also changes in societal attitudes towards money and commerce. Understanding the historical evolution of cash and credit cards unveils a narrative of innovation, economic shifts, and the complex interplay between comfort and security in financial systems. This Chapter delves into the origins, key moments, and societal impacts that have shaped the journey of both cash and credit cards, highlighting their roles as permanent symbols of financial exchange.

3.1 History of Cash

The concept of cash, as a tangible representation of value, has been intertwined with human civilization since its earliest days. From the bartering of goods to the minting of coins and the introduction of paper currency, the history of cash reflects the evolution of economic systems and societal structures. Exploring the origins and evolution offers insights into the foundations of modern commerce and the enduring significance of physical currency in an increasingly digital world. Cash has a long history dating back nearly 5,000 years. Early forms of trade involved direct bartering, eventually people began to use rare objects such as mother-of-pearl, amber, or metals like gold and copper as currency. These were preferred due to their ease of

transportation and storage. Often, the government controlled the issuance and circulation of these scarce materials.

Anthropologists have various theories about the origins of money. It served as a measure of value, a store of wealth, and facilitated exchange between cultures. The first coins were minted around 600 BC in Asia Minor, promoting global trade. Banknotes only appeared around 1200 AD, when the Chinese Song Dynasty introduced them as a replacement for copper coins. Over time, banknotes became increasingly secure against counterfeiting, with modern banknotes made of polymer and containing numerous security features. (Vgl. Chapurukha 2017)

Later the gold standard was a currency system where currency was either in the form of gold coins or paper money that could be exchanged for gold. It was adopted by many countries from around 1870 and was widely used until the outbreak of World War I. After the war, many states suspended the gold standard, but parts of it were later reintroduced through the Bretton Woods Agreement. This system pegged the value of the US dollar to a fixed amount of gold but was eventually abandoned due to its limitations during the Great Depression and later periods.

In 1973, the United States completely abandoned the gold standard, marking the beginning of fiat currency. Fiat currency is issued by governments and is not backed by physical assets like gold or silver. The money supply is controlled by central banks, and the value is determined by people's trust and legal regulations. Unlike cash, book money or electronic money is not physical but is transferred electronically through bank accounts.

Digital money as we know today exists purely electronically and is based on systems such as credit cards or cryptocurrencies like Bitcoin. These systems enable people to conduct transactions online without using physical cash. (Vgl. Michler 2020)

3.2 Evolution of Credit Card

The evolution of the credit card is a captivating journey through the history of financial transactions, from humble beginnings to becoming an integral part of modern finance.

The early forms of credit can be traced back to ancient civilizations, where forms of credit and trade already existed. In the United States of the early 19th century, for example, credit coins

and metal plates were used to provide financial support to farmers until the completion of their harvest.

The term "credit card" first appeared in late 19th-century literature, with author Edward Bellamy describing a form of credit cards as a payment method in his 1887 published science fiction novel "Looking Backward 2000-1887."

However, the true birth of the modern credit card occurred in 1950 when Diners Club International introduced the first universally accepted credit card. The idea originated when businessman Frank McNamara found himself unable to pay his bill at a New York restaurant because he had forgotten his wallet.

In response, McNamara and lawyer Ralph Schneider founded Diners Club, initially persuading selected restaurants and bars to accept this new form of payment. Soon after, other financial companies, including American Express and Bank of America, introduced their own credit cards to the market.

In Europe, the spread of credit cards began in the 1960s, with Eurocard playing a prominent role. Later, Eurocard merged with Mastercard, further driving its global acceptance.

Today, Visa, Mastercard, American Express, and Diners Club are the leading credit card providers worldwide. Despite the emergence of new digital payment methods, the credit card remains an essential part of the financial system. Virtual credit cards, contactless payments, and biometric authentication methods are examples of current developments shaping the future of the credit card. (Vgl. Mekan 2023)

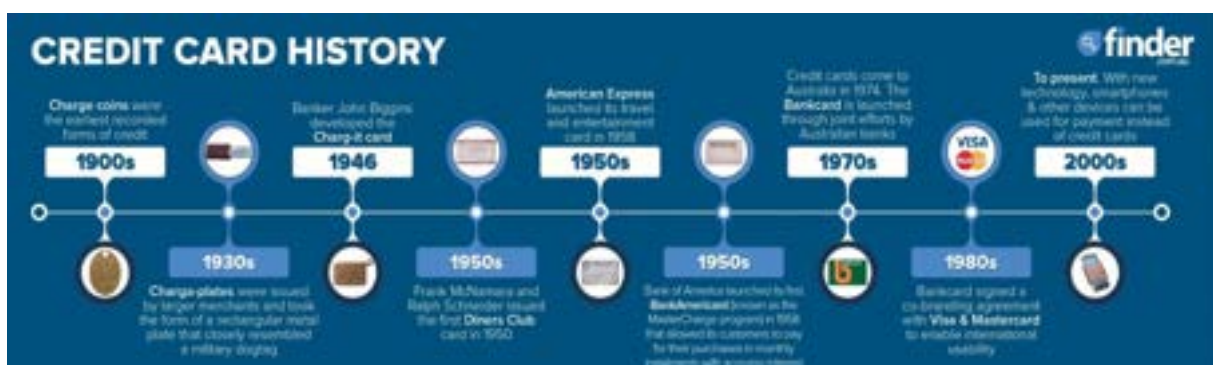


Table 1 Credit Card History (Bradney-George,2023)

3.3 Influence of Technology and Digitalization on Cash and Credit Cards

The influence of technology and digitalization on the use of cash and credit cards has fundamentally changed the landscape of financial transactions. The introduction of digital payment platforms, mobile wallets and contactless payment systems has significantly changed traditional concepts of cash and credit cards. This development has not only revolutionized the way individuals transact, but also spurred innovation in security, convenience, and financial inclusion. Analyzing the impact of technology on cash and credit cards highlights the dynamic interplay between finance and technology and shapes the future of money transactions in an increasingly connected world.

The dematerialization of money has steadily increased over the centuries, further accelerated by the ongoing digitization of daily life. Three technology-driven and interdependent developments are transforming current monetary and payment systems:

- 1) The increased demand for faster, more efficient, and simpler payment options, especially in the context of online commerce, has led to the emergence of alternative payment service providers competing with traditional banks. These alternative providers offer a diverse range of innovative solutions, such as mobile wallets, peer-to-peer payment platforms, and cryptocurrency payments, meeting to the evolving needs and preferences of consumers worldwide. As consumers increasingly seek seamless and convenient payment experiences, traditional banks are also adapting by investing in digital technologies and partnerships with tech companies. This collaboration between traditional financial institutions and agile startups is driving further innovation in the payment industry, ultimately benefiting consumers with more choice and enhanced user experiences. (Vgl. Arge ITA-AIT Parlament 2022)
- 2) The increasing digitalization of payment systems in retail, further accelerated by the COVID-19 pandemic, is resulting in a substitution effect, particularly in reduced cash usage. (Vgl. Arge ITA-AIT Parlament 2022) „Visa reported that since increasing the limit for contactless payments, it has processed an additional 500 million touchless transactions in 29 European countries. A global study by Mastercard observed a 40% increase in contactless payments in the first quarter of 2020”. (Lang, 2020) This trend

towards digital payment methods indicates that consumers increasingly prefer the convenience and security of contactless transactions. This, in turn, poses a challenge for retailers and payment service providers to adapt their infrastructure accordingly and offer innovative solutions to meet consumer needs. Furthermore, the increased use of digital payment systems could contribute to a more efficient and transparent economy in the long term by reducing the costs associated with cash management and transportation and enhancing opportunities to combat money laundering and tax evasion.

Overall, this trend clearly indicates that the future of payments will be increasingly digital, and those who adapt and innovate early will be able to reap the benefits of this development. (Vgl. Arge ITA-AIT Parlament 2022)

- 3) The success of cryptocurrencies has led to more actors considering the underlying blockchain technology as a possible technical basis for the development of new currency and payment systems. Blockchain technology presents numerous opportunities for the financial sector to accelerate innovation and enhance the efficiency and security of payment systems. At its core, blockchain is a decentralized digital ledger system that facilitates data transfer across multiple servers on the internet. A robust blockchain holds vast potential and can deliver substantial benefits to all involved parties. For example, the technology can help make payment networks like SWIFT or correspondent banking relationships safer and more efficient. In addition to its potential to revolutionize payment systems, blockchain technology also offers promising applications beyond the financial sector. Its transparent and immutable nature makes it suitable for various industries, including supply chain management, healthcare, and other systems. By leveraging blockchain, organizations can enhance transparency, traceability, and security in their operations. As the technology continues to evolve and mature, collaboration between industry stakeholders, governments, and academia will be crucial to unlocking its full potential. Through continued research, development, and implementation, blockchain holds the promise of transforming not just financial transactions but also various aspects of our society and economy for the better. (Vgl. Arge ITA-AIT Parlament 2022)

The described developments underscore a significant shift towards digitalization in financial transactions, driven by consumer preferences for convenience and security. This transition challenges traditional banking institutions to adapt and innovate alongside emerging tech solutions, supporting a competitive landscape that ultimately benefits consumers with greater choice and improved user experiences. Moreover, the adoption of blockchain technology presents promising opportunities to enhance the efficiency, security, and transparency of payment systems.

4. Comparative Analysis of Cash and Credit / Debit Cards

4.1 Cost and Fees

Credit cards enable worldwide, cashless payment, especially in hotels, restaurants, and shops. Additionally, credit cards can also be used to withdraw cash from ATMs. The costs for credit cards vary greatly depending on the company and the scope of services offered by the card. The fact is: withdrawing cash is very expensive.

The Arbeiterkammer Wien conducted a study in May 2023 to assess the costs associated with various credit card providers in Austria. The study focused on four main credit card issuers:

- American Express Europe S.A.-Austrian Branch,
- card complete Service Bank AG (VISA, MasterCard),
- Diners Club (issued by card complete),
- PayLife (VISA and MasterCard, issued by BAWAG P.S.K.).

The study also examined the fees for cash withdrawals using these cards. Additionally, the Arbeiterkammer Wien collected information via email on the costs of ATM transactions while abroad from nine banks:

- bank99 AG,
- BAWAG P.S.K.,
- easybank,
- Erste Bank,
- HYPO NOE,
- Oberbank AG,
- Raiffeisenlandesbank NÖ Wien,
- UniCredit Bank Austria
- Volksbank Wien

Credit Card

Classic credit cards are available with an annual fee starting at €21.60, while cards with additional benefits such as insurance coverage start at €66. There are also packages with checking accounts that may include one or two credit cards, depending on whether insurance coverage is included or not. The costs for credit cards vary depending on the services offered, and there are often discounts or special promotions. Annual fees for student cards are typically reduced, and with co-brand cards, the partner (such as a retail company) may cover all or part of the annual fee.

The focus of the survey was primarily on costs associated with paying or withdrawing cash. There are no additional costs for shopping with the credit card domestically or within the Eurozone. For transactions outside the Eurozone, the manipulation fee ranges from 1.65% to 2%, depending on the credit card. (Kollmann / Prantner 2023)

Exceptions from charges

The Arbeiterkammer Wien has found that in most EU countries, there are no additional fees for Euro transactions with credit cards since the Euro is the official currency. However, outside of these countries, such as Monaco, processing fees may be charged even for transactions made in Euro.

Some credit card providers, like card complete and Diners Club, do not charge processing fees for Euro transactions in certain countries such as Denmark, Poland, and Sweden. With PayLife, the manipulation fee is waived for transactions in Euro within the European Economic Area.

However, cash withdrawals at ATMs, even in Austria, are still expensive, with a commission ranging from 3% to 3.3% or a minimum of €2.50 (up to at least €4 in some cases). Additional manipulation fees apply for withdrawals abroad. Some credit card companies may also set a maximum amount that can be withdrawn per transaction. (Kollmann / Prantner 2023)

Debit Card

For debit cards associated with Austrian current accounts the costs are usually included in the account maintenance fee. If not, an annual card fee is charged. According to the latest banking monitoring as of January 2023, these fees for annual cards range between 12 euros and 34.92 euros, with a median of 24 euros.

Typically, there are no additional fees for cash withdrawals and card payments at ATMs in EURO within Austria and the Eurozone. However, there may be booking line costs (each individual transaction an individual fee), varying between 0 euros and 0.69 euros depending on the account model. If a line fee is charged, the average (median) according to the latest AK banking monitoring is 0.28 euros. Note that with current accounts offering flat-rate pricing, fees for ATM withdrawals/POS payments may be included in the flat-rate account maintenance fee and not separately charged (i.e., no additional line fees apply). (Kollmann / Prantner 2023)

Fee-free withdrawals outside the Eurozone

Most banks offer fee-free cash withdrawals or payments with debit cards outside the Eurozone. For example, Bank Austria, Erste Bank, HYPO NOE, Oberbank, and RLB NÖ-Wien allow for free transactions in Swedish Krona in Sweden as well as in Euro in Norway, Iceland, and Liechtenstein. However, it is advisable to inquire with one's own bank about current fees before embarking on a trip.

In countries with significant exchange rate fluctuations, debit card usage may incur unexpected costs since the exchange rate at the time of the transaction is unknown. There is no uniform method for determining exchange rates. (Kollmann / Prantner 2023)

The usual limit for cash withdrawals abroad is €400 per day, although limits in Austria may vary from bank to bank. It is possible to negotiate an individual limit with the bank that meets personal needs. This limit can typically be managed through online banking.

In the event of card loss, it is advisable to keep an emergency note with card, account, and hotline numbers to quickly block the card. In cases of theft or misuse, immediate reporting to the police is recommended.

Prepaid- Card

The card complete Service Bank AG and PayLife offer prepaid cards that need to be loaded with funds in advance. These cards can be used worldwide, including for online payments. Adolescents aged 14 and above can apply for them with the consent of their legal guardians. PayLife charges a one-time fee of €39 for the MasterCardRED for a duration of 3 years and up to 1% of the reload amount for recharging, with the first month being free. Card complete imposes a monthly fee of €1.50 for their prepaid card, and there may also be an issuance fee.

There are no additional costs for making purchases in stores within the Eurozone, but outside the Eurozone, both PayLife and card complete charge fees for purchases. Cash withdrawals are also expensive, with fees ranging from €0 to 3.3% domestically and within the Eurozone. Outside the Eurozone, PayLife additionally charges a fee of 3.3% and a manipulation fee of 1.5%. The fees with card complete amount to 1.65% of the amount withdrawn, with a minimum of €3.

Prepaid cards offer advantages such as setting a vacation budget in advance, security in case of theft, and independence from a bank account. Disadvantages include high costs for loading and usage, non-interest-bearing balances, and exchange rate risks for foreign transactions. (Kollmann / Prantner 2023)

	Cash withdrawal outside the Eurozone worth of		Paying in store outside the Eurozone worth of	
	100 Euro	400 Euro	100 Euro	400 Euro
Credit Card				
American Express	5,00	20,00	2,00	8,00
card complete	5,65	18,60	1,65	6,60
Diners Club	5,65	18,60	1,65	6,60
PayLife	5,15	19,80	1,65	6,60
Median (=middle value)	5,40	19,20	1,65	6,60
Debit Card				
Bank Austria	2,90	5,30	2,10	4,50
Erste Bank	3,31	6,16	1,84	4,09
RLB NÖ-Wien	3,00	6,00	2,50	5,50
other banks	2,57	4,82	1,84	4,09
Median (=middle value)	2,57	4,82	1,84	4,09

Table 2 Comparison of Fees for Debit Card versus Credit Card for Foreign Currency Transactions Worth 100 and 400 Euros (Kollmann /Prantner 2023)

Expenses of Austrian Banks for Currency Exchange (in Foreign Currencies)

„The fees for exchanging foreign currency typically range between 0% and 5% of the amount, with a median of 3%. Additionally, there are often minimum fees in euros, with a median of 3.75 euros for transactions over 700 euros in cash. Model calculations show that for exchanging 100 euros, the average fee is 4.25 euros, while for exchanging 400 euros, the median fee is 9.20 euros. There are significant differences between the pricing models of banks, especially between existing and non-existing customers. Some banks do not even allow non-existing customers to exchange currency. Erste Bank differentiates its prices depending on whether the purchase is made in cash or charged to the checking account.

Exchanging smaller amounts can be expensive due to minimum fees. At Schelhammer Capital Bank, amounts over 700 euros are fee-free, with a fee of 10 euros for amounts below that.

It is important to note that not all branches have foreign currencies in stock, and pre-ordering may be necessary. A practical test showed that some banks offer certain currencies, such as the Turkish lira, scarcely. There is a significant difference between the best and worst exchange

rates, up to 7.6%. Therefore, travelers should consider whether it is worth exchanging foreign currency at their destination and can research online to find the best rates.

Banks apply individual exchange rates, and the higher the amount exchanged, the more significant the differences become. It is worth comparing exchange rates, as there is no longer a uniform exchange rate. “(Kollmann / Prantner 2023)

Bank	Equivalent value 100 Euro	Equivalent value 400 Euro
bank99	Not offered	
Bank Austria	7,00	8,40
BAWAG P.S.K.	3,50	12,00
easybank possible in BAWAG P.S.K. branches	3,50	12,00
Erste Bank	4,50	6,00
HYPO NOE	4,00	6,00
Oberbank	3,50	6,00
RLB NÖ-Wien	8,00	14,00
Schellhammer Capital Bank AG	10,00	10,00
Volksbank Wien	Not provided	
Median	4,25	9,20

Table 3 Overview of Bank Fees Assuming an Exchange Amount of 100 and 400 Euros (Kollmann / Prantner 2023)

Fees at third-party ATMs

„Some ATM operators in Austria charge a fee for cash withdrawals (e.g., Euronet: currently 1.95 euros), which is deducted from the bank account along with the withdrawn amount. Originally found only abroad, these operators have been installed in Austria since 2016, particularly in tourist areas.

Initially, passing on these fees to bank customers was prohibited by law, but the Constitutional Court overturned this provision because it violated the fundamental right to property of banks. The Supreme Court has deemed third-party fees permissible because when making such a withdrawal, customers enter a separate paid contract with the third-party provider.

If a common bank logo is not visible on the ATM, it may belong to a third-party operator. The fee is typically displayed during the withdrawal process and must be accepted or canceled.

Cash withdrawals from third-party operators are particularly expensive in Germany and Croatia, where processing companies may charge up to 10 euros. These operators often do not operate their ATMs directly at bank branches but frequently at highway rest areas or, in Croatia, at currency exchange offices.” (Kollmann / Prantner 2023)

4.2 Data Protection, Privacy and Dangers

Cash transactions have long been regarded as a bastion of privacy in the realm of consumer transactions, providing individuals with a shield against the proliferation of information asymmetry between themselves and powerful entities, be they businesses or governmental institutions. This privacy serves as a vital tool for individuals, allowing them to preserve their position when engaging with such entities. Unlike electronic payments, cash transactions leave behind minimal traces, offering a level of anonymity that electronic transactions struggle to replicate.

However, the landscape is rapidly evolving with the advent of digital payment methods. While these methods offer unparalleled speed and convenience, they also introduce significant security concerns. The recent hacking incident at Sparkasse Halle underscores the vulnerability of even established banking institutions to cyber-attacks. Moreover, alternative payment providers like PayPal and Paysafecard are not immune to security vulnerabilities, with phishing attempts and counterfeit schemes posing significant risks to consumers.

Despite these security challenges, digital payment methods such as Apple Pay and Google Pay continue to gain traction due to their convenience. However, this convenience comes at a cost, as the loss or hacking of mobile devices can expose users to potential breaches of personal information.

Furthermore, the progressive shift away from cash heightens concerns regarding privacy and surveillance. The move towards a cashless society could lead to heightened levels of data collection and exploitation, potentially resulting in a surveillance state where individuals' privacy is compromised.

In this debate between digitization and traditional cash transactions, the stakes are high, with implications for both security and privacy. While digital payments offer undeniable advantages in terms of efficiency, they also introduce new vulnerabilities that must be addressed. At the same time, the erosion of cash as a private means of transaction raises fundamental questions about the extent to which individuals are willing to sacrifice their privacy in exchange for convenience. Ultimately, striking a balance between security and privacy will be crucial as society navigates the evolving landscape of consumer transactions. (Vgl. Mai 2019)

4.3 Acceptance and Availability

In Austria, access to cash and the availability of both cash and credit card infrastructures are fundamental aspects of daily financial life. Despite the advancing digitalization, cash retains its significance, while credit cards are gaining importance as a practical alternative.

In Austria, cash remains a sought-after means of payment and value storage. The availability of cash enables citizens to freely choose how they wish to transact and save. Moreover, cash plays a crucial role in ensuring financial inclusion for all members of society, serving as the only immediately accessible form of payment in times of emergency or crisis. Therefore, the Austrian National Bank, along with other central banks within the Euro system, advocates for the continuous availability of euro banknotes and coins for both transactions and wealth preservation. To access cash, consumers primarily utilize ATMs and bank branches.

Austria ranks highly in terms of ATM density: „With nearly 9,000 ATMs in the country, accessing cash is quite straightforward," states Franz Rudorfer, Managing Director of the Banking, and Insurance Division at the Austrian Federal Economic Chamber (WKÖ). This means that in Austria, there are 97 ATMs per 100,000 inhabitants, ranking third in Europe. Germany has only 66, Italy 77, and France 75 ATMs per 100,000 inhabitants.” (WKO 2023) According to this, the supply of cash to the population in Austria is currently guaranteed through

a dense network of cash withdrawal options. However, the prerequisite for a cash infrastructure to continue to function is that credit institutions in Austria continue to fulfill their responsibility for cash supply in the future.

The card payment system is also widely spread and accepted, especially in larger cities, tourist areas, and by most retailers, restaurants, and service providers. In many shops, restaurants, and public transportation, credit and debit cards are accepted, particularly Visa and Mastercard. Contactless payments are also common. For retailers, debit card is attractive on one hand as it provides payment guarantee and speeds up payment processes. At the same time, retailers are annoyed by the fees incurred – depending on the service provider – which often amount to more than 2 percent of the purchase price. This is the reason why Austria, it is becoming increasingly common for card payments to be accepted only for purchases over 10 euros. „The costs for merchants in Austria when it comes to card payments are divided into three groups: Firstly, they must pay a fee to the card-issuing bank, known as the Interchange Fee. Payment service provider Nexi states this fee to be 0.3 percent of the purchase price. Secondly, merchants must cover the Scheme Fee charged by the card company, such as Visa or Mastercard, which amounts to 0.2 percent. Thirdly, there's the fee for transaction processing, known as the Acquirer Fee. An acquirer is the payment service used by a merchant to process payments with credit and debit cards. In the example of the rate that Nexi Austria will offer merchants in Austria in the future – a flat one percent per transaction – the acquirer retains 0.5 percent. With credit card payments, the fees are higher. Therefore, the merchant must either give up slightly more or the share of the pie for the acquirer becomes smaller.” (Kapeller 2023)

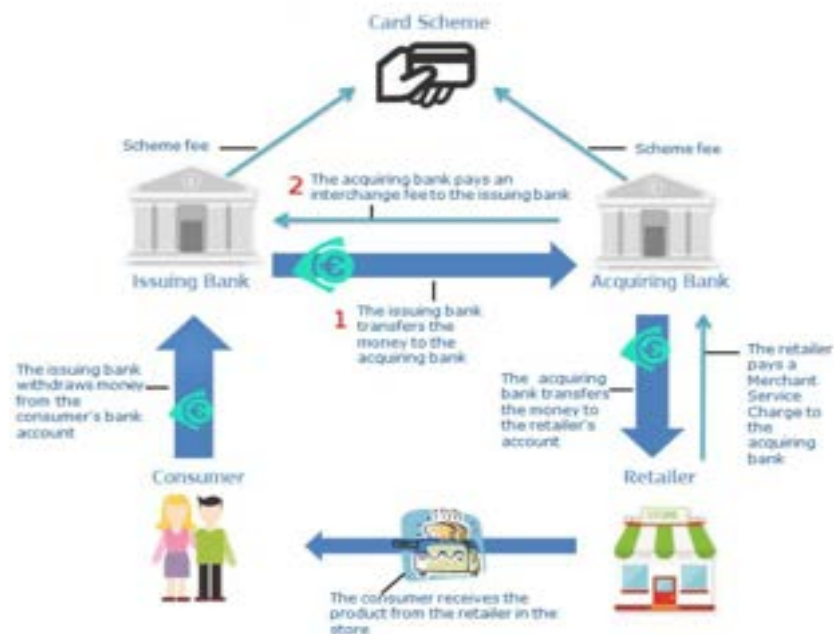


Table 4 Overview of fees in the four-party system (Wegmann, 2020)

At the EU level, cash payments exceeding 10,000 euros are set to be prohibited as part of tightened anti-money laundering regulations. The new regulation is expected to take effect no earlier than mid-2026. The cap applies to transactions between two companies, known as the B2B sector, as well as transactions between companies and consumers (B2C). This means that individuals purchasing items such as cars priced over 10,000 euros from dealerships will be required to make cashless payments.

Many critics view this with concern and fear that it marks the first steps towards encroachment on personal freedoms and assets. For this reason, a current referendum was initiated in Austria titled 'FOR UNRESTRICTED CASH PAYMENT.' „The goal of this referendum is to preserve cash payments without limitations. Cash MUST remain the sole legal tender. All other forms of payment such as bank transfers, credit cards, and digital payment methods are considered means of payment and are subordinate to cash. A constitutional anchoring of cash is necessary to ensure the preservation of cash without restrictions.” (Bundesministerium Inneres 2023, S.2)

In conclusion, the debate surrounding cash availability and acceptance in Austria underscores the enduring significance of physical currency in daily transactions and financial security. While digital payment methods continue to expand, efforts to preserve cash as a fundamental aspect of economic freedom and inclusion persist, reflecting ongoing concerns about privacy, autonomy, and the accessibility of financial services for all members of society.

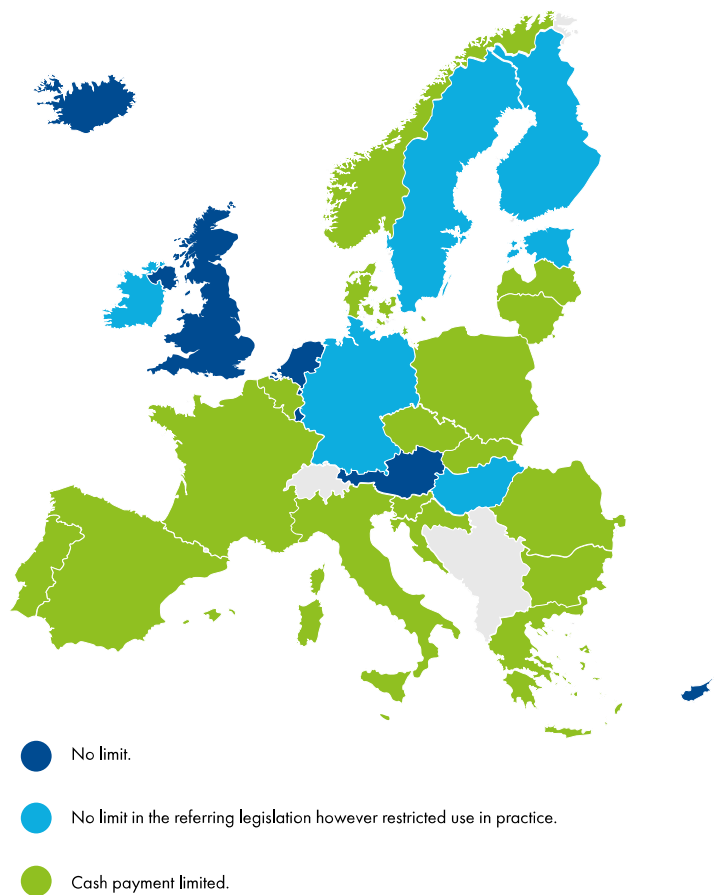


Table 5 Cash Limits in Europe (European Consumer Centre Germany, 2023)

5 Case Studies and Empirical Investigations

This study focuses on credit cards and cash, providing insights into consumer behavior, economic decision-making processes, and their impact on the financial world. It illuminates how people choose between cash and credit cards, what factors influence their preferences, and how these decisions can affect their financial well-being. Through empirical investigations, patterns and trends are analyzed to gain a deeper understanding of payment method usage in various contexts.

5.1 Studies on the Use of Cash and Credit Cards

The latest results of the payment instrument survey conducted by the Austrian National Bank (OeNB) show that cash continues to be the preferred payment method at the point of sale (POS) in Austria. According to the representative data, Austrians carry an average of €102 in cash directly in their wallets, compared to €95 in 2021. The survey, conducted from 2022 to 2023, interviewed 1,400 individuals in personal and online interviews, with an additional 568 keeping a payment diary to accurately capture actual payment behavior.

Despite the strong growth of online commerce, stationary retail remains the most important location for purchases, accounting for 84% of all transactions. Ninety-three percent of respondents consider cash as the "optimal payment method," while payment cards also receive high approval ratings. However, mobile payment apps and wearables show lower levels of approval, with age-dependent differences observed.

In Austria, 77% of payments under €10 are made in cash, with cash also being preferred for transactions up to €50. However, for higher amounts between €50 and €100, 52% of respondents already prefer payment cards, especially debit cards.

Although the trend towards cashless payments continues, cash remains the most used payment method at POS in Austria. According to the survey, almost two-thirds of all transactions (63%) and nearly half of the transaction volume (48%) were made with cash, with the volume difference to payment cards decreasing compared to the previous survey. (Vgl OeNB 2023)

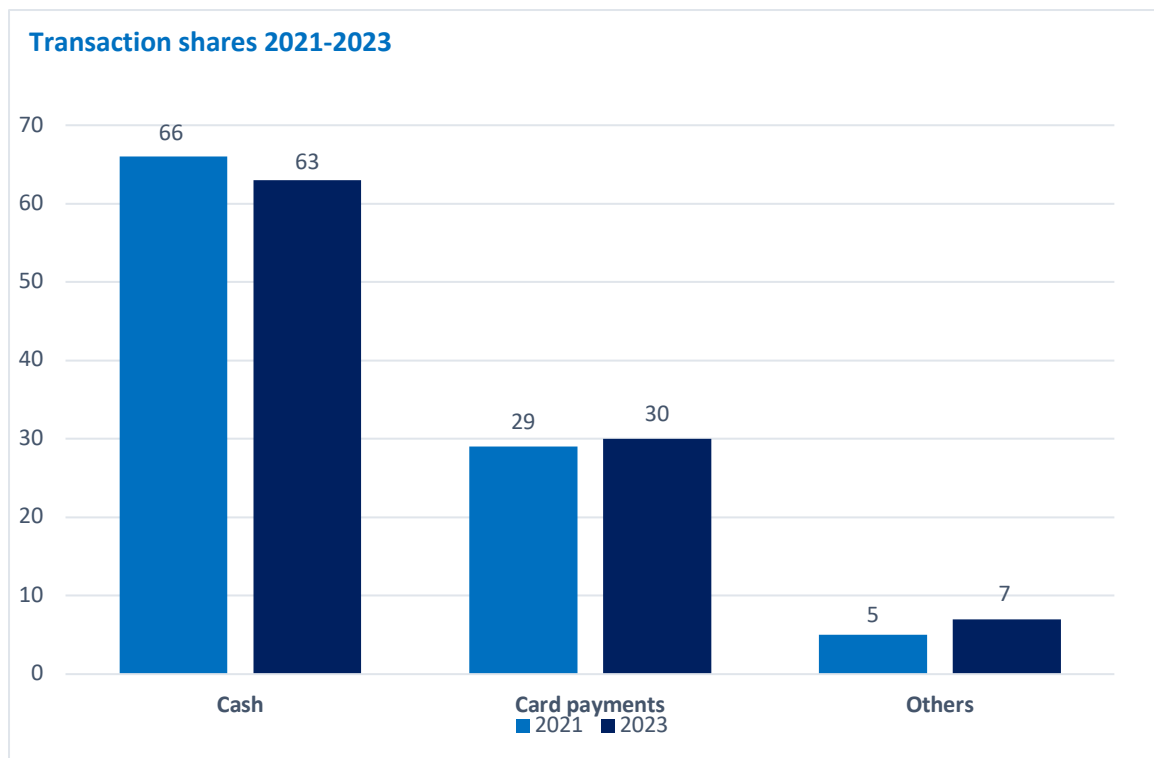


Table 6 Overview of Transaction shares 2021-2023 (OeNB, 2023)

5.2 Preferences among Different Age Groups Regarding Payment Methods

The Erste Bank conducted a study on the payment behavior of Austrians, providing interesting insights. Four groups were identified, which can assist merchants in better understanding their customers.

Cash remains popular, especially among older individuals and young adults. This could be attributed to lower incomes among young people. Additionally, location and education level influence payment behavior.

Approximately 46% of Austrians prefer cash, with this group tending to be older, less educated, residing in smaller cities, and having lower incomes. Preference for cash increases with age, but young adults also show a preference for it.

About 39% of Austrians use cards more frequently, with higher educational qualifications, residing in larger cities, and having higher incomes. Especially individuals aged 30 to 60 prefer using cards.

Only 2% of Austrians exclusively use cards. Regarding cash kept at home, only 32% store more than 200 euros, while 31% have no cash at home at all. This decision is only marginally influenced by payment preferences. (Vgl. Global Payments 2022)

5.3 Trends and Forecasts for the Future of Cash and Credit Cards

The payment systems in Europe are undergoing a transformation due to advancing digitization, leading to an increase in cashless payment methods. However, banknotes and coins continue to play an important role in the economy. There are three main arguments for the abolition of cash: Firstly, some argue that it could improve monetary policy; secondly, to curb illegal activities; and thirdly, to reduce costs for the financial sector. However, these arguments are on shaky ground.

Most people in the Eurozone do not want to completely abandon cash, as shown by a survey by the European Central Bank. This attachment to cash varies in strength across different countries. Additionally, the demand for cash is rising faster than GDP growth, indicating that cash remains relevant.

The European Central Bank (ECB) pursues a neutral approach and supports both cash and cashless payments. Its main goal is price stability, and it will continue to provide banknotes and promote the development of innovative payment solutions. Any potential abolition of cash should reflect the will of the people and not be influenced by lobby groups. (Vgl. Europäische Zentralbank 2024).

Concurrently, in collaboration with the central banks of the Eurozone, exploration into the introduction of a digital euro is underway. This digital currency, sanctioned by the central bank, would complement existing forms of currency, providing individuals with the convenience of electronic transactions alongside traditional cash usage. This future project of the European Central Bank, the digital euro, aims to be an advancement of cash, usable wherever physical currency cannot be accepted, such as in online purchases or other cashless payment systems. The ECB intends to provide an alternative with the digital euro. But aren't there already plenty of digital payment options available? That's true, but all current providers are private and therefore profit-oriented payment service providers, which are both fee-based and data-hungry. In contrast, the digital euro is intended to be based on an independent public European payment

system, offering it for free with the highest possible level of privacy. Furthermore, similar to cash, there would be a central authority with the ECB distributing the digital euro, ensuring its stability and security. However, much work is still needed before the digital euro can become a reality. Currently, the project is in the development phase. Nevertheless, there are concerns and fears among parts of the population. A critical examination of a new means of payment is certainly justified. One thing, however, is already beyond dispute: the digital euro will not be programmable money, meaning that the Euro system will not impose any restrictions on when and how the digital euro can be used. This is explicitly emphasized in the European Commission's legislative proposal. Additionally, the right to cash payments is explicitly mentioned, as the principle of freedom of choice remains paramount, allowing individuals to decide whether they prefer to pay with physical cash or digitally.

In a constantly evolving digital landscape, credit cards are at the center of a fascinating evolution. With the increasing prevalence of smartphones and mobile technologies, traditional physical credit cards could be complemented or even replaced by digital wallets and mobile payments. This transformation is further propelled by the integration of blockchain technology and cryptocurrencies, making transactions faster, more secure, and cost-effective. Additionally, AI and machine learning could revolutionize the credit card experience by analyzing individual purchasing behavior and delivering personalized offers. Despite these innovations, the credit card will continue to play a crucial role in payment transactions and adapt to the needs and technologies of the future to remain relevant.

5.4 Conclusion and Summary of Key Findings

The comparative analysis of cash and credit cards illuminates the complexities surrounding payment methods, revealing multifaceted considerations ranging from costs and fees to data protection and privacy. While both cash and credit cards offer distinct advantages and drawbacks, their coexistence underscores the importance of understanding consumer behavior, economic implications, and technological advancements shaping the financial landscape. Key findings indicate that while credit cards provide convenience and global accessibility, they often come with significant fees, particularly for foreign transactions. In contrast, cash transactions offer privacy and autonomy, yet face challenges in an increasingly digitized world. Concerns over data security and privacy persist with the rise of digital payment methods, highlighting the need for balance between convenience and safeguarding personal information. Furthermore, the study reveals age-dependent preferences, with older individuals and young adults showing a higher affinity for cash, while middle-aged demographics tend towards card usage. However, cash remains a dominant force in Austria's payment landscape, with a robust infrastructure supporting its accessibility. Looking towards the future, the introduction of a digital euro by the European Central Bank presents a potential solution to bridge the gap between traditional cash and emerging digital payment systems. This initiative aims to uphold privacy and freedom of choice while embracing technological innovation. Meanwhile, credit cards are evolving to adapt to emerging technologies such as blockchain and AI, ensuring their continued relevance in the dynamic financial ecosystem. In essence, the comparative analysis underscores the nuanced interplay between cash and credit cards, emphasizing the importance of balancing convenience, privacy, and security in shaping the future of payment methods. As society navigates the evolving landscape of financial transactions, understanding and addressing these dynamics will be crucial in fostering inclusive, secure, and efficient payment systems.

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