

# CHANGES TO THE BANKING SYSTEM DUE TO THE COVID-19 PANDEMIC

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## Abstract

The COVID-19 pandemic and strict lockdown measures have severely affected many spheres of human lives and the global economy. The banking system, including consumer behavior in retail banking, has also been affected by the COVID-19 crisis. This article aims to investigate the impact of the COVID-19 pandemic on consumer behavior concerning the banking sector, especially retail banking in the Czech Republic. The author used a questionnaire for people from the South Bohemia and Jihlava regions. The author compares the situations before, during, and after the COVID-19 pandemic. Moreover, the author uses mathematical and statistical methods to thoroughly investigate the data.

**Keywords:** banks, COVID-19, consumer, consumer behaviour

**JEL Code:** M14, M19

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## Introduction

During the past decades, lifestyle trends have included digital items like the Internet, e-applications, etc. (Pekka et al., 2008). There were many changes in the business environment and strategies in many sectors. The central sphere of this article is the banking sector. The Internet is transforming the banking sector mainly in terms of core services and products (Gupta, 2008). Information technology among Internet users has a very strong impact on the banking sector and innovation.

All around the world, financial institutions, including banks, were forced to make many changes in products and services offered in the markets, as well as in distribution channels, etc.

Many financial institutions started to use new channels, mainly electronic, and banks had to develop many banking services (Arnaboldi, Claeys, 2010).

The number of Internet users is growing, and it is true that the Internet has become an essential part of buying behavior and a key issue for financial institutions, including banks. Internet banking has become an important determinant for bank customers and is also one of the most important parts of customer loyalty in the banking sector (Arnaboldi, Claeys, 2008).

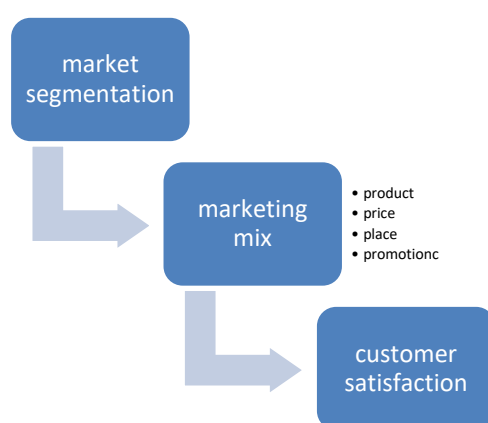
COVID-19 and the following lockdown have very strictly affected the whole global economy, the daily life and lifestyles of all customers, financial institutions, and the retail banking sector. The economy worldwide had to meet new expectations, challenges, and needs of customers and many changes in customer shopping and buying behavior. All businesses, including banking institutions, were affected by the COVID-19 pandemic (Baicu et al., 2020).

## 1 Theoretical background

The competitive commercial world forces more and more satisfied customer needs and wants. COVID-19 has brought many changes in many industries, including banking. Growing competition plays a vital role for all companies, and the banking and financial industry's requirements vary by many characteristics – age, sex, generation, social class, stage in the family life cycle, etc. Financial institutions use these differences to develop different marketing strategies for different segments (Clarkson et al., 1990; Harrison 1994). Some authors connected marketing segmentation and consumer satisfaction mainly with technological banking services. There are lots of studies about the satisfaction of banking and financial customers. Many of these studies include market segmentation and marketing mix; some use the Serqual model, etc.

We can say that the basic model includes market segmentation and marketing mix, as shown in the next figure.

**Fig. 1: Customer satisfaction.**



Source: author's research

Marketing segmentation in the bank industry and customer satisfaction are affected not only by marketing mix and services, but for now, a critical point is the massive involvement of new technologies (Keeton 2001, Rashid, Hassan, 2009).

Loyalty in the banking system is essential and is considered one of the most significant factors of profitability in banking (Ukenna et al., 2012). Many banks trust that customers are the most significant reason for their existence in the banking market. This fact is one of the most essential reasons why financial and bank institutions focus on customers' loyalty and satisfaction with their services. (Sleimi, Musleh, Qubbaj, 2020, Mohsan et al. 2011).

Therefore, it is possible to state that consumer loyalty is considered one of the most significant factors in banking and other sphere of marketing these days, and, of course, together with consumer satisfaction, represents the critical point to the long-term relationships with all customers (Mandal, Bhattacharya, 2013). However, there are other factors that influence customer loyalty in the banking sector. Moreover, digital technologies are one of them (Arnaboldi, Claeys, 2010).

### **1.1 Changes in the banking industry**

The demand for services and products connected with the Internet and digital intelligence through smartphones, laptops, computers, or tablets is still growing. The situation during COVID-19, when there were lockdowns and no possibility of face-to-face connection with banks, shops, etc., has forced all financial institutions to respond to the new customer demands concerning digital technologies.

Petruzzellis, Romanazzi, and Gurrieri (2014) claim that one of the critical factors of success in financial and banking institutions is a long-term relationship with clients, which is also an essential element of consumer loyalty for all banks and financial institutions (Mohsan et al., 2011). In the Czech Republic, we can mention Bank Česká spořitelna.

Therefore, after the literature research, we can state that new banking distribution channels, such as digital channels, online (internet) banking, phone banking, etc., are essential for banking customers (Kheng et al., 2010). Many authors are focusing in their research and studies on Internet banking – for example, Nguyen, Singh (2004), Mahfooz et al. (2013), Sohrabi, Yee, Nathan (2013), Ukenna et al. (2012).

There have been lots of changes in the banking industry during the last few years. Several changes were caused by the COVID-19 pandemic and other effects, such as using mobile phones, the Internet, new brands emerging, and other new technologies. The banking system is undergoing an enormous transformation, including mobile banking, applications, payments, etc. First, mobile banking applications and payments are becoming more popular daily, mainly

among the young population. Furthermore, people worldwide use many smartphones to manage their financial services, send money, pay bills, etc.

For example, Goldmine Media (2023) and Grafton Bank (2024) state that there are several important factors affecting financial institutions after COVID-19 pandemic:

- Smartphones – Many customers have started using their phones or other intelligent payment technologies. The reason is apparent – lockdown rules and no possibility of face-to-face interaction.
- Different payment apps
- Higher security of online, mobile, apps, and other possibilities is needed to protect against possible dangers.
- Stronger regulation of financial services
- Building trust with and long-term loyalty with customers
- Empowering diversity in the boardroom
- New technology
- New brands
- Growing trend towards mobile-phone banking

Many institutions have to change their services because, during the COVID-19 pandemic, many customers have started smartphones and other technologies for banking and payments. The main reason was lockdown rules, and customers and banks had to find new ways to handle their financial problems without meeting face-to-face.

## 1.2 Banking system in the Czech Republic

There is very extreme competition and saturation in the banking industry in the Czech Republic, as well as all around the world. On December 31, 2022, 44 banks were operating in the Czech Republic. To this date, 23 were branches of foreign banks, only 13 banks with decisive Czech participation, and two banks with state participation, namely Národní rozvojová banka and Česká exportní banka.

Based on data from the Czech Statistical Office, the number of internet users is still rising. That is one of the most significant changes that is connected with the changes in the baking system.

Tab. 2: Internet users (in millions)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

<b>Czech Republic</b>	2,831	3,945	4,895	5,821	6,137	6,345	6,553	6,648	6,894	6,930
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Source: Czech Statistical Office (2024)

## 2 Methodology

Customers were randomly interviewed in the regions of South Bohemia and Vysočina. A total of 400 respondents were gained. Several respondents stated that they do not use bank services. Twelve questionnaires were excluded due to incompleteness. The survey was anonymous, and respondents were asked only for primary demographic data, such as gender, age, and occupation. The following tables summarized the essential demographist characteristics of the sample.

**Tab. 1: Basic demographist characteristics of the sample**

Gender	Absolute frequency	Relative frequency
Male	182,00	48
Female	200,00	52

Source: Author's research

Age	Absolute frequency	Relative frequency	35-44	74	21
			45-54	56	16
16-24	52	15	55-64	48	14
25-34	95	27	More than 64	25	7

Source: Author's research

Occupation	Absolute frequency	Relative frequency
Student	54,00	14
Employee	265,00	69
Entrepreneur	32,00	8
Retired	23,00	6
Unemployed	8,00	2

Source: Author's research

The research was based on comparing data before and after COVID-19, and basic statistical-mathematical methods and the chi-square test were used for selected categories. The basic mathematical-statistical methods were absolute and relative frequency and the chi-square test for several variables and linear regression; the formulas are given below. The author used the following mathematical-statistical methods for the analysis of the data obtained:

- relative and absolute frequencies,
- The chi-square test is used to test the independence of data for comparison of observed data with expected data to a specific hypothesis.
- chi-square test will be used to reveal significant statistical differences of the response of for genders and age

The model of chi-square test

$$\chi^2 = \sum_{i=1}^k \frac{(X_i - N_{Pi})^2}{N_{Pi}} \quad (1)$$

The linear regression model will be used to estimate the relationships between the number of Internet users and Internet banking.

This article aims to analyze changes in banking services after COVID-19 and the preferences of customers. In particular, the following aspects will be examined:

- Preferences for internet banking
- Frequency of using Internet banking
- Other digital possibilities for banking

Answers from men and women will be examined separately, as well as the age of respondents. The author aims to reveal important differences in access to banking systems before and after COVID-19. The questionnaire that was used for the research used closed questions with one option or more answers. The questionnaire was prepared based on foreign literature research, statistics, scientific articles, and reports of major global companies (such as Nielsen, KMPG, Statista, etc.).

The chi-square test was used to test the following hypotheses:

H<sub>10</sub>: Using internet banking is independent of the gender

H<sub>11</sub>: Using internet banking is not independent of the gender

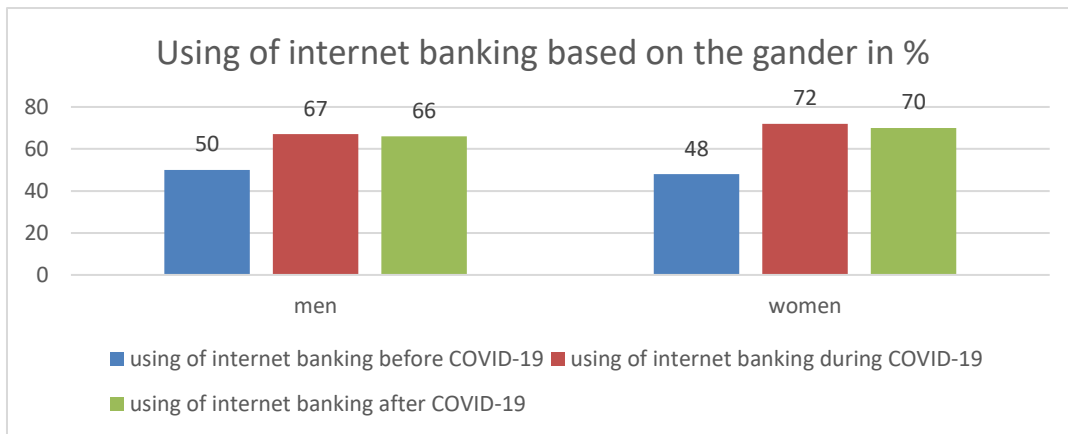
H<sub>20</sub>: Using internet banking is independent of the age

H<sub>21</sub>: Using internet banking is not independent of the age

### 3 Results

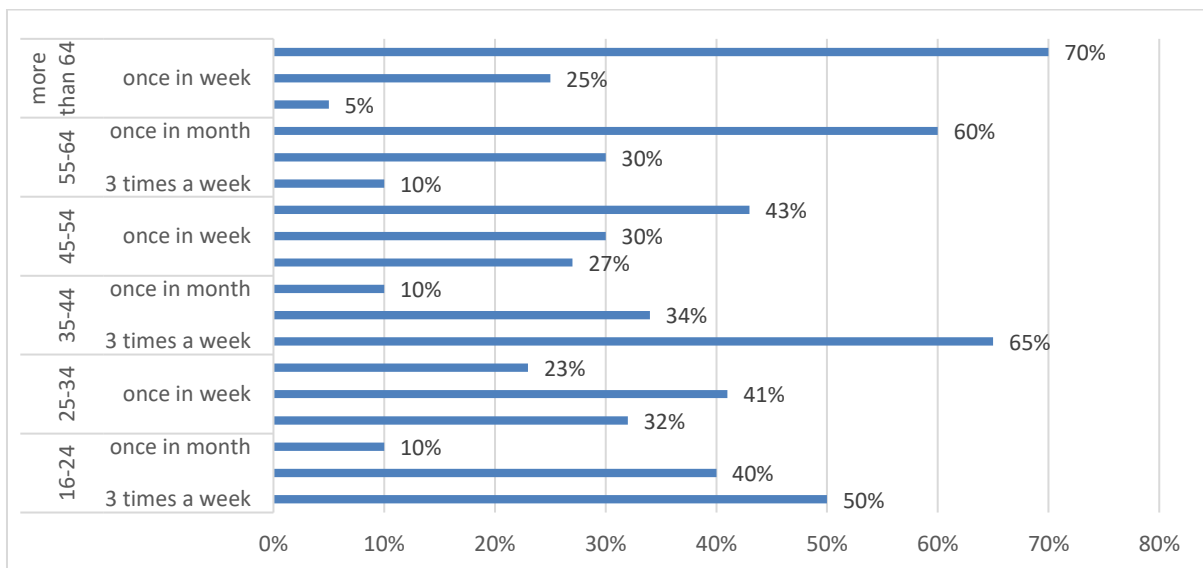
This section summarizes the results of the author's research. This part of the article summarized the main findings of the first part of the author's research focusing on the changes in the behavior of customers in banking services after COVID-19.

**Tab. 2: Using of internet banking**



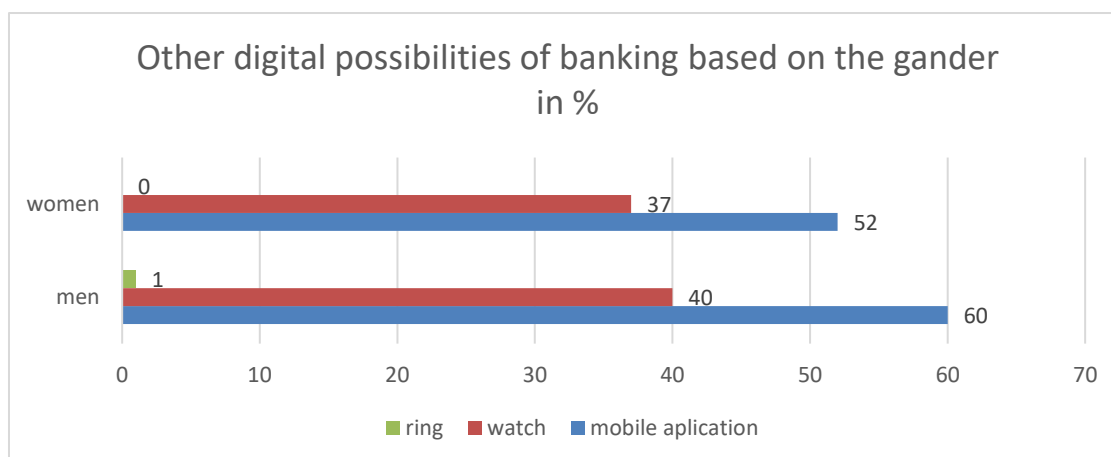
Source: Author's research

**Tab. 3: Frequency of using internet banking**



Source: Author's research

**Tab. 4: Other digital possibilities of banking**



Source: Author's research

After performing a basic comparison of observed data, the author tested the null hypothesis  $H_10$ : Using internet banking is independent of gender at the 99% confidence level.

Results of the Chi-Square Test for the first hypothesis

Chi-Square	Df	P-Value
21.34	1	0.1453

The chi-square test results for the first hypothesis proved that “Use of internet banking is not independent of the gender “at the 99% confidence level. Since the P-value of this test is more than 0.01, we can reject the null hypothesis that “Using Internet banking is independent of gender “at the 99% confidence level. Based on these results, the author can claim that most respondents use Internet banking. However, the banking system is highly influenced by external influences, such as hacker attacks.

The chi-square test also proved that: “Use of internet banking is independent on the age” (see below). Results of the Chi-Square test for the second hypothesis follow.

Chi-Square	Df	P-Value
23.3542	1	0.1432

The Chi-Square Test results for the second hypothesis proved that the Use of Internet banking is independent of age. Since the P-value of this test is more significant than 0.01, we cannot reject the null hypothesis that using Internet banking is not independent of age. Furthermore, the respondents were asked which other digital method of banking they use. Moreover, more of the respondents use mobile applications.

## Conclusion



Based on the author's research, many respondents started using Internet banking during COVID-19. There was a change in consumer behavior with regard to the situation within the framework of COVID-19. Many bank users have changed their shopping behavior and continue to use apps, online banking, and other digital services in the post-COVID-19 era. At the same time, several banks are developing new possibilities for using digital technologies, which facilitate not only payment but also other options for banking services. One of these options is, for example, a ring from Mbank.

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