

Cashless payments in Austria: the role of the central bank

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Austria was a latecomer in the use of cashless payment techniques. This can be explained by the economic backwardness of the Habsburg monarchy compared with Northwestern European countries in the first decades of the 19th century, by the low degree of monetization and the abundance of paper money as a consequence of financing major military campaigns through central bank credits, and by the issuing of paper money by the state. The incorporation of the Austrian Postal Savings Bank in 1882 marked a turning point in the spreading of modern financial technologies in Austria. An amendment to the charter of the Austro-Hungarian Bank in 1887 was a precondition for the substantial growth in the number of giro accounts and in the transaction volumes of the central bank in the following years. In the interwar period, Viennese and Austrian banks had to adapt to the potential of a far smaller economic area. The transaction volumes in the payment system, in particular financial transactions at the stock exchange, were severely hit by the Great Depression. The economic climate between the two World Wars was not conducive to the introduction or spreading of new financial technologies. The economic boom in the Second Austrian Republic, the rapid increase of production, employment and hence income resulted in a wider use of banking services. The Oesterreichische Nationalbank (OeNB) acted primarily as the central clearing house for bank-based payments. The spread of electronically based systems in banking changed the payment process as the use of automated teller machines, point-of-sale terminals and credit cards increased. The introduction of the euro in Austria in 1999 had a fundamental influence on the structure of the Austrian payment system, which had to be aligned with the system used in the euro area. The duties of the OeNB as regulator and supervisor of payment systems in Austria were laid down in an amendment to the Nationalbankgesetz (Nationalbank Act) in 2001.

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For Austrian households, cash payment is still the preferred choice for settling transactions: in 2011 more than 82% of transactions (65% of the transaction volume) were paid in cash, hardly less than 15 years ago. The use of point-of-sale (POS) terminals increased in this period from 2.4% to 25.8% in terms of volume, whereas in 2011 only 5% of the transaction volume was settled through credit cards (Mooslechner et al., 2012, p. 66).

Retail transactions of households are limited by the amount of private consumption, which represents about two-thirds of GDP. Annual payments

transferred over large-value systems, on the other hand, add up to 90 to 100 times GDP in most developed countries (Kahn et al., 2014, p. 1). The dramatic increase of the “payment intensity” i.e. the relation between the transaction volume and nominal GDP during the last decades has created enhanced responsibilities for policymakers, regulators and supervisors, as failures of payment systems could have dangerous knock-on effects within the financial sector and beyond. The collapse of Herstatt Bank (1974) and the difficulties encountered in September 2001 in the U.S. large-value system Fedwire have

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demonstrated the liquidity risks and the risks presented by the nonfinality of payments. Most central banks, and in particular the central banks of the euro area, nowadays bear responsibility for the smooth operation of payment systems. This is seen as a prerequisite for conducting monetary policy and maintaining the stability of the financial sector, while prior to the tremendous growth of electronically transferred funds the tasks of central banks for the payment system were more or less restricted to the production of banknotes and coins and to stocking banks with the necessary cash reserves.

This paper deals with the history of cashless (or cash-saving) payments in Austria and the specific role of the Oesterreichische Nationalbank (OeNB) in this process. Section 1 deals with the beginning of giro and clearing transactions in Austria. The low degree of monetization in general and the ample supply of banknotes in the first decades of the 19th century were responsible for the slow start of this business in Austria compared with other Western European countries. Encouraged by the Ministry of Finance, the initiatives of the Nationalbank to propagate giro transactions were successful only after the foundation of the Postal Savings Bank in 1882 and changes in the 1887 central banking law regulating the coverage of banknotes by precious metal (section 2). The breakup of the Habsburg monarchy after World War I (WW I) and the restructuring and crises of the Austrian banking sector in the interwar period were not conducive to the spreading and improvement of financial technologies (section 3). The exuberant economic growth after the stabilization of the Austrian currency at the beginning of the 1950s, the strong increase in demand and savings deposits and the soaring use of electronic sys-

tems in banking from the mid-1970s onwards revolutionized the payment system, too. Wages, salaries and pensions were increasingly paid out cashless; cash dispensers, automated teller machines (ATMs) and POS terminals – accessed via bankers' cards and credit cards – were used with growing frequency. The OeNB acted as a central clearer in the payment system and was involved in the supervision of the participating institutions (section 4). In preparation for the introduction of the euro, the large-value payment systems of the participating countries were modernized and harmonized, as a secure payment system is necessary for financial stability in general, and in particular for a smooth distribution of base money within the euro area. In addition, the mushrooming of the finance sector and – as mentioned above – the concomitant increase of payment intensity created new challenges for operating a safe payment infrastructure. Core principles for systemically important payment systems were developed by a committee of the Bank for International Settlements (BIS). The responsibilities of the OeNB as operator, facilitator and supervisor of the Austrian payment system were defined in more detail in a 2001 amendment to the Nationalbank Act (section 5).

1 Tentative beginnings of cashless payments in the first half of the 19th century

Its rules of procedure dating from 1817 authorized the Nationalbank, inter alia, to operate the giro business, although the relevant charter was very restrictive regarding this line of business: only shareholders resident in Vienna were permitted to open a giro account at the Nationalbank. Account holders could deposit banknotes, silver coins and bills of exchange denominated in the cur-

rency of the bank. The deposit could be used for cash withdrawals or transferred to other accounts at the bank (Bubenik, 1888, p. 2). The giro business was not activated during the first privilege of the Nationalbank, which was granted for the period from 1816 to 1841. Baron Carl Joseph Alois von Lederer, Governor of the Nationalbank, justified this in retrospect by the business community's lack of interest in bank-based payments (Lederer, 1847, p. 234). However, the restriction of the giro business to Viennese shareholders seems to be a more convincing argument for the subdued interest of enterprises in banking with the Nationalbank.

Right from the beginning of its operations, the Nationalbank was active in the execution of money orders, i.e. the transfer of cash from the head office in Vienna to branches² in provincial towns and vice versa. In the period from 1818 to 1829 the transfer of cash for private firms from branch offices to Vienna was about three times as high as the reverse, whereas from 1830 to 1841 the amounts in both directions were more or less equal. The government used Nationalbank money orders for the shipment of tax receipts from the provinces to the capital: from 1830 to 1841 these transfers averaged florin (fl.) 17.8 million per year compared with yearly private money transfers to Vienna of fl. 7.4 million (Lederer, 1847, p. 177). The fees for money orders were calculated according to the amount transferred and the spatial distance spanned. They were higher than the fees for postal deliveries of coins

and banknotes because money orders could be executed quicker and safer. The government paid lower fees than private firms. In the 1830s the Nationalbank's fee income derived from money orders amounted to fl. 30,000 to fl. 40,000 per year (around 1% of net profits) (Lederer, 1847, p. 174ff).

The slow start of cashless payments and banking in general in Austria was, as mentioned above, attributable to the relative economic backwardness of the Habsburg monarchy compared with the countries in Northwestern Europe. A reliable quantitative comparison of economic levels in Continental Europe in the first decades of the 19th century is not possible for lack of data and would in any case have to take into account the huge economic discrepancies among the various provinces of the monarchy. "The vast majority of producers," writes Gross (1983) in his essay on Austria-Hungary's role in the world economy, "were still chiefly engaged in subsistence farming, and the estimation of this type of output and of peasant productivity is a frustrating exercise even in our age of worldwide national income accounting." (Gross, 1983, p. 3). Only farmers in the vicinity of larger towns were solely market producers, and even artisans quite often exchanged their products in kind.³ The lack of efficient transport facilities before the building of railways, which began in the 1830s, and the lack of navigable rivers in Austria defined a rather small zone around larger towns for marketable production of perishable foodstuffs and trading activities in general.

² These branches (*Filial-Banken*) were entitled only to exchange paper money into coins and to execute money orders. In the Habsburg monarchy, there were only 12 such branch offices in operation during the first privilege. They were – except for the one in Prague – part of the financial administration of the state. See Pressburger (1959, p. 168).

³ The greater part of the salaries of farm laborers was paid in kind, too.

The monarchy's relative backwardness resulted in a low degree of monetization of economic activities, which correlated with the state of the banking system.⁴ The Nationalbank, the only joint stock bank in Austria until the mid-19th century, acted primarily as the banker of the state and refinanced – to a lesser degree – bills of exchange of Viennese private banks. Initially, private banking was mainly an add-on to wholesale trading. Private bankers were primarily engaged in buying public bonds and financing consumption expenditures of the aristocracy, although some of them were also active in financing industrial ventures (Matis and Weber, 1993, p. 318ff; Matis, 2005; Teichova, 1997, pp. 214–228). The financial system of the first half of the 19th century can be summed up in the phrase “few banks and many banknotes,” as the abundance of paper money originating from the financing of the Napoleonic wars was reduced only belatedly (Jobst and Kernbauer, 2016, p. 48ff.). It stands to reason that such conditions were not as conducive to cash-saving financial innovations as the use of giro accounts and the clearing of transactions would have been: the business community did not show any interest in using a bank-based payment system. It was only in the last decade of the 19th century that giro transactions of Austrian banks and the central bank became (macro)economically important.

Internationally, the settlement of receivables and liabilities stemming from trading activities has been done in a cashless manner since antiquity (Koch, 1910, p. 15; Körner, 1993, p. 66ff). In the Middle Ages international trade fairs played a decisive role

in the development of banking in general and the payment system in particular. The creation of the Bank of Amsterdam (*Amsterdamsche Wisselbank*) in 1609, in some ways emulating Italian banks of the 15th and 16th centuries (Houtman-De Smedt and van der Wee, 1993, p. 133), addressed the problem of “incremental debasement” (a term first coined by Adam Smith) faced by small states using a metallic monetary system: growing trading activities necessitated an increase in the supply of money that was often accomplished by using foreign coins. At the end of the 16th century, 800 different foreign coins were officially recognized in Amsterdam (Quinn and Roberds, 2006, p. 1), not few of them debased, creating “veritable monetary chaos” (Houtman-De Smedt and van der Wee, 1993, p. 126ff). An ordinance of the city of Amsterdam declared the settlement of bills of exchange stemming from commercial activities obligatory via the Bank of Amsterdam, and merchants were compelled to open an account at this bank. By these measures the losses of merchants stemming from the debasement of coins were effectively reduced.

In general, the use of bank accounts for the settlement of financial balances of merchants leads to the establishment of clearing institutions, which square claims and liabilities of banks. The London Bankers' Clearing House was founded as early as 1775. Until 1854, when joint stock banks were allowed to participate in the clearing of financial balances, the Bankers' Clearing House was active for private banks only. In 1864 the Bank of England joined this venture, followed by English country banks in 1865 (Rauchberg, 1897, p. 21). Cashless payments had gained

⁴ In this context, Komlos (1983, p. 137) speaks of the “symbiotic relationship between the financial infrastructure and the industrial development of an economy.”

wider currency in England when in 1833 joint stock banks started paying interest on deposits. The establishment of the British Postal Savings Bank in 1861 boosted the use of giro accounts in England. In the second half of the 19th century some wages and salaries in England were already paid cashless (Born, 1993, p. 195).

The New York Clearing House was founded in 1853; in the absence of a central bank, it was to exert a stabilizing influence on the U.S. banking sector in the years to come. Together with New York banks it financed the money market and was “pulled into the role of lender of last resort without benefit of the privileges of that Bank,” i.e. the Bank of England (Wood, 2011, p. 134ff; Goodhart, 1988, p. 29ff).

In the Habsburg monarchy, by contrast, the monetization of economic activities and the use of giro accounts started, as already mentioned, with some delay.

2 Financial innovations in the last decades of the 19th century

The efforts of the government and the Nationalbank to disseminate bank-based payments in the period since the beginning of the 1840s were not successful. After the renewal of its privilege in 1841 the Nationalbank, encouraged by the government, activated the giro business in 1842. The turnover of giro accounts increased quickly and amounted to about fl. 200 million in the following years. However, the number of giro accounts never exceeded 26, of which 14 were responsible for the largest part of the transactions. In addition, the Nationalbank’s giro business consisted mainly of the encashment of bills of exchange and not of the transfer of balances between accounts. When the Nationalbank started to charge a fee

of fl. 0.25 per fl. 1 million in 1856, the turnover dwindled to fl. 30 million to 50 million per year (Bubenik, 1888, p. 4ff).

The Nationalbank’s financing of the repression of the 1848 revolution and of the war against Piedmont-Sardinia in 1859 increased the circulation of banknotes accordingly (Jobst and Kernbauer, 2016, p. 73), redressing the inducement to use cash-saving payment methods (Hammerschlag, 1905, p. 19). When in 1862 the charter of the bank was renewed along the lines of England’s Peel’s Act, restricting the amount of banknotes not covered by silver reserves to fl. 200 million, the central bank considered it necessary to foster the clearing of balances between the joint stock banks that had been founded in the decade since 1853 (Matis and Weber, 1993, p. 322ff; März and Socher, 1973, p. 329ff). In 1864 the Clearing Hall (*Saldosaal*) was instituted at the Nationalbank to clear the mutual balances of the *Nationalbank*, *Creditanstalt*, the *Niederösterreichische Escompte-Gesellschaft* and the *Anglo-Österreichische Bank* (Bubenik, 1888, p. 8). Although the Nationalbank did not charge any fees for its giro and clearing business, this initiative was not successful; this was not surprising because the financing of the war of 1866 against Prussia and Italy swelled the circulation of paper money – banknotes and government paper money or state notes – substantially (Jobst and Kernbauer, 2016, p. 81; Rauchberg, 1886, p. 4).

In 1871, during the boom period of the *Gründerzeit*, the *Wiener Giro- und Cassen-Verein* was founded, primarily for the clearing of securities transactions. It offered giro accounts and acted as a hub for the encashment of bills of exchange and money orders. Its giro business numbered about 500 participants. The turnover increased rapidly from

fl. 2.3 billion in 1872 to fl. 9.2 billion in 1895 but fluctuated widely from year to year (Rauchberg, 1897, p. 120ff).

In 1872, the Clearing Hall was transformed into the *Wiener Saldierungs-Verein* (Vienna Clearing Union). Its turnover did not show any increase in the coming decade and remained low compared with clearing houses in England, Germany, France, Italy and the United States (Rauchberg, 1897, p. 18ff; Pressburger, 1962, p. 1120ff). The number of banks participating in the Vienna Clearing Union never exceeded 14, of which the Nationalbank and the *Wiener Giro- und Cassen-Verein* (Vienna Giro and Central Securities Depository Union) contributed half of the turnover. The Vienna Clearing Union was only partially successful in the compensation of claims and liabilities of the participating banks, as less than a quarter of the turnover could be balanced, the remaining part being settled via the Nationalbank (Rauchberg, 1897, p. 5).

The giro business of the *Oesterreichisch-ungarische Bank* (Austro-Hungarian Bank), i.e. the reorganized central bank as of 1878 (Jobst and Kernbauer, 2016, p. 112ff), got a boost at the end of the 1880s when legal provisions concerning the relation between banknotes in circulation and the amount of available precious metals were changed (Mecenseffy, 1896, p.46ff). “Until then,” wrote Rauchberg (1897, p. 56) in his famous book about the clearing and giro business of the Austro-Hungarian Bank, “the giro business had a virtual existence only. Besides the small number of participants and the insignificant amount of turnover, the structure of the giro organization in the bank did not fulfill

the macroeconomic requirements for this type of banking business.”⁵

In 1888, the Budapest Clearing Union was established, encouraged by the Austro-Hungarian Bank, and in 1895 clearing houses in Brno and Prague followed. There, transactions remained quite unimportant as long as the payment process in general was executed in the traditional manner. The clearing houses demonstrated, in a way, banks’ readiness to encourage giro transactions, but gained no practical significance until the 1890s (Rauchberg, 1897, p. 17ff).

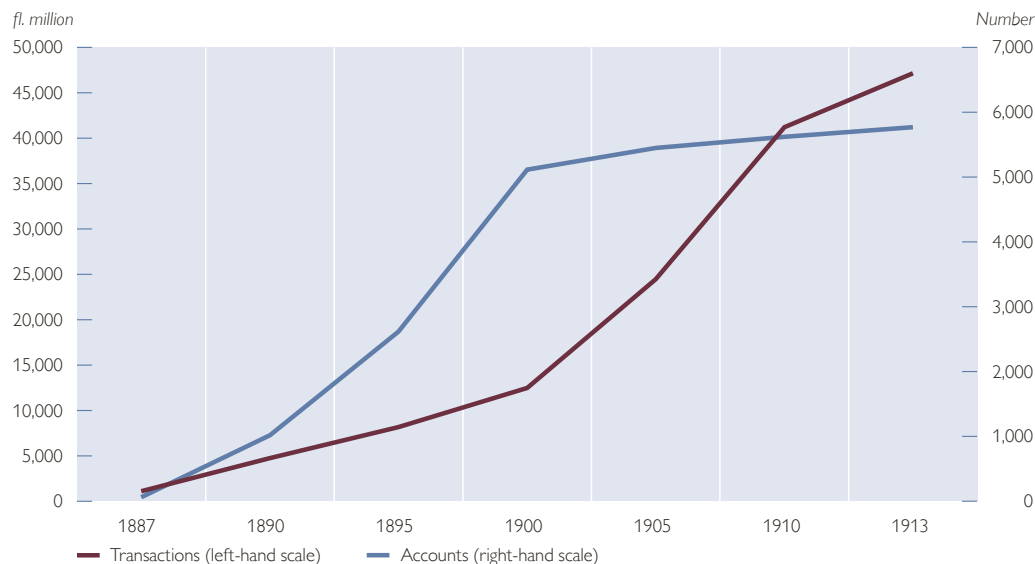
As already mentioned, the giro business of the Austro-Hungarian Bank did not really take off until some articles of its charter were changed by a law of May 1887:

- At least 40% of notes in circulation had to be covered by the metal reserve of the central bank, the remaining note circulation and demand deposits of the central bank by bills of exchange and lombard loans.
- For any amount of banknotes in circulation that was not covered by the metal reserve and exceeded fl. 200 million, the central bank had to pay a 5% banknote tax, but was no longer running the risk of being sanctioned by having its privilege withdrawn.
- Paper money issued by the state (government paper money) and owned by the central bank reduced the amount of banknotes to be covered by bills of exchange or securities (Bubenik, 1888, p. 15ff; Zuckerkandl, 1899, p. 249).

These legal changes made the enlargement of the giro business possible without risking to lose the privilege in the case the money supply overruns the legal limit. In addition, it was the new

⁵ Author’s translation.

Chart 1

Giro transactions of the Austro-Hungarian Bank

Source: Mecenseffy (1896, p. 48); Oesterreichisch-ungarische Bank (1887–1913).

organization of the central bank's giro business which was responsible for the tremendous growth of giro transactions in the ensuing years. Previously, giro transactions had been possible only locally: exclusively in Vienna and Budapest. From 1888 onward, this type of business was offered in all branches, and transfers between all branches were possible without a fee. In 1887, only 16 giro accounts were held at the Austro-Hungarian Bank, with turnover amounting to fl. 817 million. During the following years the number of accounts and the volume of transactions increased strongly (chart 1).

The growth of the number of giro accounts can partly be explained by the ruling of the Austro-Hungarian Bank in 1893 that any firm intending to sell bills of exchange to the bank had to have a giro account. Nevertheless, in 1896 only 5.8% of registered companies in the monarchy – 8.2% in Vienna, 9.2% in Budapest – held a giro account at the central bank (Rauchberg, 1897, p. 57f). This can be explained by the

success of the Austrian Postal Savings Bank (PSB), founded in 1882, which fostered and popularized the giro business in the Habsburg monarchy, even for smaller firms and private individuals.

The changes of the charter of the Austro-Hungarian Bank and the reorganization of its giro business were modeled on the legal provisions of the German Reichsbank. Right from the start of its activities in 1876, the Reichsbank had facilitated giro transactions in all branches, and as of 1883 in all sub branches as well, thus creating an empire-wide organization for cashless payments. Transactions were free of charge. Beginning in 1883, institutions that wanted to sell bills of exchange to the Reichsbank or to take out lombard loans had to have a giro account at the Reichsbank. It is no wonder that giro turnover increased strongly in the following years, as not only private persons and firms but also the public administration, the postal service, the Prussian railways, the military and other institutions made use

of the modern payment system. The number of giro accounts of the Reichsbank grew from 3,200 in 1877 to more than 12,000 in 1896, while turnover increased from 27 billion German reichsmark to 106 billion reichsmark over the same period (Rauchberg, 1897, p. 83ff; Koch, 1910, p. 14ff). Born (1993, p. 194) argued that the German central bank's endeavor to stimulate cashless payments could be explained by the Reichsbank's "erroneous" belief that giro money and bank transfers would not increase the money supply and the velocity of money. According to Mises (1924, p. 397ff), "the mainstream of German economic policy makers" was convinced that the use of bank money would lead to a strengthening of the central bank's metal reserves and to a consequential reduction of interest rates. But this, maintained Mises (1924), would be the case only to the extent that the added metal reserve was used to raise the supply of capital goods by imports.

In the Habsburg monarchy, the founding of the PSB was probably the most important trigger for the promulgation of the giro and checking business, because this move introduced the new financial technology to people who would otherwise not have opened a bank account because their savings were too small or transactions too infrequent (k. k. Finanzministerium, 1895, p. 440). The PSB's network in the Austrian part of the monarchy comprised more than 4,000 branches (Wagner and Tomanek, 1983, p. 39), whereas the Austro-Hungarian Bank had only 101 branches⁶ and the commercial banks even fewer by far. It is therefore not surprising that in 1910 the more than 100,000 giro accounts with the PSB far

exceeded the number of accounts with the Austro-Hungarian Bank, totaling fewer than 6,000. The turnover at the PSB of about fl. 200 million – 400 million crowns – was much lower than the giro transactions of the Austro-Hungarian Bank, which acted as the central clearing house for the monarchy: in 1913 the volume of central bank giro transfers amounted to fl. 47 billion (94 billion crowns) as illustrated in table 1.

The substantial increase in the number of PSB giro accounts after 1895 was influenced by the government decision to allow taxes to be paid through the PSB network beginning in 1896 in Lower Austria and from 1898 onward in all provinces (Komlos, 1983, p. 142f; Wagner and Tomanek, 1983, p. 108). The transfer of money between the Austro-Hungarian Bank and the PSB network and vice versa was possible as of 1889 in Austria and as of 1891 in Hungary (Rauchberg, 1897, p. 77). The government fostered the cash-saving use of giro accounts for monetary policy reasons as well: given the fall in the price of silver, the minting of silver for private individuals was sus-

Table 1

Giro business of the Austro-Hungarian Bank and the Austrian Postal Savings Bank

	AHB	PSB	AHB	PSB
	Number of accounts		Transactions (fl. million)	
1887	19	12,981	817	28
1890	984	17,808	4,477	34
1895	2,587	28,363	7,930	55
1900	5,101	42,658	12,259	55
1905	5,440	67,804	24,295	154
1910	5,610	102,574	41,153	197
1913	5,761	122,870	47,105	196

Source: Mecenseffy (1896, p. 48); Oesterreichisch-ungarische Bank (1887, 1890, 1895, 1900, 1905, 1910, 1913); Wagner and Tomanek (1983, *passim*).

Note: AHB = Austro-Hungarian Bank; PSB = Postal Savings Bank.

⁶ See Jobst and Kernbauer (2016, p. 133). In addition to its own branch network, the Austro-Hungarian Bank used contract offices at financial institutions to discount bills or for the encashment of bills.

ended in 1878 and the introduction of a gold-based currency was considered in the following years. To reduce the necessary amount of gold to back money in circulation, the substitution of cash by other means of payments was considered advisable.

The immediate success of the postal saving system in collecting the savings of lower-income earners as well and in popularizing the use of giro accounts had positive macroeconomic effects, too: the substitution of deposits for cash increased the money multiplier and hence the supply of loanable funds, and rural areas became accustomed to modern banking services and were consequently drawn into the money economy. As expenditures could be increased beyond the current income, effective demand was rising with accelerating effects on the growth rate of the real sector of the economy (Komlos, 1983, p. 147f).

In Hungary, the Hungarian Postal Savings Bank was founded in 1885, with giro transactions starting four years later. The growth rate of giro transactions of this institution was lower than that of the PSB in Austria, because in Hungary, the Austro-Hungarian Bank had already offered giro transfers before the Hungarian Postal Savings Bank was established and was therefore able to gain a bigger market share in this part of the monarchy (Rauchberg, 1897, p. 172).

Austrian joint stock banks played a minor role in giro transactions, as the few available sources for the last decades of the 19th century show. Although there was a certain increase in giro transfers, in the mid-1890s joint stock banks “were still far away from using giro transactions for a substantial

part in the payment process.” (Rauchberg, 1897, p. 147).⁷

After the demise of the Habsburg monarchy, Austria’s financial infrastructure, which had been modernized in the last decades of the 19th century, had to be adapted to the economic potential of the much smaller First Austrian Republic. This happened not in a planned way but was forced on the country at a very high price through costly financial crises: the shrinkage of an individual economic sector is not conducive to the introduction of advanced technologies.

3 Restructuring of the Austrian financial sector in the interwar period

In its 1929 Annual Report, the OeNB stated that the failure of Vienna’s second largest bank, the *Bodencreditanstalt*, was due to the bank’s neglecting to adapt its business model in a timely manner to the dramatic downsizing of Austria. This characterization of the business policy of the *Bodencreditanstalt* can to a certain degree also be applied to other Austrian banks.

The Austrian banking sector was far too large for the new republic. In 1913, banks located in the area of the later Republic of Austria had accounted for more than two-thirds of own funds of all banks in Cisleithania, while the economic potential of the First Austrian Republic was hardly more than one-quarter of that of the formerly Austrian part of the monarchy (Jobst and Kernbauer, 2016, p. 171f). The First Austrian Republic had to cope with the inherited process of inflation, which ushered in a period of hyperinflation in 1921, and with the alignment of the industrial and financial structure

⁷ Author’s translation.

to the much reduced economic potential of a small state.

When the financial institutions of the First Austrian Republic re-evaluated their assets and liabilities after the stabilization of the currency and the introduction of the Austrian schilling in 1925, they found their own funds reduced by three-quarters compared with 1913 (Kernbauer, 1991, p. 172ff). The infrastructure of the banking sector was more or less the same as before the war, though the business activities were much reduced.

With regard to payment systems, the OeNB, which was re-established in 1922, remained the country's central clearing institution. The central bank's payments division handled the balances to be cleared of the PSB, the *Wiener Giro- und Cassen-Verein*, the *Wiener Saldierungsverein* and the larger Austrian banks. Savings banks commenced their giro business only in 1937, with the founding of the *Girovereinigung der Sparkassen* (Giro Union of the Savings Banks).⁸ Efforts to activate the giro business of savings banks were doomed to failure for various reasons: The lack of a clearing institution for the savings bank sector was equivalent to the non-existence of a giro network, as savings banks could not have branches, and the supervising authorities were restrictive in granting a license for this line of business. Among other things, the amount of giro deposits was restricted to 10% of all deposits (Hauptverband der österreichischen Sparkassen, 1972, p. 540ff). In 1927 the cooperative banking sector incorporated the Giro-

zentrale der österreichischen Genossenschaften (*Giro Center of the Austrian Cooperatives*) with the aim of equalizing the money balances of agricultural and commercial unions of cooperatives.⁹ In the interwar period these institutions' giro transactions were negligible (Ebner, 1962, p. 9).

The function of the OeNB as the central clearing institution of the Austrian payment system was vaguely defined in Article 1 of its charter of 1922. Article 1 states that besides other duties the OeNB had to "facilitate the settlement of payments."¹⁰ This general clause is not detailed further in the charter. In particular, a controlling or supervising role of the central bank for the payment system is not specified. This is in accordance with the prevalent paradigm of this period which held that banks as private institutions are not liable to transfer any information about their business activities or the structure of their balance sheets to the central bank (Jobst and Kernbauer, 2016, p. 170).

Table 2 shows the amount of giro transactions in Austria in the interwar period. The OeNB as central clearer handled the bulk of transactions. Their development mirrors in a disproportionate way the business cycle of the interwar period: During the Great Depression the amount of transactions related to economic activities of the real and the financial sectors shrank dramatically. In 1935 the volume of transactions was 50% lower than in 1929. This decrease was caused primarily by the slump of the trading volume of securities on the Vienna stock

⁸ See Hauptverband der österreichischen Sparkassen (1972, p. 821ff.). After Austria's annexation in March 1938, the Girovereinigung was restructured along the lines of the German Girozentrale; see Giefing and Auracher (1977, p. 10ff).

⁹ See Girozentrale der österreichischen Genossenschaften (1929) and Klauhs (1977, p. 7–11). The sluggish economic development of the following years was restraining the growth of this institution in the interwar period.

¹⁰ Article 1 of the charter reads in German: "Die Oesterreichische Nationalbank [...] hat im Gebiete der Republik [...] die Zahlungsausgleichungen zu erleichtern."

Table 2

Giro transactions 1913 to 1937

	OeNB/Austro-Hungarian Bank	Austrian Postal Savings Bank	Wiener Giro- und Cassen-Verein	Wiener Saldierungsverein
	ATS billion			
1923	14.4	8.9	19.7	1.4
1924	21.1	13.5	16.8	2.0
1925	30.0	15.7	14.7	1.9
1926	41.1	17.4	27.2	2.4
1927	43.4	19.2	33.2	3.1
1928	45.0	22.3	31.5	3.5
1929	49.8	24.8	33.5	4.1
1930	49.1	26.1	31.6	4.1
1931	49.7	25.0	23.5	3.1
1932	41.2	22.5	16.1	2.6
1933	36.8	21.4	16.0	2.3
1934	26.7	22.7	9.3	2.0
1935	24.7	24.1	6.4	2.3
1936	26.9	24.6	6.4	2.4
1937	28.2	26.6	7.2	2.6

Source: Governing Board of the OeNB (various years, *passim*); Wagner and Tomanek (1983, *passim*); Wärmner (1936, p. 77).

exchange, which is reflected in the turnover data of the *Wiener Giro- und Cassen-Verein*: when the settlement of transactions of securities could not be executed by the participating parties in the *Wiener Giro- und Cassen-Verein*, they were cleared using the accounts at the OeNB. As can be seen from table 2, the transaction volume of the *Wiener Giro- und Cassen-Verein* fell by ATS 24 billion or 81% between 1929 and 1935.

The giro business of the PSB is directly related to transactions connected to production and consumption activities in the economy. The turnover figures of the PSB's giro business are therefore more in line with the development of the nominal gross national product (GNP). In 1933 nominal GNP was 25% lower than in 1929, while the PSB's giro business was down by 18% (Butschek, 1999, table 5.1). It is interesting to note that the PSB giro transaction volumes as a percentage of nominal GNP went up between 1924 and

1937 from 150% to 270%. The number of PSB giro account holders was more or less stagnant in the interwar period (Wagner and Tomanek, 1983, pp. 224 and 253). The rise in payment intensity observed in these years will require further research.

The *Wiener Saldierungsverein* had the smallest turnover figures among the Austrian giro and clearing institutions. Its volume of transactions fell by 50% between 1929 and 1934. In 1936, ten financial institutions were members of the *Wiener Saldierungsverein*, among them the OeNB, the *Wiener Giro- und Cassen-Verein*, the PSB and other *Viennese* banks (Szedenik, 1937, p. 134f).

Describing the development of cashless payments in Austria in the interwar period, Ebner (1962, p. 5) reached a downbeat conclusion: "It was regrettable and without doubt a big drawback for the Austrian economy that until 1938, basically cashless payments were restricted to the Postal Savings Bank."¹¹ Compared with Germany, the Austrian payment system was underdeveloped. Ebner (1962) blamed this backwardness on the credit institutions, which, in his opinion, only too late recognized the importance of cashless payments for their own interests and for the economy as a whole.

4 The spread of cashless payments in a booming economy

The annexation of Austria into the German Reich in 1938 forced Austrian credit institutions to adapt their organizational structures and their modes of doing business to the procedures prevailing in Germany. Savings banks and cooperative banking institutions were integrated into the structures that existed in the German Reich before 1938: in particular, the giro payment systems

¹¹ Author's translation.

in place in Germany were adopted and after World War II (WW II) became a kind of template for the organization of payment systems in Austria. After WW II, different payment systems came into being throughout the different sections of the banking industry except for joint stock banks, which balanced giro transactions in-house as far as possible and cleared the remaining positions by using their giro account at the OeNB.

For the savings bank sector, the *Girozentrale der österreichischen Sparkassen AG* (Giro Center of Austrian Savings Banks) acted as a clearing house. Participating savings banks had to conduct their transactions according to defined principles for the giro and checking business and the encashment of bills of exchange. The flourishing of the Austrian economy after the stabilization of the currency in 1951/52 led to a commensurate expansion of real income and savings for a wide stratum of

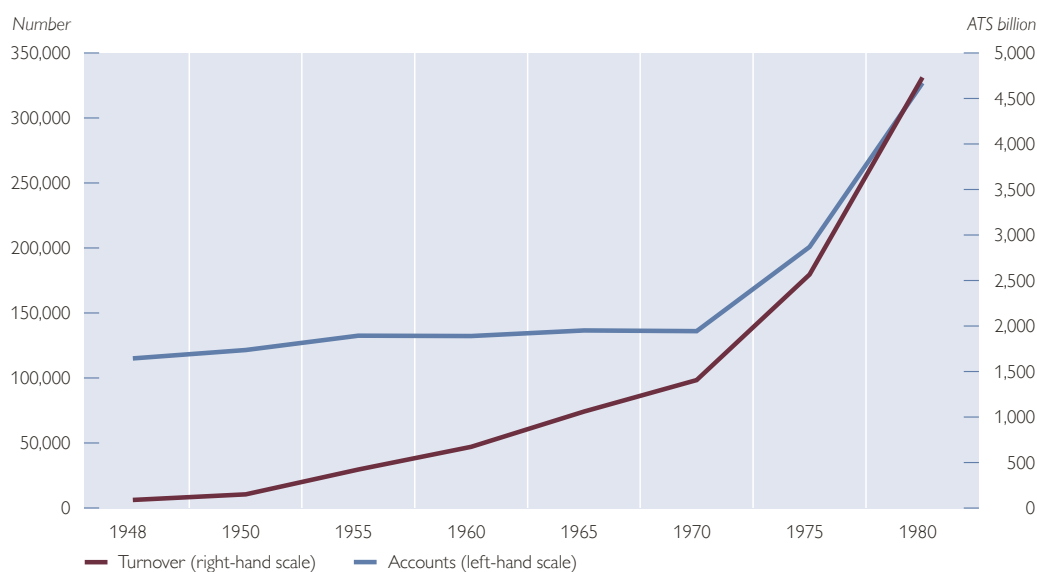
the population. The use of giro transactions increased strongly: In 1977 the savings bank sector boasted more than 1.5 million accounts dedicated to giro payments (Sadleder, 1977, p. 25).

The giro business in the cooperative banking sector started in earnest only after WW II. It benefited from the technical and organizational experience of the respective German institutions of which it had been part during the annexation period (Ebner, 1962, p. 9). Giro transactions in the agricultural cooperative sector were cleared at the regional level (Raiffeisen regional cooperative banks) and a second time at the *Genossenschaftliche Zentralbank* (Cooperative Central Bank). The remaining balances were settled via the latter's giro account at the OeNB.

There are no data available on transaction volumes for the joint stock and cooperative banking sectors.¹² The savings bank sector reported a transac-

Chart 2

Giro business of the Austrian Postal Savings Bank



Source: Wagner and Tomanek (1983, *passim*).

¹² The giro business of the provincial mortgage banks was of minor importance.

tion volume of less than ATS 300 million in 1969 (Peter, n.d., p. 21), when the PSB had a turnover of ATS 1,322.2 million (Wagner and Tomanek, 1983, p. 314). One can therefore be quite sure that the PSB was by far the largest giro payment institution in the Second Austrian Republic as well. The transaction volume of the PSB amounted to ATS 92.6 billion in 1948 and increased to ATS 473.4 billion in 1980 (chart 2).

This rise was to some extent the effect of the PSB's function as the banker of the public administration, including the social security system: Taxes collected were transferred via PSB giro accounts to the main account of the state managed by the Ministry of Finance, and funds were made available by the Ministry of Finance for subordinated entities and other ministries, as were contributions to the social security system and its spending, and the payment of wages, salaries and pensions.

The cashless payment of wages, salaries and pensions became popular in Austria from the mid-1960s (Pohl, 1967), with the number of giro account holders augmenting accordingly. In 1970, credit institutions in Austria administered 1.8 million giro accounts, in 1990 5.2 million and in 2015 10.7 million, of which 5.3 million were dedicated to the payment of salaries and pensions (Handler and Mooslechner, 1991, pp. 95 and 100; OeNB, 2016). According to Handler and Mooslechner (1991), the increase in the number of giro accounts as a percentage of the population from 12% in 1963 to 67% in 1990 illustrates the trend toward a reduced importance of cash in the payment process (Handler and Mooslechner, 1991, p. 99). In 2015, the number of giro accounts exceeded the Austrian population by 25%, and accounts for the payment

of salaries or pensions amounted to 61% of the population. Technically, the precondition for this development was the diffusion of electronic systems in banking.

In the Second Austrian Republic, as it had in the interwar period, the OeNB acted as the central clearing house for giro transactions. The legal framework for these activities did not change from the situation before WW II until an amendment was made to the Nationalbank Act in 2001. The turnover of giro accounts amounted to ATS 437 billion in 1956 and to ATS 14,711.1 billion in 1988, when the OeNB stopped publishing such figures (chart 3).¹³ Turnover increased in this period from four times to about 10 times the nominal GNP.

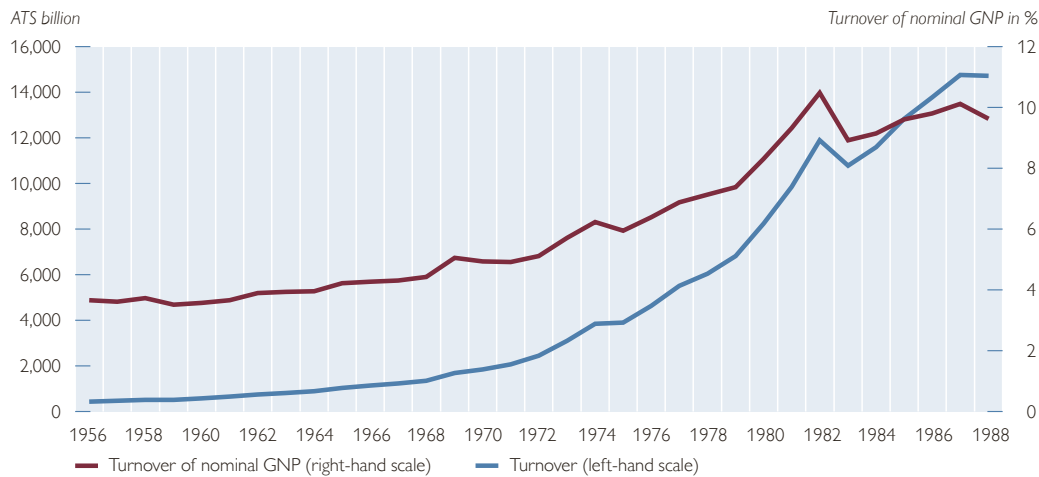
In 1989, Austria applied for membership in the European Union, and henceforth the OeNB was engaged in preparations for participation in the European Monetary System (EMS). One important task in this endeavor was the alignment of the Austrian payment system for large-value transactions with the corresponding system of the upcoming Economic and Monetary Union (EMU).

The Deutsche Bundesbank began to control and supervise the national payment organization earlier than the OeNB. The Bundesbank Act of 1957 stipulates that the German central bank "shall arrange for the execution of domestic and cross-border payments and shall contribute to the stability of payment and clearing systems." The failure of Herstatt Bank in 1974, the first bank insolvency to occur in the industrialized world in decades, laid open the risks connected with the settlement of foreign exchange transactions: If the partners of a contract are trading in

¹³ OeNB Annual Reports 1956 to 1988 with the financial statements.

Chart 3

Turnover of OeNB giro accounts from 1956 to 1988



Source: OeNB Annual Reports (1956–1988).

different time zones, payments are made at different points in time. In case of the illiquidity of one party, the counterparty perhaps does not get the quid pro quo for its own payment. To reduce the settlement risk, operational principles had to be changed to “payment versus payment” for foreign exchange transactions and to “delivery versus payment” for securities trading (Deutsche Bundesbank, 2009). The payment systems constructed by central banks in the 1990s for the envisaged euro area incorporated these maxims, complemented, inter alia, by the core principal of finality.

5 New duties for the OeNB in the payment process

In its Annual Report for the year 1992, the OeNB for the first time analyzed in a separate chapter the importance of an efficient payment system for the stability of financial markets.¹⁴ The liberalization and deregulation of financial

services during the previous decades had contributed to a closer integration of financial markets worldwide. Analyses commissioned by the EU central bank governors had shown that most national payment systems exhibited risk factors which could endanger the stability of financial markets. In particular, the insolvency of one bank could have major spillover effects because the settlement of payments of a large number of national and international participants might not be finalized and central banks would have to provide emergency liquidity. Therefore, central banks considered it their task to control every aspect of the payment process to ensure efficient and secure monetary processes. The “lines of action” were laid down in the “Issues of Common Concern to EC Central Banks in the Field of Payment Systems” and in the so-called Lamfalussy Standards.¹⁵ In 1998 the Committee on Payment and Settlement Systems (CPSS) of the

¹⁴ OeNB Annual Report 1992, p. 58ff.

¹⁵ See Working Group on EC Payment Systems (1992); Working Group on EC Payment Systems (1993); Habacht (2001a, p. 128ff.).

Group of Ten (G-10) set up a task force to define Core Principles for Systemically Important Payment Systems (Bank for International Settlements, 2001), which were updated from time to time to incorporate practical experiences gained.

In 1991, two years after Austria's application for EU membership, the OeNB joined with a partner to set up a company to analyze the necessary adaptations of the Austrian payment system for large-value transactions and to define a strategy for the implementation of a system compatible with the one envisaged for the euro area.¹⁶ In particular, such a system was to be a real time gross settlement (RTGS) system, i.e. transactions should be booked immediately on the accounts of the paying and receiving parties at their central bank and should have finality. At the beginning of the monetary union in 1999 the various national RTGS systems of the euro area countries were integrated to form TARGET, the Trans-European Automated Real-time Gross settlement Express Transfer system. From 1999, on, Austrian banks were connected to the euro area's TARGET system via the Austrian Real Time Interbank Settlement (ARTIS) system, which was replaced in 2007 by the Home Accounting Module Austria (HOAM.AT).¹⁷ In 2014, Austrian banks transferred 3 million transactions with a total volume of EUR 23,674 billion via RTGS (HOAM.AT and TARGET2).

Another recent innovation concerns the clearing and settlement of domestic payment transactions. Historically in Austria, unlike in all other 27 EU

Member States, domestic payment transactions (mostly, but not only, small value transactions like the payment of rents, wages or utility bills) between individual banks – were cleared and settled within the respective banking sector (savings banks, Raiffeisen sector, and Volksbank credit cooperatives, etc.) or on the basis of strict bilateral settlement procedures within the correspondent banking system. The handling of domestic payment transactions in Austria required 8,000 bilateral account connections.

In 2011, the OeNB set up a clearing service for Austrian domestic payment transactions (Clearing Service Austria – CS.A) within GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination G.m.b.H. (GSA) to simplify the processing of transactions between financial institutions in different sectors and to make it easier for credit institutions to access national and international payment systems. The settling of interbank payments at CS.A makes payments more secure and efficient by reducing non-payment risks and lowering bank liquidity requirements through the netting of interbank balances. Lower liquidity requirements in turn reduce the need for equity capital and the associated risk costs for the entire financial marketplace. CS.A is a recognized system under the Settlement Finality Act. It is connected to the Eurosystem's TARGET2 system. In 2015, CS.A cleared a total of 570 million transactions with a total value of EUR 3 billion. 70% of these transactions were offset during the clearing process; as a result only

¹⁶ This company was named STUZZA (*Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr – Association for Cooperation in Payment Transfers*); the OeNB's partner was GABE (*Geldausgabeautomaten-Service Ges.m.b.H. – Company for Servicing Automated Teller Machines*).

¹⁷ OeNB Annual Report 1998, p. 67ff; OeNB (2009, p. 64).

EUR 1 billion had to be actually transferred between participating banks.

The OeNB was obligated by a 2001 amendment to the Nationalbank Act¹⁸ to supervise payment systems in Austria. Hence, the central bank has to take measures to control the legal, financial, organizational and technical risks related to the service and use of payment systems.

Modern payment systems can be divided into four categories:

- large-value payment systems like TARGET;
- systems for the settlement of transactions in securities;
- retail payment systems, e.g. credit cards, ATMs, POS terminals;
- electronic money systems, “electronic purses,” for the payment of very small amounts (Habacht, 2001b, p. 2).

The OeNB discharges its duty to supervise payment systems in Austria through regular checks and on-site inspections on special occasions to check the organizational structure, the process flow and the technical status of the systems under supervision. In addition, companies that run payment systems have to supply the OeNB with qualitative and quantitative data about their operations. If such data were to show peculiarities, the OeNB would immediately start a special examination of the respective system.

The number and volume of transactions of payment systems in operation in Austria is enormous, as can be seen from table 3. By far the largest amounts are transferred via the Austrian leg of

Table 3

Transactions in payment and securities settlement systems

	2009		2014	
	Number of transactions in million	Value in EUR billion	Number of transactions in million	Value in EUR billion
RGTS	2	13,905	3	23,674
Securities settlement	2	365	2	377
Retail payments	574	46	1,005 ¹	72 ¹
International payments	31	1,225	113	2,463

Source: OeNB (2015, p. 106).

¹ 2013.

the euro area-wide RTGS. The security and efficiency of this system is of the greatest importance for the stability of the financial sector: The failure of the settlement of a large money transfer could have unwelcome knock-on effects.

In 2013, more than one billion retail transactions were executed by the Austrian payment systems supervised by the OeNB. The volume of EUR 72 billion equals 41% of private consumption expenditures of EUR 174 billion, approximately the percentage of household purchases made by using bank or credit cards.¹⁹ A survey of the European Central Bank (ECB) shows that Austria, along with Italy and Spain, is still among those euro area countries which use cash payments most frequently, whereas France and the Netherlands use banknotes the least.²⁰

According to the survey described in Mooslechner et al. (2012), it is not the lack of cashless payment facilities which is responsible for the high per-

¹⁸ Finanzmarktaufsichtsgesetz (Financial Market Supervision Act), Federal Law Gazette No. 97/2001, Article XIX).

¹⁹ See Mooslechner et al. (2012, p. 56). The difference of 6 percentage points between the payments made cashless according to the survey commissioned by the OeNB and the OeNB's Financial Stability Report 30 (Table A25) can be explained by regular payments of households, e.g. for rents, electricity and gas, which are usually made by standing orders.

²⁰ See European Central Bank (2011, p. 79). This article gives no explanations for the widely differing preferences for using cash.

centage of cash payments in Austria but primarily consumers' preferences. Cash apparently best fulfills the desired requirements of a medium of payment: paying with cash is quick and easy and entails no additional costs, and the many ATMs facilitate the sourcing of cash (Mooslechner et al., 2012, p. 75f).²¹ Although the use of other payment media has increased lately, there is still a persistence of behavior particularly among older people. The increasing volume of goods purchased from internet suppliers did not alter the structure of the payment process significantly: in 2011 a mere 0.13% of all recorded transactions – 0.24% volume-wise – were settled using payment media dedicated to internet transactions (e.g. PayPal, Clickand-Buy) (Mooslechner et al., 2012, p. 65). These observations suggest that cash will dominate the retail payment process in Austria for many years to come.

It will be a very important task of central banks in the future to supervise payment systems in order to minimize above all the technical and operational risks. Hence, central banks as supervisors have to take care that the integrity of efficient and complex payment systems is preserved by aiming to have the most technically advanced systems in operation.

6 Conclusions

Austria was a latecomer in the use of cash-saving or cashless payment techniques. This can be attributed to the economic backwardness of the Habsburg monarchy compared with the North-western European countries in the first decades of the 19th century, to the low degree of monetization of economic,

mainly agricultural activities, to the abundance of paper money as a consequence of the financing of major military campaigns through central bank loans and the issuing of paper money by the state. Until the last quarter of the 19th century a cash-saving payment infrastructure was not urgently needed in the territory of the Habsburg monarchy.

The incorporation of the Austrian Postal Savings Bank in 1882 marked a turning point in the spreading of modern financial technologies in Austria. The more than 4,000 post offices offered giro and savings accounts for a stratum of the population that previously had no contact to banking. An amendment to the charter of the Austro-Hungarian Bank in 1887 was a precondition for the substantial growth in the number of giro accounts and transaction volumes of the central bank in the following years. Giro accounts at the central bank were used mainly for the clearing of balances resulting from commercial and financial transactions of the banking community. Saving banks and cooperative banks did not offer giro accounts and were integrated into the economy-wide payment structure only after WW II.

In the interwar period, Viennese and Austrian banks had to adapt to the economic and financial potential of a far smaller economic area. This happened not as a planned process but as a result of severe and costly banking crises in the 1920s and 1930s. The transaction volumes in the payment system, in particular financial transactions on the stock exchange, were severely hit by the Great Depression. The economic climate in the period between WW I and WW II was not conducive to the in-

²¹ Tax evasion could also be an argument for using cash, but this would further increase the high percentage of cash payments, although probably not significantly.

roduction or spreading of new financial technologies.

The economic boom in the Second Austrian Republic and the rapid increase of production, employment and income resulted in a wider use of banking services. The number of giro and savings accounts grew strongly, in part because since the mid-1960s salaries, wages and pensions were paid by using banking facilities. There were several payment system networks in place corresponding to the different banking sectors. The OeNB acted primarily as the central clearing house. The spread of electronically based systems in banking changed the payment process as the use of automated teller machines, point-of-sale terminals and credit cards increased.

The introduction of the euro in Austria in 1999 had a basal influence on the structure of the Austrian payment

system, which had to be aligned with the system in place in the euro area. For large-value transactions, Austrian banks could use ARTIS, later HOAM. AT, to transact via TARGET with the ECB or with other euro area banks. The turnover of retail payment systems in Austria is steadily increasing, although the majority of household purchases are still paid by cash. The OeNB's duties as regulator and supervisor of payment systems in Austria were laid down in an amendment to the Nationalbank Act in 2001. Before that, the central bank was aware of the importance of a well-functioning, safe payment system for financial stability but did not have a strict legal obligation to ensure it. Preserving the integrity of payment systems will be one of the main challenges in the future.

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