A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics

RESISTANCE TOWARDS CRYPTOCURRENCIES IN GERMANY:

A QUANTITATIVE APPROACH TO ANALYZE ADOPTION BARRIERS

(Individual Part)

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17-12-2021

Abstract

Resistance towards Cryptocurrencies in Germany:

A quantitative approach to analyze adoption barriers

The work project "The Future of German Retail Banking" concluded that Cryptocurrencies are one of the most impactful trends in the industry and have been of increasing interest. However, in Germany, the acceptance is still low but the reasons for this resistance have not been empirically researched. Thus, this thesis evaluates the influencing factors of the resistance in Germany by using an adapted version of the Innovation Resistance Model. This work provides a literature review about Cryptocurrencies and innovation theories. Through quantitative research and regression analysis, all proposed factors have been verified yet to different extents.

Keywords: Financial Services, Cryptocurrencies, Virtual Currencies, Blockchain, Innovation Resistance Model, Retail Banking

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

1. Introduction

Since the introduction of Bitcoin in 2009, the topic of Cryptocurrencies (CC) has grown in importance, representing a major uncertainty within the changing environment of future retail banking. Today 200 million people use CCs worldwide (Wang 2021) and their value has increased tremendously. Even though there are many advantages of CCs such as reduced transaction costs (Knauer and Mann 2020), the usage in Germany recently decreased while knowledge and awareness increased (Bosch 2020). The adoption rate in Germany is only 6% as compared to 42% in Nigeria (Brandt 2021). Literature in this area is still scarce in Germany despite the higher global attention. This left the author with the question, *what are the factors that influence the resistance towards Cryptocurrencies in Germany?*

This thesis starts with a literature review focused on cryptocurrencies and theoretical models in the innovation context. With the help of an adjusted conceptual framework, the author quantitatively evaluates his findings before moving on to the conclusion and further recommendations. A deductive, quantitative approach based on the Innovation Resistance Model by Ram and Sheth (1989) was used, leading to insights for scholars and practitioners.

2. Literature Review

To better understand the concept of Cryptocurrencies and their adoption, the author will provide a critical literature review about the technology, its advantages, and disadvantages as well as different frameworks.

CCs are digital currencies filed in a decentralized, shared database, mostly the Blockchain (Nakamoto 2008). Records in the Blockchain are verifiable, transparent, and protected from any form of deletion or change (Iansiti and Lakhani 2017). CCs are neither issued by a public authority nor a central bank and are therefore an alternative to traditional currencies as they only rely on highly cryptographic information (Alzahrani and Daim 2019; Farell 2015).

Even though CCs are constantly increasing in both usage and value (Imöhl and Ivanov 2021), the acceptance in Germany is still low (Knauer and Mann 2020). Meanwhile, CC regulation is also low, as demonstrated by the fact that only commercial trading and exchanging fiat currencies to CCs requires a license in Germany (BaFin 2021). However, the EU is discussing a legislation for a common framework to increase regulation (Groeneveld 2021). In comparison, other countries such as Russia and China are more rigid and have banned CCs (Orji 2021).

The benefits of CCs are clearly stated in the literature: they decrease transaction costs, reduce the need for intermediaries, strengthen privacy, increase security (Knauer and Mann 2020; Albayati, Kim, and Rho 2020), and are faster (Folkinshteyn and Lennon 2016).

On the other hand, many scholars have mentioned the risks and disadvantages of CCs that could affect the adoption rate. Every innovation requires trust which can only be created through knowledge, yet many potential users perceive CCs as too complex (Knauer and Mann 2020; Baur et al. 2015) and not user-friendly (Al-Amri et al. 2019). Hence, the absence of fundamental technical knowhow of most citizens (Krombholz et al. 2017) and missing knowledge about CCs create a barrier to using them (Albayati, Kim, and Rho 2020).

Another major reason for the avoidance of CCs is that their prices are highly volatile (Alzahrani and Daim 2019; Nseke 2018; Abramova and Böhme 2016) and thus discourage potential users. Moreover, many scholars (Albayati, Kim, and Rho 2020; Al-Amri et al. 2019) found that the non-existence of regulatory support in terms of insurance or laws from local governments and banks hinders usage. Additionally, as the number of businesses accepting CCs and the number of users is still low, many people are waiting for higher adoption rates (Alzahrani and Daim 2019; Presthus and O'Malley 2017). Other frequent concerns are financial risks related to the loss or theft of wallets or passwords (EBA 2014), self-induced errors (Krombholz et al. 2017), and security breaches through hackers and crimeware (Nseke 2018).

Finally, CCs have become prominent for criminal activities due to their anonymity, such as money laundering (Scheben 2021) or drug selling (Nseke 2018) and thus undermine jurisdictional boundaries, creating a negative reputation.

New technologies demand consumers to change their habits which they might not be willing to (Chen and Kuo 2017). Especially highly discontinuous innovations, such as CCs, can cause resistance (Ram and Sheth 1989), which has a tremendous impact on the success of a product (Ram 1987). To understand the resistance towards CC, the Innovation Resistance Model (IRM) by Ram and Sheth (1989) will be applied. The IRM (appendix A) was developed to create strategies to overcome resistance and consists of functional and psychological barriers and has been widely used (Laukkanen and Kiviniemi 2010). Functional barriers are divided into usage barriers (the effort to use the product), value barriers (price-value ratio), and risk barriers (fear of negative consequences; Ram and Sheth 1989). Psychological barriers cover tradition barriers (habitual background) and image barriers (unfavorable reputation; Ram and Sheth 1989).

In the literature other models regarding technological innovation can be found, such as the Technology Acceptance Model (TAM) by Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). Even though both are good measures, the TAM is too generic (Knauer and Mann 2020) and the UTAUT is impractical in the adoption context and includes unnecessary moderation variables (Li 2020).

As adoption is only possible after overcoming resistance, it is highly relevant to first analyze the preceding processes. Additionally, in comparison to the TAM and similar models, the IRM offers more insights about the extent of resistance from potential users and which barrier is more relevant (Rehder and Karla 2010). As the IRM has not been used in this context and with most previous work being conducted in other countries, the author decided to focus his work on resistance in Germany to fill the gap.

3. Research Methodology and Analysis

As the model of Ram and Sheth (1989) is still relevant today, the framework was used and adapted to the situational needs. Relevant barriers have been derived and added, focusing on usage, risk, and image barriers. The following model is proposed (for details see appendix B):

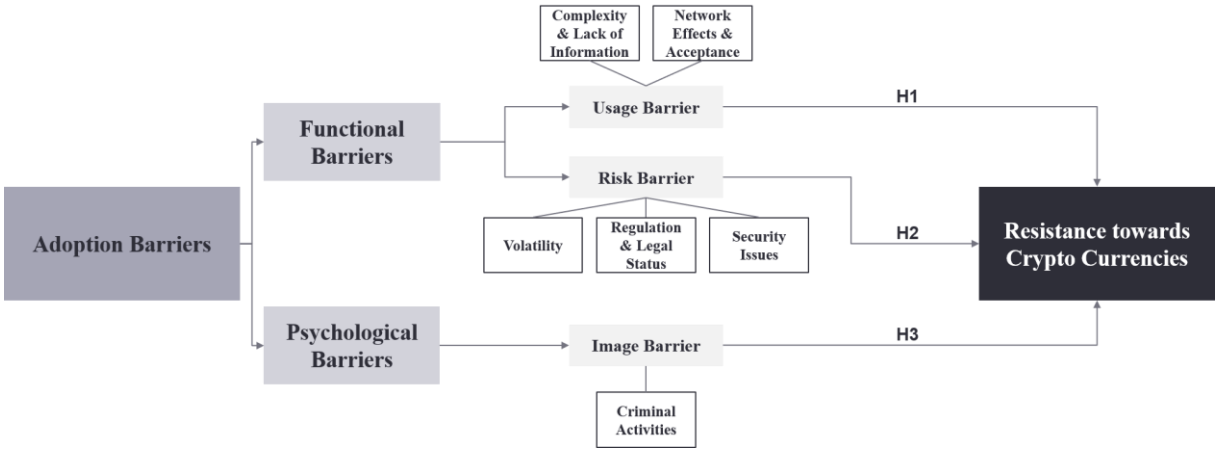

Figure 1: Adapted version of the IRM. *Source:* Authors own illustration based on Ram and Sheth, (1989)

One of the factors influencing the usage barrier is the complexity of CCs (Knauer and Mann 2020). Many people struggle to understand the concept (Folkinshteyn and Lennon 2016) and believe that they are not easy to use (Baur et al. 2015). Additionally, as the usage of CCs is not widespread in Germany (Luther 2016), the perceived benefit is low. Risk barriers are the second category that play a relevant role. As the volatility can be high, users can perceive it as too risky to use them and are afraid of losing money (Nseke 2018). Additionally, trust might be lowered as regulations for CCs are still underdeveloped (Al-Amri et al. 2019) and news about security issues leads to decreased attractiveness (Krombholz et al. 2017). Finally, image barriers can lower the usage as people tend to associate CCs with criminal activities (Alzahrani and Daim 2019) and avoid a technology that has a bad reputation.

To find out why the usage of CCs in Germany is so low the thesis was guided by the following research question: *What are the factors that influence the resistance towards cryptocurrencies in Germany?* To answer this question, three hypotheses have been developed:

H1: Usage barriers positively influence the resistance towards Cryptocurrencies. H2: Risk barriers positively influence the resistance towards Cryptocurrencies. H3: Image barriers positively influence the resistance towards Cryptocurrencies.

To gather comparable data to verify the assumptions, the author decided to use a quantitative approach. A self-completed, standardized online questionnaire was used to approach the target population: Germans that are currently not using or have never used CC.

The questionnaire (appendix C) was based on similar research (Laukkanen and Kiviniemi 2010) but was adjusted according to the previous literature review. The introduction contained two filter questions to limit the respondents to the target population, two questions about the knowledge of the respondents regarding CCs and a definition of CC. The main body consisted of 19 statements that the participants were asked to rate on a seven-point Likert scale ("Strongly disagree" to "Strongly agree") and ended with four demographic questions. The questionnaire was pilot tested by five potential respondents and then distributed online using a mixed sampling strategy consisting of snowball sampling and convenience sampling (Saunders, Lewis, and Thornhill 2015). The survey was published on 12.11.2021 and closed on 14.11.2021 as data saturation was reached. In total 308 responses have been collected of which 44 were not finished. Furthermore, 53 CC users and six non-Germans had to be excluded, resulting in 205 valid responses for the analyses. The data was analyzed using SPSS 28. First, descriptive statistics were examined to get an overview, followed by simple linear regression analysis to test the hypotheses.

4. Results

In the following, the major findings of the data analysis will be discussed, starting with demographics and descriptive statistics before moving on to the hypotheses testing.

Most of the respondents were female (61%), followed by male (39%). While 83% were younger than 35 years, no respondent was younger than 18 or older than 64 years.

For the descriptive statistics, the mean (*M*; 7 = "strongly agree") and the standard deviation (*SD*) were used to show the general tendency and its dispersion (see appendix D). Nearly all the participants have heard of CCs (97.5%, *M* = 6.6), but only 84.4% know what they are (*M* = 5.31). The highest mean was found for the statement that the respondent thinks that he or she does not have enough knowledge or experience in handling CCs (*M* = 5.48, *SD* = 1.48). Participants show least concern about CCs potentially being banned (*M* = 3.36; *SD* = 1.51).

Reliability analysis measured with Cronbach's alpha (see appendix E) showed internal consistency as all values were above 0.6 (Taber 2018) and thus were used to calculate new variables for the hypotheses testing.

Finally, the hypotheses were tested using simple linear regression to enable the author to predict how the dependent variable (the resistance) is influenced by the independent variables (the barriers). Based on Field (2017), the author decided to set the tolerance level of significance to 0.05 and 0.01 for strong evidence. To answer the research question, the new variables (representing each of the constructs of the model, see Figure 1) were used. All calculations are in appendix F. First, the usage barrier was tested by analyzing the complexity factors and the network effect factors of CCs. The complexity construct indicated a significant influence (R^2 = .156, F (1,203) = 37.44, p < .001) on the resistance that relates to 15.6% in the variation. On the contrary, the network effects only account for 2% but were still significant (R^2 = .020, F (1,203) = 4.21, p = .041). Therefore, H1 is statistically supported but needs to be handled with care due to the larger p-value.

To find out whether risk barriers influence the resistance towards CC, the three risk constructs were tested. The regression analysis showed that the volatility (F (1,203) = 17.59, p < .001), the regulation (F (1,203) = 30.46, p < .001) and the security (F (1,203) = 68.97, p <

.001) of CCs all significantly influence the resistance. The coefficient of determination reveals that volatility only accounts for 8% of the variation (R^2 = .080) whereas regulation accounts for 13.1% (R^2 = .131) and security for 25.4% (R^2 = .254). Thus, H2 is statistically supported.

Lastly, to evaluate H3, the influence of the image barrier on the resistance towards CCs was tested. The results show that the hypothesis is statistically supported (F (1,203) = 16.62, p < .001), however the image barrier only accounts for 7.4% (R^2 = .074) of the variation.

5. Discussion

The results of the previous analyses indicate that all three barriers (usage, risk, and image) play an important role in the resistance towards CCs, yet to different degrees. In the following, each hypothesis, respectively barrier, will be discussed, and their implications highlighted.

For the usage barrier, the results have shown that the complexity of CCs plays a higher role in the resistance. This can be explained by the fact that potential users do not want to experiment with their money (Darlington III 2014) and is aligned with the findings of Baur et al. (2015), who found that the perceived ease of use of CCs is low. Against the expectations of the author, the network effects and acceptance of CCs only play a minor role in the resistance. This also contradicts the findings of Presthus and O'Malley (2017) who argued that wider acceptance would also foster usage. Ram and Sheth (1989) suggested decreasing usage barriers by fitting the product to the market, in this case increasing the user-friendliness. Thus, simplicity and user-friendliness such as a standardized system could enhance the usage in Germany.

The risk barriers (volatility, missing regulation and legal status, as well as security issues) were also significant and therefore have an important effect on the resistance in Germany. Even though Presthus and O'Malley (2017), as well as Eikmanns and Sandner (2015), argued that price stability would increase the number of users, the findings show that the effect of volatility is only present to a small degree. At the same time, strategies to handle the volatility would be

hard to implement as the value of CCs depends on the demand of the coins. Along with the expectations of the author and the evidence found by Alzahrani and Daim (2019) as well as Albayati, Kim, and Rho (2020), the uncertainty associated with missing support by government and regulation influences the resistance towards CCs. Thus, clear laws and regulations would foster the usage in Germany. Despite the fact the regulation is also linked to potential bans in some countries (Eikmanns and Sandner 2015), the respondents do not seem to fear banning as the scores on the respective survey question are comparably low.

Finally, the highest impact in all barriers was associated with security issues which was also found by Nseke (2018) when studying the African population as well as Knauer and Mann (2020) who argued that fraud protection would increase the usage. The upcoming regulation in the EU (Groeneveld 2021) could increase the usage as this would mean a common legal framework and making service providers liable for any kind of fraud, error or cyberattack. Thus, by making the market more comparable to the classical capital market, the number of users would increase in Germany. Moreover, electronic fiat currencies such as the e-Euro could reduce skepticism towards CCs as they would be backed by governments and users may trust them more. Another potential strategy to decrease resistance would be to use well-known banks to implement the technology (Ram and Sheth 1989). Large banks are trusted, known for good security measures and can help in case of issues.

In the last step, image barriers (represented by the fact that CCs can be used for criminal activities) showed that there is a significant yet small influence on the resistance. Even though bad reputation due to illegal activities was mentioned by many scholars (Nseke 2018; Karlstrøm 2014), the effect on usage has only been considered by Alzahrani and Daim (2019). Hence, this work also provides insights that increasing the image of CCs could decrease resistance.

6. Conclusion, Limitations, and further Recommendations

The aim of this thesis was to find out which factors influence the resistance towards Cryptocurrencies in Germany. To evaluate this question the author used a quantitative methodology based on an adapted innovation resistance framework and analyzed 205 responses collected from German citizens. Along with the literature, the research has shown that complexity, the network effect, volatility, the missing regulation, security issues and a bad reputation due to criminal activities foster the resistance towards Cryptocurrencies in Germany. While the network effects, the volatility, and the reputation had only minor effects, the other factors play a vital role when trying to decrease resistance. Thus, all the previously mentioned barriers significantly influence the resistance. To decrease resistance, various interconnected strategies are proposed. Mainly the usage of well-known brands as well as increasing the security of the systems and higher regulation can promote the usage of CCs in Germany. This work was able to shed light on the missing empirical research in the market and clearly highlights which factors are most influential.

As with any empirical research, the results of this thesis are also subject to limitations. First, the findings are not generalizable as the sample was too small and biased. Moreover, this study only represents a snapshot in time and behaviors can change, thus, to validate the findings over time, a longitudinal study is recommended to adjust to changing behavior and technological advancements. Finally, due to the scope constraints, the number of variables to be analyzed was limited and could be extended in subsequent studies.

As research in this field is limited so far, it would be interesting to explore how different demographics such as age and income play a role in the adoption of cryptocurrencies. This could result in valuable insights for service providers on how to address different segments and increase the number of users.

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Appendix

Appendix A: Innovation Resistance Model

Figure A1: Innovation Resistance Model

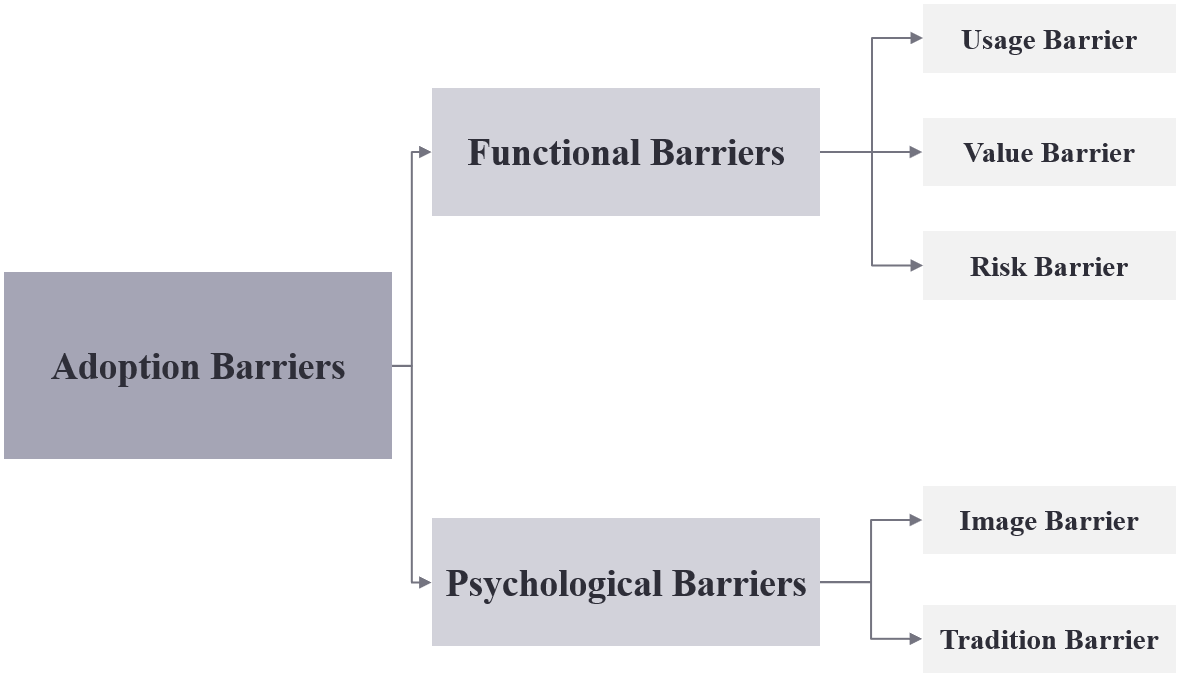


Figure A1: Innovation Resistance Model. *Source:* Authors own illustration based on Ram and Sheth, (1989)

Appendix B – Overview of Barriers

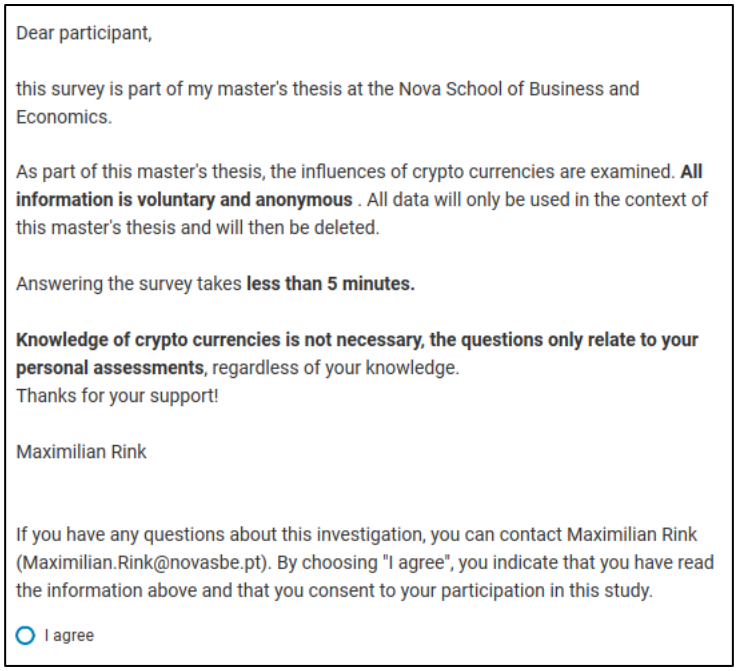
Table B1: *Overview of Barriers*

Barrier	Variable	Definition	Source
Usage Barrier	Complexity & Lack of information	Cryptocurrencies' underlying technology is too hard to understand for the average consumer and the usage is neither easy nor user-friendly	Al-Amri et al. (2019) Baur et al. (2015) Darlington III (2014) Folkinshteyn and Lennon (2016) Khairuddin et al. (2016) Knauer and Mann (2020) Krombholz et al. (2017) Nseke (2018)
Usage Barrier	Network effects & Acceptance	Acceptance of cryptocurrencies among businesses and users is low	Alzahrani and Daim (2019) Luther (2016) Presthus and O'Malley (2017)
Risk Barrier	Volatility of Cryptocurrencies	Cryptocurrencies can show very high volatility and low-price stability	Abramova and Böhme (2016) Alzahrani and Daim (2019) Baur et al. (2015) EBA (2014) Eikmanns and Sandner (2015) Krombholz et al. (2017) Nseke (2018) Presthus and O'Malley (2017)
Risk Barrier	Regulation & Legal Status	Cryptocurrencies have mostly no clear legal status, regulation or insurance through governments or banks	Abramova and Böhme (2016) Albayati, Kim, and Rho (2020) Alzahrani and Daim (2019) Al-Amri et al. (2019) Eikmanns and Sandner (2015) Farell (2015) Presthus and O'Malley (2017)
Risk Barrier	Security Issues	Cryptocurrencies have shown to risky due to fraudulent exchanges, hackers, security breaches or self-induced errors	Abramova and Böhme (2016) Baur et al. (2015) EBA (2014) Folkinshteyn and Lennon (2016) Knauer and Mann (2020) Krombholz et al. (2017) Nseke (2018) Presthus and O'Malley (2017)
Image Barrier	Criminal Activities	Usage of Cryptocurrencies in relation to criminal activities such as money laundering and selling or buying drugs	Alzahrani and Daim (2019) Baur et al. (2015) EBA (2014) Karlstrøm (2014) Nseke (2018) Scheben (2021)

Appendix C - Questionnaire

Note: The questionnaire has been translated to English but was published in German.

Figure C1: Introduction



Dear participant,

this survey is part of my master's thesis at the Nova School of Business and Economics.

As part of this master's thesis, the influences of crypto currencies are examined. **All information is voluntary and anonymous** . All data will only be used in the context of this master's thesis and will then be deleted.

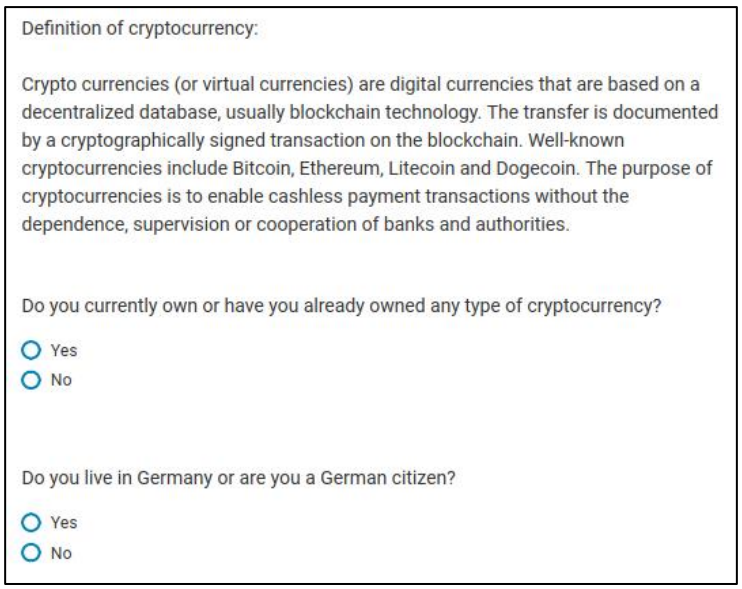
Answering the survey takes **less than 5 minutes.**

Knowledge of crypto currencies is not necessary, the questions only relate to your personal assessments, regardless of your knowledge.
Thanks for your support!

Maximilian Rink

If you have any questions about this investigation, you can contact Maximilian Rink (Maximilian.Rink@novasbe.pt). By choosing "I agree", you indicate that you have read the information above and that you consent to your participation in this study.

○ I agree



Definition of cryptocurrency:

Crypto currencies (or virtual currencies) are digital currencies that are based on a decentralized database, usually blockchain technology. The transfer is documented by a cryptographically signed transaction on the blockchain. Well-known cryptocurrencies include Bitcoin, Ethereum, Litecoin and Dogecoin. The purpose of cryptocurrencies is to enable cashless payment transactions without the dependence, supervision or cooperation of banks and authorities.

Do you currently own or have you already owned any type of cryptocurrency?

○ Yes
○ No

Do you live in Germany or are you a German citizen?

○ Yes
○ No

Figure C2: Knowledge Scale

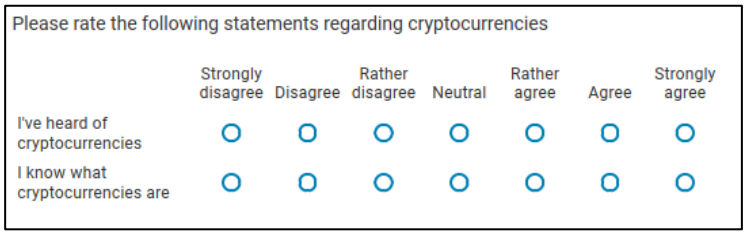


Figure C3: Barrier Measure Scale

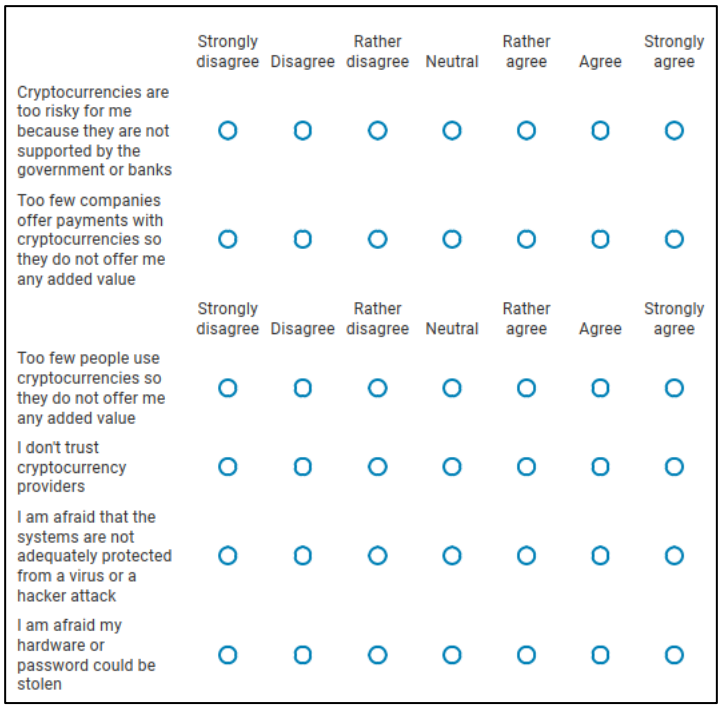


Figure C4: Resistance Scale

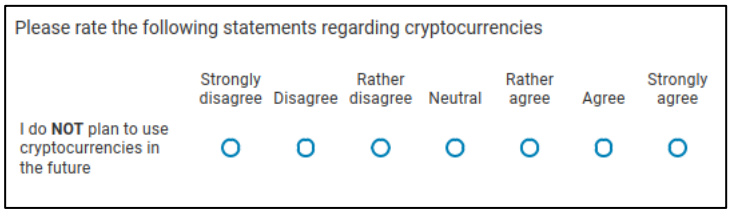
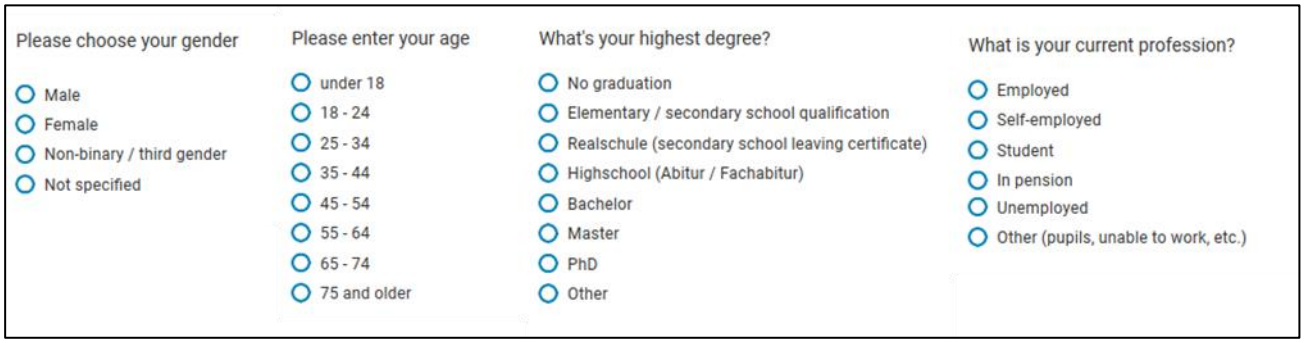


Figure C5: Demographics Questions



Appendix D: Mean and Standard Deviations of Items

Table D1: *Mean and Standard Deviation Table*

Statement	N	Min	Max	Mean	Std. Deviation
I have heard of Cryptocurrencies	205	1	7	6.60	.855
I know what cryptocurrencies are	205	2	7	5.31	1.217
Cryptocurrencies are too complex for me	205	1	7	4.80	1.258
I don't have enough knowledge or experience to deal with cryptocurrencies	205	1	7	5.48	1.477
I think cryptocurrencies are not user-friendly	205	1	7	4.24	1.191
The price fluctuations of cryptocurrencies are too extreme for me	205	1	7	4.97	1.269
I am afraid of losing money due to exchange rate fluctuations	205	2	7	5.28	1.223
In my opinion, cryptocurrencies have a bad image because they can be used for criminal or illegal activities (money laundering, drug deals, etc.)	205	1	7	4.11	1.660
I think the anonymity of cryptocurrencies supports illegal activities	205	1	7	4.59	1.393
I think cryptocurrencies are not regulated enough by regulators	205	1	7	4.49	1.440
I think there is a lack of laws for cryptocurrencies	205	1	7	4.77	1.380
I am concerned that cryptocurrencies could be banned after I have invested money	205	1	7	3.36	1.507
Cryptocurrencies are too risky for me because they are not supported by the government or banks	205	1	7	4.16	1.465
Too few companies offer payments with cryptocurrencies, so they do not offer me any added value	205	1	7	4.69	1.442
Too few people use cryptocurrencies, so they do not offer me any value	205	1	7	4.56	1.422
I don’t trust cryptocurrency providers	205	1	7	4.64	1.447
I am afraid that the systems are not adequately protected from a virus or hacker attack	205	1	7	4.50	1.673
I am afraid my hardware or password could be stolen	205	1	7	4.23	1.600
I do not plan to use cryptocurrencies in the future	205	1	7	4.38	1.850

Appendix E: Cronbach's Alpha coefficients

Table E1: *Cronbach's Alpha coefficient for the Barrier Scale*

Cronbach's Alpha	Number of Items
0.844	**18**

Table E2: *Cronbach's Alpha coefficient for the Usage Barrier Complexity Scale*

Cronbach's Alpha	Number of Items
0.648	**3**

Table E3: *Cronbach's Alpha coefficient for the Usage Barrier Network Scale*

Cronbach's Alpha	Number of Items
0.858	**2**

Table E4: *Cronbach's Alpha coefficient for the Risk Barrier Volatility Scale*

Cronbach's Alpha	Number of Items
0.668	**2**

Table E5: *Cronbach's Alpha coefficient for the Risk Barrier Regulation Scale*

Cronbach's Alpha	Number of Items
0.689	**4**

Table E6: *Cronbach's Alpha coefficient for the Risk Barrier Security Scale*

Cronbach's Alpha	Number of Items
0.844	**3**

Table E7: *Cronbach's Alpha coefficient for the Image Barrier Scale*

Cronbach's Alpha	Number of Items
0.786	**2**

Appendix F: Regression Analyses for the Hypotheses testing

Table F1: *Overall Model Summary for Complexity Usage Barrier (H1)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.395	.156	.152	1.704	.001

Note. Predictors: (Constant), Complexity Usage Barrier

Table F2: *ANOVA for Complexity Usage Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	108.712	1	108.712	37.444	.001
	Residual	589.366	203	2.903		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Complexity Usage Barrier

Table F3: *Coefficients for Complexity Usage Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	.866	.586		1.478	.141
UB_Complexity	.725	.118	.395	6.119	.001

Note. Dependent Variable: Resistance

Table F4: *Overall Model Summary for Network Usage Barrier (H1)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.143	.020	.016	1.835	.041

Note. Predictors: (Constant), Network Usage Barrier

Table F5: *ANOVA for Network Usage Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	14.190	1	14.190	4.212	.041
	Residual	683.888	203	3.369		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Network Usage Barrier

Table F6: *Coefficients for Network Usage Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	3.466	.461		7.513	.001
UB_Network	.197	.096	.143	2.052	.041

Note. Dependent Variable: Resistance

Table F7: *Overall Model Summary for Volatility Risk Barrier (H2)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.282	0.080	.075	1.779	.001

Note. Predictors: (Constant), Volatility Risk Barrier

Table F8: *ANOVA for Volatility Risk Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	55.685	1	55.685	17.597	.001
	Residual	642.393	203	3.164		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Volatility Risk Barrier

Table F9: *Coefficients for Volatility Risk Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	1.898	.604		3.144	.002
RB_Volatility	.484	.115	.282	4.195	.001

Note. Dependent Variable: Resistance

Table F10: *Overall Model Summary for Regulation Risk Barrier (H2)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.362	.131	.127	1.729	.001

Note. Predictors: (Constant), Regulation Risk Barrier

Table F11: *ANOVA for Regulation Risk Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	91.564	1	91.564	30.646	.001
	Residual	606.514	203	2.988		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Regulation Risk Barrier

Table F12: *Coefficients for Regulation Risk Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	1.680	.502		3.347	.001
RB_Regulation	.643	.116	.362	5.546	.001

Note. Dependent Variable: Resistance

Table F13: *Overall Model Summary for Security Risk Barrier (H2)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.504	.254	.250	1.602	.001

Note. Predictors: (Constant), Security Risk Barrier

Table F14: *ANOVA for Security Risk Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	177.021	1	177.021	68.966	.001
	Residual	521.057	203	2.567		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Security Risk Barrier

Table F15: *Coefficients for Security Risk Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	1.361	.380		3.582	.001
RB_Security	.677	.081	.504	8.305	.001

Note. Dependent Variable: Resistance

Table F16: *Overall Model Summary for Image Barrier (H3)*

Variable	*R*	R^2	Adjusted R^2	*SE*	*p*
(Constant)	.272	.074	.070	1.784	.001

Note. Predictors: (Constant), Image Barrier

Table F17: *ANOVA for Image Barrier Predicting Resistance towards Cryptocurrencies*

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	51.766	1	51.776	16.262	.001
	Residual	646.302	203	3.184		
	Total	698.078	204			

Note. Dependent Variable: Resistance
Predictors: (Constant), Image Barrier

Table F18: *Coefficients for Image Barrier Predicting Resistance towards Cryptocurrencies*

Variable	B	*SE* B	β	*t*	*p*
(Constant)	2.800	.410		6.826	.001
IB	.362	.090	.272	4.033	.001

Note. Dependent Variable: Resistance

A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics

THE FUTURE OF GERMAN RETAIL BANKING:
Development of future scenarios & strategic recommendations for traditional German retail banks in 2030

Strategic Planning Field Lab: Group Part

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Work project carried out under the supervision of:
Professor João Silveira Lobo

17-12-2021

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Abstract & Acknowledgements

Abstract
This work project addresses the role of retail banks in Germany in 2030 and provides recommendations to bank managers on how to deal with the future. An in-depth analysis of drivers of change based on primary and secondary research was conducted to build future scenarios. A shift in societal values and the integration of blockchain-based technology were identified as critical uncertainties from which future scenarios were derived. Based on each scenario, strategic short- and long-term options are recommended. Finally, the authors created a set of KPIs for retail banks to monitor the environment and identify which scenario will unfold.

Keywords: Strategy, Strategic Foresight, Scenario Planning, Retail Banking, German Retail Banking,

Acknowledgements
The progress of this project work was supported by several people. We would like to thank Professor João Silveira Lobo for contributing his technical expertise and providing us with a sense of orientation and challenging our work. Our Team also thanks the interviewees for their deep expertise, perspective and time.

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of content

In times of rapid change and critical uncertainty in the German retail banking sector, strategic foresight and scenario planning is vital for building a robust strategy

Problem statement and relevance

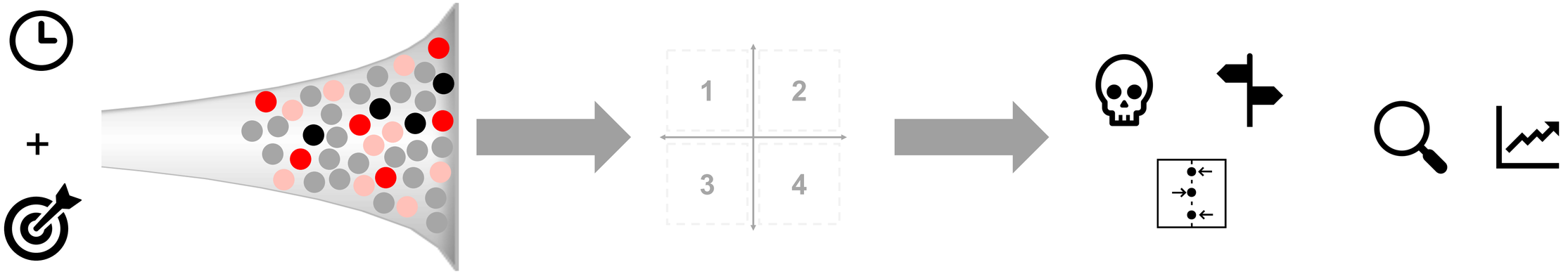
- The retail banking sector in Germany is disrupted by various trends arising from the society, novel technologies, economic change, environmental issues, political shifts and the industry itself.
- In this fast-paced and uncertain environment, traditional retail banks must be prepared to adapt to these drivers of change in the short and long run.
- Scenario planning, based on critical uncertainties with high impact, offers a powerful foresight tool to anticipate prospective trends that will require a transformation of traditional German retail banks.
- Strategic foresight is required to understand future threats and opportunities and derive strategic implications and options.
- In monitoring relevant indicators of change, German retail banks can better predict disruptive forces and transform successfully.

Sources: (1) Appendix A, (2) Appendix B

The intuitive logic school framework (theoretical background) was applied to develop future scenarios for the German retail banking

Applying the intuitive logic school

	Part 1: Scoping & Scanning		Part 2: Scenarios		Part 3: Strategizing	
Steps	Orient	Explore	Synthesize		Act	Monitor



Clarifying the strategic focal issue & the time horizon of the analysis.	Analyzing trends, uncertainties such as wildcards and weak signals.	Identifying the most important drivers of change to derive the two key uncertainties with two configurations each to create four future scenarios for German retail banking.	Building future scenarios to derive threats, opportunities, implications & strategic options for retail banks.	Identifying relevant indicators to monitor the development including early indicators and firm-specific KPIs.

Sources: (1) Bradfield (2008), (2) Amer, Daim and Jetter (2012)

The aim of the report is to provide an in-depth analysis of retail banking in Germany, its transformation until 2030 and recommendations for retail banks

Focal issue / Research question

"How will the retail banking landscape develop in Germany until 2030 and what challenges and strategic opportunities emerge for traditional retail banks?"

Sub-questions on the focal issue:

- How will customer behavior and preferences change?
- How will new entrants change the competitive landscape?
- What are technological challenges and opportunities?
- What strength can banks use to secure their position?

Time Horizon

2030

Why a time horizon up to 2030 was selected:

- ✓ New markets entrants challenge incumbents' operating model and cost-structure
- ✓ Long-time approach for corporations to adapt to altering market conditions is required
- ✓ The pace of technological change and its diffusion increased steadily and is expect to rise even faster
- ✓ Business models are changing and promoting innovation

The trend analysis, scenario planning and the strategic recommendations will only apply to standardized retail banking in Germany

The report refers to the German retail banking industry

- ✓ Retail banking is the standardized retail business with natural, private customers of every bank & small corporates (out of scope for this report).
- ✓ Traditional retail banking must be distinguished from private banking or wealth management (WM).
- ✓ Retail banking includes customers with low or medium wealth/income, while private banking and wealth management focus on wealthy (> €1 Million) or very high-income private households.

In Scope of the report: Retail Banking for individuals

- **Lending and financing business**
  (private financing, consumer loans or mortgages)
- **Passive business / deposit business**
  (savings accounts, current accounts, etc.)
- **Payments**
  (transaction banking, such as transfers, credit cards, etc.)
- **Investment and commission business**
  (Sale of investment products / securities, insurances, etc.)

Out-of-scope of the report

- **Private banking and wealth management**
  (Investment business for high-net-worth-individuals)
- **Asset and fund management**
  (Portfolio management for institutional investors)
- **Investment banking**
  (Advisory-based financial transactions on capital markets)
- **Corporate banking and trade finance**
  (Banking services that are offered to corporates only)

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Sources: (1) Bartmann, Nirschl and Peters (2011)

The German banking sector is based on a “Three-Pillar-System” and special institutions indicating a highly fragmented market with around 1,7k institutes

German banking system

The German banking sector based on a three-pillar universal banking system (& special institutes) differs to many banking industries of developed countries due its high number of individual institutes (around 1,712 in 2019) and high degree of publicly owned banks.

Universal banks

Public / Savings

- Sparkassen (Savings banks)
- Landesbank (State banks)
- Banks are separate entities owned by public institutions
- Public mission is the main goal before making profits

Sparkasse

Cooperative

- Cooperative regional banks
- Genossenschaften
- Local cooperative banks are separate legal entities and owned by depositors
- Retail & commercial banking

DZ BANK, Rabobank, Volksbanken Raiffeisenbanken

Commercial / Private

- Credit banks/Business banks
- Private, regional banks
- Owned by private investors with the goal of profit maximization

ING, COMMERZBANK, Deutsche Bank

Special Institutes

- Mortgage banks
- Special purpose banks
- Central securities depositories, etc.
- Banks fulfilling a special mandate for a certain group

KFW, FONDSDEPOT BANK

Year	Public / Savings 2018	Public / Savings 2019	Cooperative 2018	Cooperative 2019	Commercial / Private 2018	Commercial / Private 2019	Special Institutes 2018	Special Institutes 2019
Banks	392	386	879	845	398	374	114	112
Branches	9,732	9,207	8,955	8,484	7,770	7,633	1,430	1,343

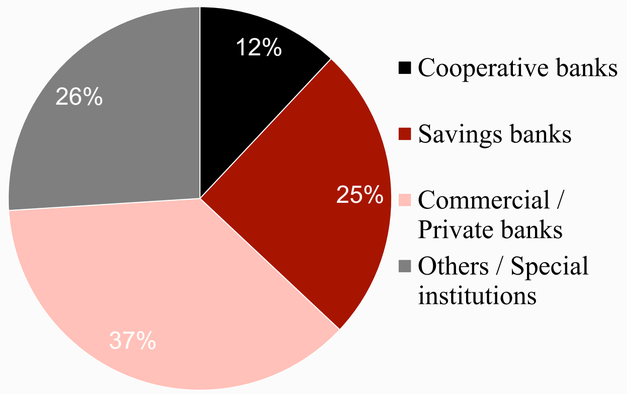
The German banking sector is characterized by a very low market concentration and a progressive consolidation of the market, nearly 40-60 small banks disappear year after year.

Sources: (1) Koch, Flötotto and Weigl (2019), (2) Deutsche Bundesbank (2020)

On a pillar level, the savings banks have the highest market share in German retail banking business, however…

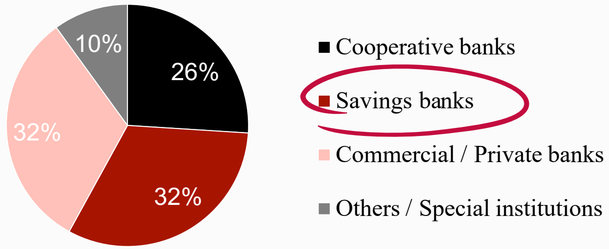
Market shares in banking

Market share across business areas measured by total assets, 2021

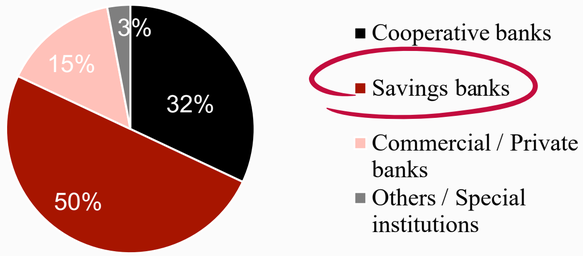


Market shares in retail banking

Retail lending business, 2020



Retail deposit business in 2020



Comment / Explanation

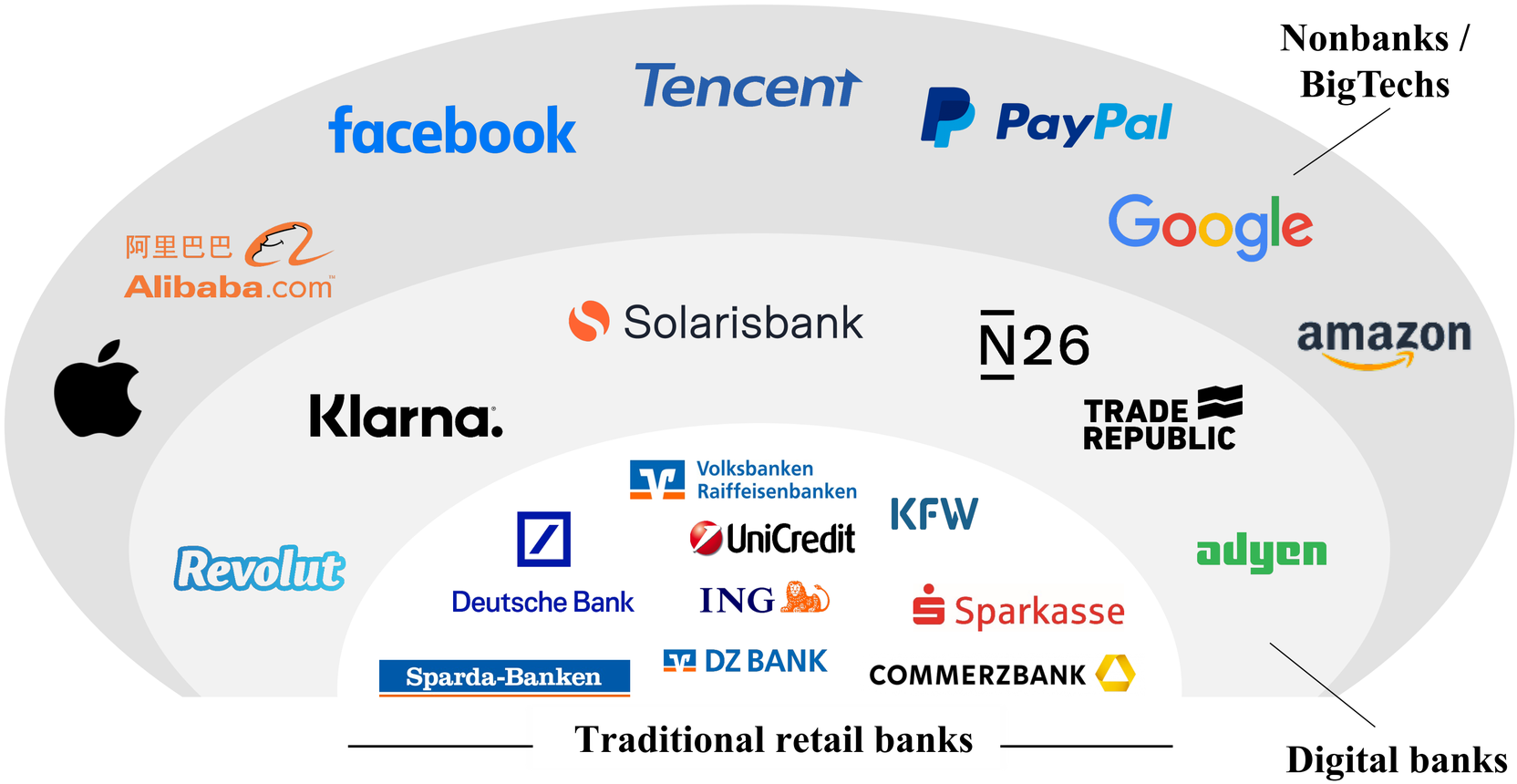
- Considering the balance sheet total assets of all banks **across all business areas** (corporate, investment, retail banking, etc.), the **private commercial banks have the largest market share** with 37%.
- **In retail banking, savings banks lead** with a market share of 32% in lending business and 50% in deposit business.
- At the individual institution level, measured in terms of all assets, **Deutsche Bank is leading** with a market share of approx. 15-16%.
- **The 10 largest competitors** in the German market (all business areas) **account for** a total of **about <50%.** While the remaining share is spread over approx. 1700 institutions.

» The German retail banking market has a high degree of fragmentation and heterogeneity and thus opens opportunities for M&A activities.

Sources: (1) Bundesbank (2021), (2) Flötotto, Koch and Höll 2021, (3) Statista (2021)

…global BigTechs and FinTechs are changing the competitive landscape and pose a threat to German banks – a new “pillar“ is emerging

Competitive landscape



Comment / Explanation

- **Traditional branch banks** and direct banks form **the core of the retail banking market.**
- **New digital-affine competitors such as neobanks are attacking the core,** especially by capturing market share from the digitally affine young customer group.
- **BigTechs and nonbanks enter the market and pose a threat** as they occupy the customer interface and can easily offer banking products to customers within their digital ecosystems.

Sources: (1) Atzler and Maisch (2018), (2) PwC (2020), (3) Bundesbank (2021)

The consolidation of the historically, highly fragmented German banking sector is mainly driven by low profit margins and increasing competition

Reasons for the high market fragmentation

- The **main reason is the three-pillar structure of the German banking** sector and the large number of standalone banking institutions.
- The enormous **number of separate institutions** is **mainly caused by the structure of the cooperative and savings banks.** Both banking groups are organized in small, separate institutions to serve regional and rural customers.
- **Above-average number of German institutions,** in a European comparison, **results in inefficiencies and cost pressure.**

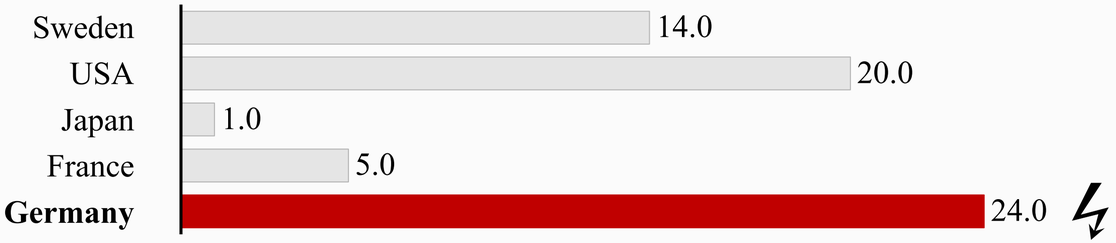
Primary causes for increasing consolidation

Declining revenues and low profit margins in retail banking due to long-lasting low-interest phase and the price war in the market.

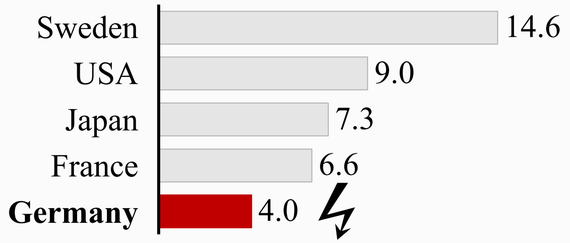
Inefficient organizational structures and processes cause high personnel and administrative costs.

The emergence of new market entrants increases competition as well as the degree of rivalry in the market and triggers a decline in the market share of German banks.

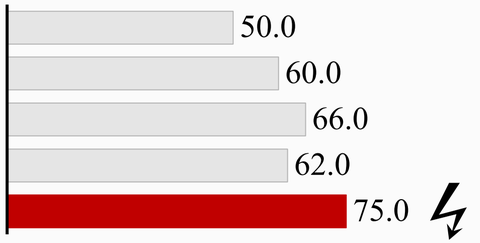
Number of bank institutes per million inhabitants



ROE in % (Average 2014 - 2017)



CIR in % (Average 2014 - 2017)



Although consolidation in the German banking sector has been comparatively slow in the past due to its high stability, this trend is likely to accelerate in the future due to high inefficiencies, increasing competition and pressure on profit margins.

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Sources: (1) Behr and Schmidt (2015), (2) Schmidt (2019), (3) Henisz, Koller and Nuttall (2019)

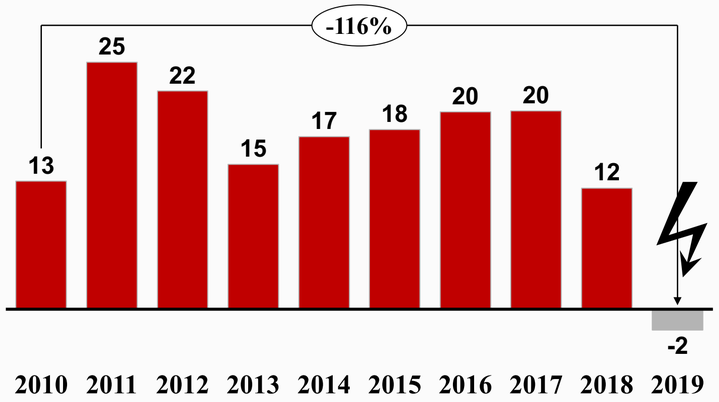
The entire German traditional banking sector, with Deutsche Bank as the largest institution, is confronted with low growth and changing client needs

Key Figures

EUR 28.5 billion, operating income (2019)

+1,9% CAGR (estimated) until 2024

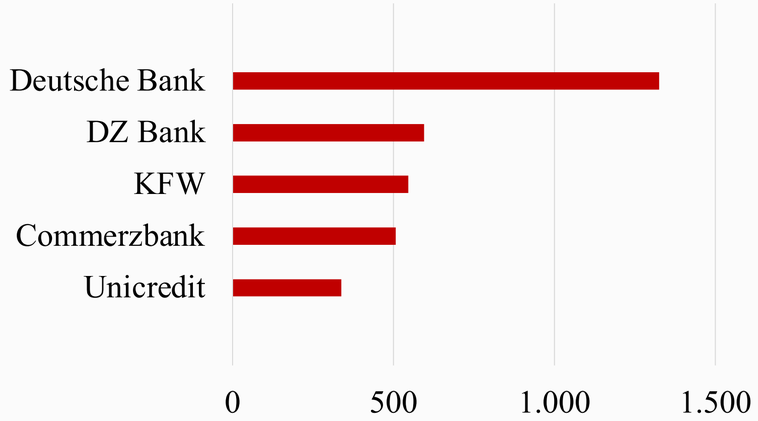
Profit / Loss of German retail banks in EUR bn



1,712 Financial institutions in 2019

Major single players

Top 5 Banks in Germany by total assets (EUR bn)



- **Deutsche Bank** represents the **largest and best-known single bank** in Germany.
- **Savings banks and cooperative banks are barely represented in the ranking for the largest individual institutions**, as the two banking groups (pillar) consist of numerous small stand-alone institutions.

Customer overview

Customer needs are changing significantly

- Banking should be **easily integrated into everyday life** and be transparent.
- Customers demand **financial products with less complexity.**
- Customers prefer using **more mobile and online banking** services.
- Banking services must be **available around the clock** and irrespective of location.
- A smooth and good customer experience of banking products and excellent customer service are required.
- **Sustainable** products are becoming increasingly important for private individuals.

Sources: (1) Statista (2020) (2) PWC (2020), (3) Bankenverband (2021), (4) Deutsche Bundesbank (2021a)

After anaylzing the industry structure, drivers of change & uncertainties have been identified to create plausible scenarios for the future of retail banking

1 **About 35 trends were identified with the STEEP+I Analysis**, categorized in socio-demographics, technological, economic, environmental, political and industry trends.

#	Trend	STEEP+I Category
21	Increasing inflation in the EU, especially in Germany (4%)	Economic
22	Sustainability and Neo-Ecology (ggf. Socio)	Environmental
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		

#	Trend	STEEP+I Category
1	New Work	Socio-demographics
2	Culture of knowledge	Socio-demographics
3	Demographic change – aging of the DACH population	Socio-demographics
4	Gen-Z 1995-1999: Change in values and purchasing habits	Socio-demographics
5	Increasing Need for Security	Socio-demographics
6	Individualization and uniqueness	Socio-demographics
7	Change in gender roles / Gender shift	Socio-demographics
8	Globally growing middle class	Socio-demographics
9	Urbanization	Socio-demographics
10	Declining trust	Socio-demographics
11	Digitalization & Connectivity	Technological
12	Blockchain, Distributed Ledger Theory and Crypto Currencies	Technological
13	Artificial Intelligence	Technological
14	IoT and Web3 – the connection of the world Connectivity	Technological
15	Digitalization decreases human touch and focus business on price	Technological
16	VR and AR	Technological
17	Economical volatility in DACH	Economic
18	High welfare in danger	Economic
20	Low interest rate policy of ECB	Economic

2 **Further drivers of change such as weak signals were identified** and assessed.

#	Type of event	Name	Short Description	References
1	Weak Signal	Some volatility in high governmental stability of Germany	High governmental stability is going to be impacted the departure of Angela Merkel who has been chancellor for over 16 years	CNBC
2	Weak Signal	Blockchain and Ledger technology	Blockchain technology will become widely adapted and replaces banks in all transactional areas	https://www2.deloitte.com/de/de/pages/innovation/contents/how-blockchain-can-change-banking.html
3	Weak Signal	Digitalization and VR	Digitalization and Virtual reality is able to create connections between customers and banks decreasing the need for physical retail banks, eliminating the need for banks and thus pressuring the players to sell of property to stay competitive	https://www.bcg.com/publications/2020/bionic-banking-may-be-the-future-of-banking
4	Weak Signal	Sustainability	ESG and sustainability pushes consumer to just work with banks that engage with companies that are not known negative behavior	https://www2.deloitte.com/content/dam/Deloitte/ng/Documents/strategy/ng-deloitte-west-africa-sustainability-banking-survey.pdf
5	Wild Cards	Dexit	Germany leaves the European Union having similar effects on the economy as in the UK	https://www.euronews.com/2021/04/12/germany
6	Wild Cards	Pandemics	Further pandemics will break out and lead to devastating consequences for society and economy	https://www.sciencedirect.com/science/article/pii/S2590051X20301125
7	Black elephant	Natural crisis	Climate change will worsen and consequently also the effects in Germany: floods, extreme weather and loss of land and resources	https://www.bpb.de/politik/hintergrund-aktuell/

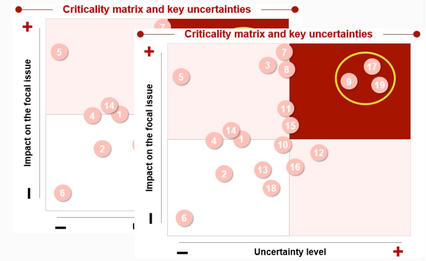
3 Trends, weak signals, wild cards and black elephants were consolidated to drivers of change and evaluated according to their **impact on banking and uncertainty level.**

	Low Uncertainty	Medium Uncertainty	High Uncertainty
High Impact (Dominance)	• Increasing **Individualization** in products and services • Increasing demand for **Cybersecurity** • Continuing **Digital Transformation** boosts Digitalization and Connectivity • Continuing ECB low-interest rate policy • Greater relevance of **Green Finance & ESG**	• Change in values and habits of **Generation Z** • Declining **trust** in well established institutions • Advancements in **Artificial Intelligence** Tech • Evolution of **Internet of Things** Tech • Increasing **inflation** in Germany • Increasing **regulation** in Banking • **Platform Banking** in a Digital Ecosystem	• **Blockchain** and Distributed Ledger Theory • Further integration of the **European Banking Union** • **New entrants** in banking • DeFi and **tokenization** of assets
Medium Impact	• Globally growing **middle class** • Strong **international trade** of Germany	• Upcoming **New Work** measures • Increasing Need for **Security** • Advancements in **Virtual and Augmented Reality** Tech • **Covid-19** aftermaths and economic volatility in GER • **Sustainability** and Neo-Ecology • Furter geopolitical fragmentation in the EU	• **Climate Change** & Increasing likelihood for **natural disasters**
Low Impact	• **Demographic Change** in Germany • Change in **Gender Roles** • Increasing **Urbanization** • Strong impact through **Culture of Knowledge** • Increasing **fiscal policy** measures • Low-profit margins in **lending business**	• Decreasing Co2-pollution in Germany • Increasing Data Protection and Consumer Laws (GDPR) • Shift of political power • **Germany's Fiscal Strategy** to foster digitalization	

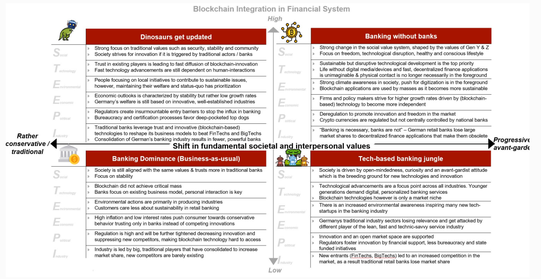
4 The **most uncertain and most impactful drivers were reviewed** as well as evaluated in an uncertainty list.

Uncertainty	
1	Regulatory requirements for new entrants
2	Implementation and acceptance of new work measures (remote)
3	Trust in traditional banks
4	Monetary policy measures in and after the pandemic
5	ESG-Relevance and ecological consciousness
6	Fragmentation of the European Union
7	Development of the product and service portfolio in retail banking
8	Role of the government and the Central Banks (ECB)*
9	**Disruption of new competitors**
10	Shift in geopolitical and economic power of Europe
11	Change of customer needs
12	Frequency of natural disasters
13	Need for security
14	Economical volatility in Germany / DACH
15	Integration of European Banking Union
16	German government
17	**Acceptance of New Technologies (Customers & regulators)**
18	Public wealth

5 The uncertainties were assessed in a criticality matrix and in a consistency matrix to measure relevance and degree of correlation to **identify the key uncertainties.**



6 Based on the identified key uncertainties **four scenarios were built.**



Sources: (1) Bradfield (2008)

The drivers of the German banking industry have been identified by reviewing different sources and challenged by several experts throughout eleven interviews

Literature and news review

- ✓ Review of 200+ relevant sources
- ✓ Identification of more than 70 drivers of change for the German banking industry
- ✓ Derivation of the approximately 50 driving forces that are relevant for retail banking only in Germany

Expert interviews (n=11)

- ✓ VP Strategy, BU Retail Banking, Deutsche Bank
- ✓ Deputy Board Member, Sparkasse and Area Manager, Sparkasse
- ✓ Bank Director, Commerzbank
- ✓ Senior Client Advisor, Deutsche Bank
- ✓ Publisher, Banking Blog Germany
- ✓ Partner, Banking Strategy & Transactions, EY
- ✓ Head of Operations, BHW Bausparkasse AG
- ✓ Managing Director, Commerzbank
- ✓ Area Manager, Sparkasse
- ✓ Manager Financial Services Strategy, KPMG

Secondary research for environmental scanning → **Primary research for validation & generation of new findings**

After collective evaluation and validation by experts, 50 drivers of change were identified that have a clear impact on today's retail banking and on its development up to 2030.

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Sources: Graph by the authors

In the exploration process, 35 relevant trends have been identified…

#	Trend	STEEP+I Category
1	Upcoming New Work measures and initiatives	Socio-demographic
2	Culture of Knowledge	Socio-demographic
3	Demographic change and aging German population	Socio-demographic
4	Gen-Z: Change in values and purchasing habits	Socio-demographic
5	Increasing Need for Security	Socio-demographic
6	Increasing Individualization and Personalization of products	Socio-demographic
7	Change in gender roles	Socio-demographic
8	Globally growing middle class	Socio-demographic
9	Increasing Urbanization	Socio-demographic
10	Connectivity and Digital Transformation	Technological
11	Blockchain, Distributed Ledger Theory	Technological
12	Advancements in Artificial Intelligence Technology	Technological
13	IoT and Web3	Technological
14	Increasing demand for Cybersecurity	Technological
15	VR and AR	Technological
16	Covid-19 and economical volatility in D(ACH)	Economic
17	Low interest rate policy of ECB	Economic
18	Increasing inflation in Germany	Economic

#	Trend	STEEP+I Category
19	Strong international trade of Germany	Economic
20	Sustainability and Neo-Ecology	Environmental
21	Climate change & increasing natural disasters	Environmental
22	Decreasing Co2-pollution in DACH / Germany	Environmental
23	Green Finance & ESG	Environmental
24	CO2-Neutrality in 2050	Environmental
25	German strategy to foster digitization & innovation	Political
26	Shift of political power	Political
27	Increasing fiscal policy measures	Political
28	Data Protection and Consumer Laws (GDPR)	Political
29	Geopolitical fragmentation in Europe	Political
30	Increasing regulation in Banking	Political
31	Further integration of the European Banking Union	Industry
32	Platform Banking in a Digital Ecosystem	Industry
33	New entrants in banking	Industry
34	Low-profit margins in lending business	Industry
35	Decentraliced Finance (DeFi) & tokenization	Industry

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Sources: Appendix B

…along with 15 uncertain events, that build a total of 50 drivers of change that are relevant on German retail banking and the initial focal issue

#	Type of event	Name / Description
1	Weak Signal	Some volatility in high governmental stability of Germany
2	Weak Signal	Decentralized finance is revolutionizing the financial world
3	Weak Signal	N26 customer growth limited by BaFin imposed customer cap
4	Weak Signal	Sustainability meets regulation in banking: Banks need Basel V to fight climate risks
5	Weak Signal	Declining trust in well-established institutions vs. more trust in traditional institutes compared to trust in new players
6	Weak Signal	Digital Euro Market Advisory Group is announced by ECB
7	Weak Signal	Bundesbank warns banks of competition from big tech
8	Weak Signal	“Germans want inexpensive account with easy online and mobile banking”
9	Weak Signal	ECB leaves monetary policy measures unchanged despite increase of Germans’ inflation rate to 4.5%
10	Weak Signal	Decentralized Finance: Interest on Bitcoin and Co. - Crypto Lenders attract customers
11	Weak Signal	Social network: cryptocurrency Libra: All against Facebook
12	Weak Signal	Germany's Economy is hurt by supply chain shortages due to the tension between the Western world and china
13	Wild Cards	“Dexit” – Germany leaves the European (Banking) Union
14	Wild Cards	New pandemic or return of Covid-19 pandemic due to new mutants
15	Black elephant	Natural crisis / disasters such as flooding in Germany

Sources: Appendix B

The most important drivers of change in retail banking refer to technological advancements, customer values & new entrants reshaping the competitive environment

High impact (Dominance)	• Increasing **individualization** in products and services • Increasing demand for **cybersecurity** • Continuing **digital transformation** boosts digitalization and global connectivity • Continuing **ECB low-interest rate policy and thus low profit margins for banks** • Greater relevance of **green finance & ESG**	• Change in values and habits of **generation Z** • **Level of trust** in well-established institutions • Advancements in **artificial intelligence** • **Covid-19** aftermaths and economic volatility in Germany • Increasing **regulation** in banking • **Platform banking** and digital ecosystems • **New entrants** in banking	• **Blockchain** and distributed ledger approaches • Further integration of the **European Banking Union** • DeFi and **tokenization** of assets • Societal **value shift**
Medium impact	• Upcoming **new work** approaches and measures • Strong **international trade** of Germany • **Demographic change** in Germany and migration to Germany • Globally **growing middle class** • **Increasing data protection** and new consumer laws (GDPR)	• Increasing need for **security** • **Sustainability** and neo-ecology • Further geopolitical fragmentation in **EU** • Increasing **inflation** in Germany • **Internet of things (IoT) and Web3** • **Climate change** & increasing natural disasters • **Shift of political power**	• **Diffusion of ecological behaviour** • **Strongly increasing** likelihood for **natural disasters** • **"Dexit"** – Germany leaves the European (Banking) Union • **New pandemic** or return of Covid-19 pandemic due to new mutants of the virus
Low impact	• Change in **gender roles** • Increasing **urbanization** • Strong impact through **culture of knowledge** • Increasing **fiscal policy** measures	• **Decreasing Co2-pollution** in Germany • **Germany's fiscal strategy** to foster digitalization • Advancements in **virtual & augmented reality**	
	Low uncertainty	**Medium uncertainty**	**High uncertainty**

Drivers of change that are **highly relevant** but might be **uncertain** to happen

Drivers of change that are **more certain** and **(substantially) affect** the retail banking industry

Drivers of change that are **less relevant** for the retail banking industry

Sources: Appendix B

While there is an increasing demand for security in society, it is not yet clear how the values of new generations will change retail banking

Cybersecurity

- Cybersecurity describes measures to protect people and institutions from criminal, i.e., unauthorized access to and use of data.
- The purpose of cybersecurity is to **protect digital banking customer's personal data and assets.**
- With increasing use of online services, 74% of financial institutions experience an **increase in cybercrime since the pandemic.**
- Recorded cybercrime attacks increased by 8% in 2020 in Germany.

➢ Therefore, **cybersecurity in digital banking is increasing in relevance** and impacts retail banking as a fundamental measure of trust and a hygiene factor in the market.

Impact on Banking

Uncertainty level Low x Medium High

Fundamental societal value shift

- Many changes are occurring in German society related to high migration, urbanization and generational change.
- The **demands and needs of young customers in particular will shape retail banking**, as they have been born into a digitized world and thus expect fast, immediate and personalized services
- Gen Z has a strong drive for freedom, individualism and is involved in sustainability and societal issues.
- 88% of Generation Z prefer omnichannel experiences .

➢ Traditional banks face **the challenge of recognizing changing customer needs and adapting their services to the new generations without ignoring the needs of the other generations**. The exact development and expression of values is uncertain and difficult to predict over a long period of time in such a fast-moving world.

Impact on Banking

Uncertainty level Low Medium x High x

Sources: (1) Craigen, Diakun-Thibault and Purse (2014), (2) Haigh & Grantham (2021), (3) Bundeskriminalamt (2020), (4) IBM Institute for Business Value (2021), (5) Francis and Hoefel (2018), Appendix B

Digitization will impact the industry and provide several opportunities, but the development of decentralized blockchain-based systems remains uncertain

Digital and technological Transformation

- The digitalization also known as 4th industrialization stands for the digital transformation of societies, companies, etc. to **create more value or reduce costs by adopting digital technology** such as AI or IoT.
- Digital technologies affect every industry and can **benefit the banking industry** by enhancing user experience, improving performance and reducing costs.
- From 2018 to 2021 global banks' IT budgets increased by 14% up to $297 billion reflecting **investments in IoT technologies.**

➢ For retail banks to realize the potential of digital and technological innovation, change is needed. The **transformation strongly impacts the banks' infrastructure and workforce. However, adaptation is inevitable** to survive against new, tech-savvy competitors.

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Blockchain and Decentralized Finance (DeFi)

- The objective of DeFi is to create an **alternative financial system** that is fully decentralized, censorship-free & fully automated at low costs.
- The **main area of application so far is cryptocurrencies and thus the storage of value.** However, real estate can also be tokenized and moved onto the blockchain in the form of security tokens to decentralize properties and make them accessible to the broad community.
- DeFi is experiencing a surge, the total **market for crypto currencies has risen by 675% in one year** to approx. $2,2 trillion in September 2021.

➢ Blockchain technologies such as DeFi applications could have an **increasing impact on retail banking**, as decentralization and the consensus mechanism can provide access to the financial market for any person without the need for banks as intermediary.

Impact on Banking

Uncertainty level Low [ ] Medium [ ] High [x]

Sources: (1) Schildbach and Schneider (2019), (2) Wortmann and Flüchter (2015), (3) Meola (2018), (4) Deloitte (2017), (5) CoinMarketCap (2021), Appendix B

Economical volatility and low interest rate policy are increasing pressure on margins and have the potential to impact the profitability of banks

Covid-19 and economical volatility in Germany

- The Covid-19 pandemic arising in 2019 / 2020 had an immense impact on the markets with a clear **setback in 2020** (-4.1% economic growth in Germany, 2020) due to several lockdowns of the society and economic activities.
- In 2021, a comeback of the economic power is recognizable, caused by the increasing consumption rate of private households, vaccination progress, and the strong fiscal policy measures.
- Therefore, **economic growth is expected to be strong** in the next two years reaching 3.3% in 2021 and further growing up to 4.4% in 2022.

➢ However, economical uncertainties remain and impact banks through reduced investments and loan defaults which **depresses banking profits.**

Impact on Banking

Uncertainty level Low ☐ Medium ☒ High ☐

Low interest rate policy of ECB

- The European Central Bank (ECB) is pursuing a **strongly expansive monetary policy since** the global economic crisis of 07/08 to stimulate the domestic economy and encourage consumption and investment.
- Further, to reduce the negative economic consequences due to the Covid-19 pandemic the ECB has flooded the market with of 1.85 trillion euros in a **pandemic purchase program.**
- The main goal is to bring inflation, which was low until recently, to a long-term level of close to 2%. In 2021 and 2022, however, the ECB also **must deal with short-term, fluctuating and rising inflation**.

➢ **ECB policy has been impacting banks' profitability significantly** for years, as interest margins in the traditional lending and deposit business of retail banks have suffered and risks in the loan portfolio are increasing.

Impact on Banking

Uncertainty level Low ☒ Medium ☐ High ☐

Sources: (1) Deutsche Bundesbank (2021), (2) European Central Bank (2021), (3) Göpfert (2021), Appendix B

The trends neo-ecology and climate change do not stop at the banking sector - retail banks must take an active role to tackle this challenge as soon as possible

Neo-ecology

- With **increased awareness of environmental issues**, sustainability, nature, and social justice are becoming central to the values of global society.
- **Neo-ecology extends to many areas of daily life**, from lifestyle to consumer behavior to social activities, and fundamentally realigns individual, organizational, and governmental actions.
- Since the Covid-19 pandemic, society has become more concerned than ever about environmental issues and sustainability.

➢ Instead of focusing primarily on growth and profit maximization, tomorrow's banks are expected to **contribute to environmental sustainability, long-term growth and the common welfare.**

Impact on Banking

Uncertainty level Low ☐ Medium ☒ High ☐

Green finance and ESG

- In 2021, Germany introduced its first s**ustainable finance** strategy to address climate risks to the financial system and invest in climate mitigation measures.
- With countries raising capital for sustainable development, a **growth in ESG investment is recognizable.**
- People perceive green financing as more reliable and morally acceptable, making it more aligned with their personal preferences.
- Banks need to take this trend seriously and offer sustainable products to meet changing customer needs. Furthermore, **German banks should align their business model with ESG goals** or even consider this as a source of competitive advantage.

Impact on Banking

Uncertainty level Low ☒ Medium ☐ High ☐

Sources: (1) Zukunftsinstitut (2021), (2) BCG (2020), (3) Umwelt Bundesamt (2020), (4) Jeucken (2004), (5) Rooney (2021), (6) Withold, Koller and Nuttall (2019), Appendix B

German banks will continue to face major regulatory hurdles in the future - in addition, the geopolitical situation & power may change to an unknown extent

Shift in geopolitical power

- With the rapid rise of China, **political power is shifting eastwards** and a new social, political and economic system is competing with established democracies.
- The **lack of unity within the western democracies** and the perplexity in dealing with new players weaken the own position.
- However, the final course in which the political orientation will develop by 2030 is still unclear.

➢ **German banks need to consider the consequences of shifts in power** and the associated risk of foreign banks entering the market.

Impact on Banking	Uncertainty level	Low	Medium	High
			x	

Regulation in banking

- The banking industry is one of the most regulated sectors due to its high impact on global economies.
- In the last years, **many new regulations came into force**, such as money laundering and terrorist financing regulations.
- As digitalization progresses, increasing importance is also being placed on banks' IT and their cybersecurity regulation.

➢ **Increasing regulation burdens the flexibility and profitability of banks**. Banks have to spend significant amounts of time and effort to implement the regulations on time, meaning that important topics such as digital transformation are pushed aside to ensure legal compliance.

Impact on Banking	Uncertainty level	Low	Medium	High
		x		

Sources: (1) Stephen (2014), (2) European Commission (2021), (3) Center for Global Studies (2021), (4) Krah (2017), (5) Jendro (2020), Appendix B

New market players are entering the European banking sector, and the development of the banking union remains unclear

New entrants

- Digital transformation and the shift towards a platform or even a decentralized economy as well as changing customer needs are **reshaping the competitive landscape.**
- **New entrants target younger generations** (Y and Z) by focusing on mobile and online banking applications only.
- Global technology companies (BigTechs) such as **Google, Apple, Amazon capture market share** by occupying the digital customer interface through their digital ecosystems.
- New start-ups and FinTechs specialized in certain parts of the customer journey, for example payment transactions or credit business, challenge banks relevance.

➢ Banks will be impacted by increased competition and **threatened by new entrants with different services and products.**

Impact on Banking 

Uncertainty level Low [ ] Medium [x] High [x]

Banking Union

- The banking union of the EU **serves to oversee the market at an EU level** in the EU member states, it is comprised of national authorities and the European Central Bank.
- It is as a **guiding entity aiming at more stability, transparency and unification.**
- Given the global financial crisis in 2007/2008 as well as the current pandemic, **new regulations and stricter supervision** have been introduced to increase bank resilience, and regulations on ESG.

➢ The impact of The European Banking Union is not negligible. It can introduce unforeseen regulatory, legal changes that German banks would have to implement in a timely manner.

Impact on Banking 

Uncertainty level Low [ ] Medium [x] High [x]

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Sources: (1) Oliver Wyman (2021), (2) Leichsenring (2020), (3) European Central Bank (2020), (4) Europäisches Parlament (2021), Appendix B

In the context of scenario planning, the derivation of key uncertainties is essential to develop plausible, consistent and distinct scenarios

Context of uncertainties in scenario planning

1. **Strategic foresight** and **scenario planning assists companies to identify and model key drivers** and **uncertainties** to develop possible, consistent and distinctive scenarios in a structured way.

2. **Scenarios help to make assumptions about the future,** since the future is unpredictable due to uncertainties and market volatility. However, individual scenarios will not reflect the future 1:1.

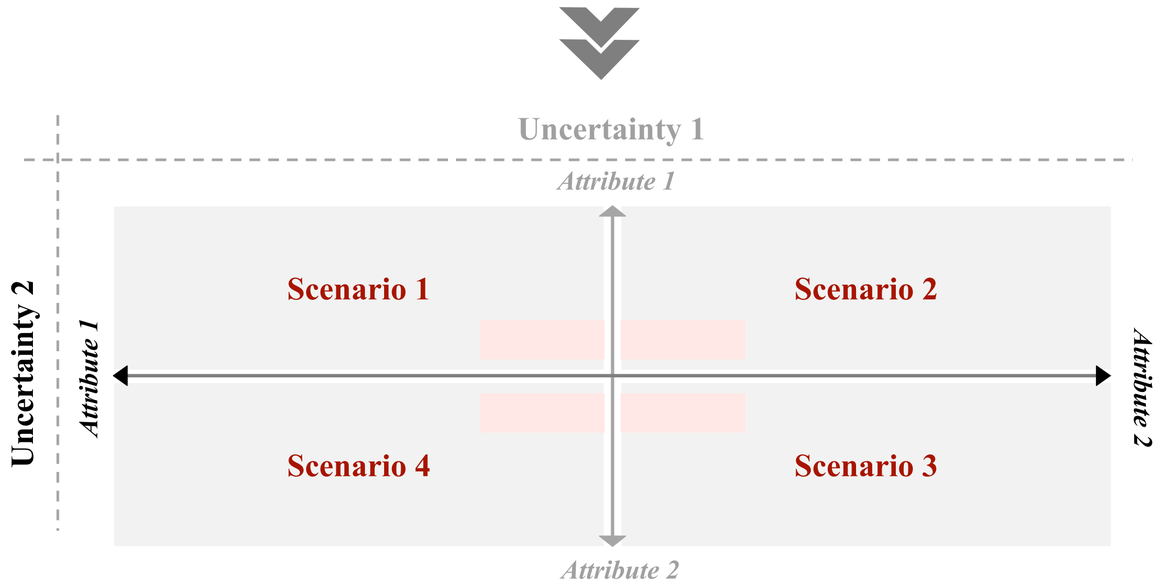
3. **Uncertainties** in the context of scenario planning increase as we look further into the future and **are essential because their course cannot be predicted** compared to the development of trends and megatrends.

4. **Key uncertainties form the basis for deriving future scenarios** and lay the foundation for the reasoning logic.

Building scenarios based on uncertainties

After deriving important uncertainties from drivers of change of an industry, two key uncertainties will be defined. Each of these represents an axis with two different attributes.

Based on this 2x2 matrix, four future scenarios can be derived according to the approach of the Intuitive Logic School.



Sources: (1) Ramirez and Wilkinson (2013)

Eighteen uncertainties with two configurations each have been derived from the drivers of change of the retail banking industry in Germany

	Uncertainty	Configuration 1		Configuration 2
1	Regulatory requirements for new entrants	High		Low
2	Implementation and acceptance of new work measures (remote)	High		Low
3	Trust in traditional banks	High		Low
4	Monetary policy measures in and after the pandemic	Expansive		Restrictive
5	Diffusion of ecological behaviour (ESG relevance)	Slow		Fast
6	Fragmentation of the European Union	Fragmented		Integrated
7	Development of the product and service portfolio in retail banking	Separated		As-is / Integrated
8	Role of the government and central banks (Regulatory)	Liberal		Restrictive
9	Disruption of new entrants (competition in the market)	Highly disruptive		Slightly disruptive
10	Shift in geopolitical and economic power of Europe	Strong Europe		Weak Europe
11	Change of customer needs	Highly individualized		Standardized
12	Frequency of natural disasters	Frequent		Rare
13	Need for security	High		Low
14	Economical volatility in Germany	High		Low
15	Integration of European Banking Union	Highly integrated		Slightly integrated
16	German government	Left wing		Right wing
17	**Blockchain integration in the financial system**	**High**		**Low**
18	**Fundamental shift in societal and interpersonal values**	**Conservative / traditional**		**Progressive / Avant-garde**

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Sources: Graph by the authors

The identified uncertainties have been assessed based on two overarching criteria, 1) the level of uncertainty and 2) the potential impact on retail banking

Level of Uncertainty

Course of direction
That is the spectrum of possible outcomes such as the direction of German political landscape ranging from left to right

Probability of occurrence
Refers to the estimated probability of the event taking place

Speed of adoption
Describes the time factor of change, e.g., the adoption speed of technology or regulatory implementation

Frequency of occurrence based on historical events
Historical data enables predictions about the occurrence of events in the future e.g.: natural disasters

Potential Impact

Impact on industrial landscape
Assessment of factors that influence the industry such as market form, market share and level of fragmentation

Impact on the business and operating model
That are factors that directly impact the business and operating model of a company such as sales and growth projections

Impact on customer needs, preference and retention
Refers to the influence on and by customers such as acceptance of new technology and need for security

Impact on P&L, investments and cost structure
That is how factors such as profit development, required investments in technologies or infrastructure change in response

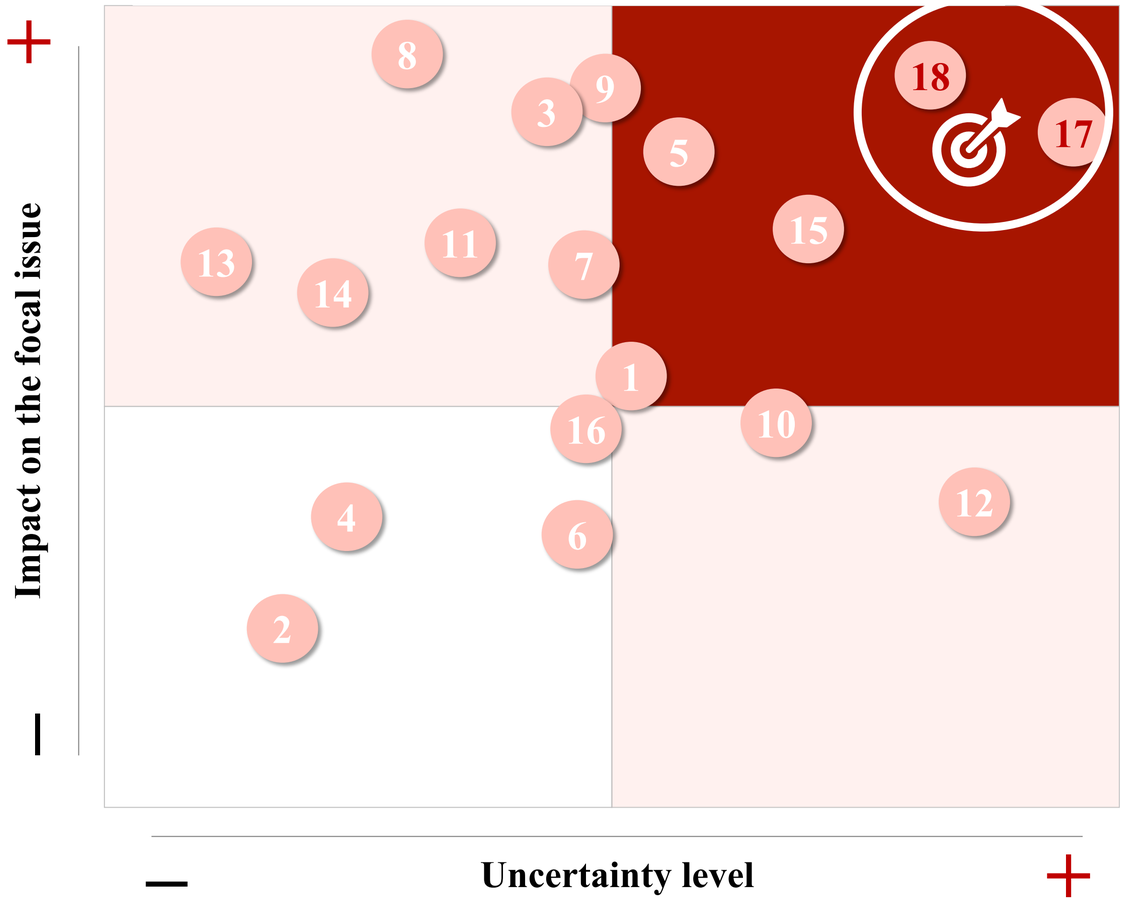
Sources: (1) Wright, Bradfield and Cairns (2012)

Applying the criticality matrix, two key uncertainties with a particularly high impact on retail banking and high degree of uncertainty have been evaluated

List of uncertainties

	Uncertainty
1	Regulatory requirements for new entrants
2	Implementation and acceptance of new work measures (remote)
3	Trust in traditional banks
4	Monetary policy measures in and after the pandemic
5	Diffusion of ecological behaviour (ESG relevance)
6	Fragmentation of the European Union
7	Development of the product and service portfolio in retail banking
8	Role of the government and central banks (Regulatory)
9	Disruption of new entrants (competition in the market)
10	Shift in geopolitical and economic power of Europe
11	Change of customer needs
12	Frequency of natural disasters
13	Need for security
14	Economical volatility in Germany
15	Integration of European Banking Union
16	German government
17	**Blockchain integration in the financial system**
18	**Fundamental shift in societal and interpersonal values**

Criticality matrix and key uncertainties



Sources: Graph by the authors

The following four scenarios were developed based on the intersection of a technological and socio-demographic key uncertainty

Why is a socio-demographic uncertainty relevant?

- Individuals are shaped by values, belief systems, and social conventions, as is society.
- The course of society is unpredictable and therefore highly uncertain, but powerful and influential as it determines individual behavior.
- The individual behavior of retail bank customers determines which financial products and services will be consumed in the future and how.
- In society, there is a large discrepancy between social values, both between generations and within generations.

Shift in fundamental, societal and interpersonal values

Why is a technological uncertainty relevant?

- Technology will be vital and powerful for most industries in the future.
- Banking is dependent on information systems at its core, making a technological axis essential.
- Blockchain has the power to transform the existing centralized banking system.
- The progress of Blockchain technology development, integration, diffusion and adoption are highly uncertain.

Blockchain integration in the financial system

Sources: Appendix B

The socio-demographic axis: A fundamental change in social values would strongly impact the role that people want banks to play and its product portfolio

Conservative, traditional ← → **Progressive, avant-garde**

Consumers stick to current values

Customers **are very conservative** and **trust traditional companies** more than any other new, innovative competitor. They keep their money with established players as their **need for security is high** and they are **very cautious. Personal contact is still the preferred way** as human interactions are seen as more **pragmatic** than digital ones which rather scare them off. **They are rather change averse** and thus keep things as they are.

Changed values, aligned with Gen Z

Customers still want security, but value innovation over trust. **Technological affinity is high** and thus people are willing to **engage with new business models** in the banking and are **always open to new technology.** People **prefer to engage virtually and via apps.** Consumers **expect fast processes** and **enjoy the convenience of mobile connectivity.** Further, **sustainability is inseparable from any decision.**

Sources: Appendix B

The technological axis: If Blockchain becomes more integrated, the competitive landscape of the retail banking industry might change fundamentally

High

Low

Integration of blockchain is high

Regulations only marginally affect the technology, and **banks are open to integrate blockchain technology** into their business model due to its high efficiency, advancements and transparency. On the other hand, new competitors can join the market as the **barriers to entry are lower**. These include not only players that are focused on financial services but also competition from other areas, such as commodities, as these do not have to rely on banks anymore for safe transactions. **Theoretically, the bank as an intermediary is no longer necessary,** practically it depends on customer adoption and the benefits of technology. Cryptocurrencies are still regulated but not wholly controlled by banks.

Integration of blockchain is low

Blockchain **stays a niche product for professionals** and is not widely accepted as advantages do not prevail. For regular consumers blockchain technology is still not offered by known players and **thus seems to be risky and is simply not efficient**. There are still competitors joining the market offering differentiated products in that niche but are not able to compete with the traditional banks as the concept is **not mature enough and thus not scalable**, also due to **high regulation**. Banks rather focus on their current services as well as digitalization and customer service instead of focusing on blockchain. **Banks are still essential intermediaries for banking functions**.

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Sources: Appendix B

Four future scenarios of the German retail banking industry were created, based on two key uncertainties

Blockchain Integration in Financial System

High

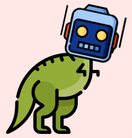
Shift in fundamental societal and interpersonal values

Conservative / traditional

Progressive avant-garde

1 Dinosaurs get updated

"Dinosaurs get updated" describes the innovation-driven transformation of traditional retail banks to integrate blockchain technology. Incumbents bridge this innovation gap by acquiring FinTechs and technological upskilling. Banks will survive because people recognize the benefits of blockchain. However, consumers only trust traditional institutions in this context.



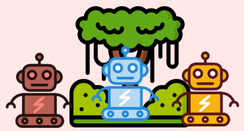
2 Banking without banks

In the "Banking without Banks" scenario, the conventional financial system is revolutionized by Decentralized Finance and blockchain-based applications. Consumers drive for technological disruption, are highly adoptive to blockchain and manage transactions via their digital wallets. Consequently, DeFi providers try to squeeze banks out of the market.

4 Banking Dominance (Business-as-usual)

"Banking as usual" describes the current status of the banking sector. Values and world views did not change. Blockchain is not widely used because it is neither trusted enough nor widely offered by traditional players and therefore is only valued by a small number of professionals. Traditional banks will secure their position and retain the highest market share.

3 Tech-based banking jungle



In this scenario, many innovative, tech-based players have entered the market. Blockchain could not succeed as a scalable or sustainable technology. Consumer demands are centered on digital and personalized banking services between which they choose flexibly. The market is crowded, and traditional banks lose market share as innovation and new differentiating factors are necessary.

Low

Sources: Graphs and narratives by the authors

Blockchain Integration in Financial System

High

Shift in fundamental societal and interpersonal values

Conservative / traditional — *Progressive avant-garde*

Low

Dinosaurs get updated

Social	» Strong focus on traditional values such as security, stability and community » Society strives for innovation if it is triggered by traditional actors
Technology	» Trust in existing players is leading to fast diffusion of blockchain-innovation » Fast technology advancements are still dependent on human-interactions
Environmental	» People focusing on local initiatives to contribute to sustainable issues, however, maintaining their welfare and status-quo has prioritization
Economic	» Economic outlooks is characterized by stability but rather low growth rates » Germany's welfare is still based on innovative, well-established industries
Political	» Regulators create insurmountable entry barriers to stop the influx in banking » Bureaucracy and certification processes favor deep-pocketed top dogs
Industry	» Traditional banks leverage trust and innovative (blockchain-based) technologies to reshape its business models to beat FinTechs and BigTechs » Consolidation of German's banking industry results in fewer, more powerful banks

Banking without banks

Social	» Strong change in the social value system, shaped by the values of Gen Y and Z » Focus on freedom, technological disruption, healthy and conscious lifestyle
Technology	» Sustainable but disruptive technological development is the top priority » Life without digital devices and fast, decentralized finance applications is unimaginable and physical contact is no longer necessarily in the foreground
Environmental	» Strong climate awareness in society but drive for digitization is in the spotlight » Blockchain applications are used by masses as it becomes more sustainable
Economic	» Firms and policy makers strive for higher growth rates driven by (blockchain-based) technology to become more independent
Political	» Deregulation to promote innovation and freedom in the market » Crypto currencies are regulated but not centrally controlled by national banks
Industry	» German retail banks lose large market shares to decentralized finance applications that make them obsolete

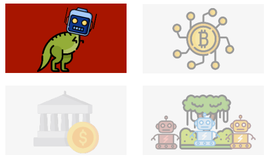
Banking Dominance (Business-as-usual)

Social	» Society is still guided by the same values and trusts rather the traditional banks » Focus on stability and security
Technology	» Blockchain did not achieve critical mass since as it lacks in trust » Banks focus on existing business models, personal interaction remains the key
Environmental	» Environmental actions are primarily in producing industries » Customers care less about sustainability in retail banking
Economic	» High inflation and low interest rates push consumer towards conservative behavior trusting only in banks instead of competing innovations
Political	» Regulation is high and will be further tightened decreasing innovation and suppressing new competitors, making blockchain technology hard to access
Industry	» Industry is led by big, traditional players that have consolidated to increase market share, new competitors are barely existing

Tech-based banking jungle

Social	» Society is driven by open-mindedness, curiosity and an avant-gardist attitude which is the breeding ground for new technologies and innovation
Technology	» Technological advancements are a focus point across all industries if it creates higher value. Younger generations demand digital, personalized banking services » Blockchain technologies, however, is only a market niche, as it could not be scaled
Environmental	» There is an increased environmental awareness inspiring many new tech-startups in the banking industry
Economic	» Germany's traditional industries become less important and are attacked by various players in the lean, fast and tech-savvy service sector
Political	» Innovation and an open market space are promoted by the government » Regulators foster innovation, less bureaucracy and state funded initiatives
Industry	» New entrants (FinTechs, BigTechs) lead to an increased competition in the market, as a result traditional retail banks lose market share

Sources: Graphs and narratives by the authors

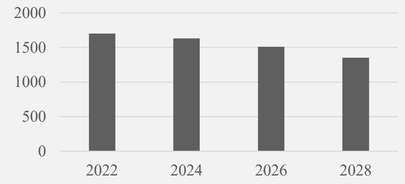


In the “Dinosaurs get updated" scenario, traditional banks are the winners of digital transformation as they combine new tech and blockchain services with their credibility

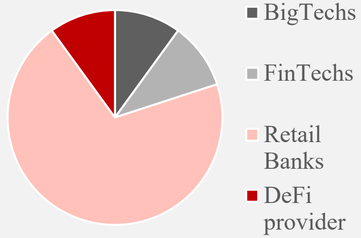
DATA ASSUMPTIONS

New technologies are adopted but need strong and trustworthy institutions in the background

Number of retail banks are decreasing but German banking landscape remains its diversified characteristics



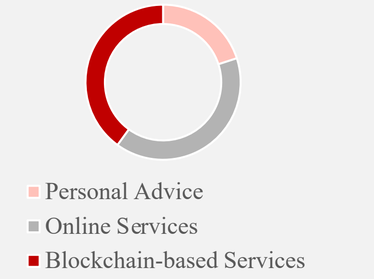
Retail banks are the most relevant players in the market



Trusted players have a strong standing but are dependent on decentralized Blockchain technology

Direct contact and trustful relationships remain as relevant as new technological services

There is a balanced mix of banking services in the market



Traditional banks upgrade themselves by swallowing tech-savvy market entrants

Crypto will be the main payment method but banks are the main service provider

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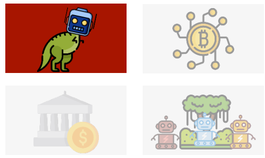
Sources: Graphs and narratives by the authors



Regulators create high barriers of entry; new competitors can hardly survive making it easier for traditional banks to keep their market share

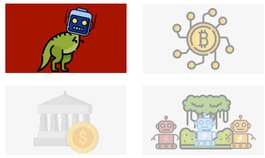
Industry and macro environment

- Technological progress is proceeding and technologies such as blockchain are spreading but only driven by conventional, trustworthy institutions as conservative and traditional values are widely embedded in society.
- Market consolidation slowly continues due to the pressure on banks' profits.
- Innovative niche players try to enter the market with technological advances but cannot attract enough customers to achieve network effects. Therefore tech-savvy market entrants get acquired by traditional players, leading to unprecedented knowledge transfer.
- Along with the consolidation, banks are gradually closing physical stores but invest in banking hubs where the traditional branch bank is translated into the digital era as physical consulting remains essential.
- In the long-term only the large German banks prevail due to the unfavorable conditions in terms of high entry barriers for new players, and strong rivalry.
- The regular retail bank is still necessary and cannot be replaced by new competitors that promote only decentralized finance solutions. Nevertheless, blockchain will be anchored in the financial system. Banks will leverage the technology to make their business models more resilient, establish new transaction systems, and develop new, innovative products.

Regulatory landscape

- Regulators can barely cope with speed of technological advancements.
- Regulation and compliance aim to impose high barriers to entry - favoring traditional banks that already know how to deal with bureaucracy.
- Regulators intend to introduce cryptocurrency as legitimate payment method.
- The banking sector retains its current structures and remains strongly regulated but is regularly modernizing itself.

Sources: Graphs and narratives by the authors



The attitude of banks and consumers finance and blockchain is relatively conservative, but technological progress and its benefits cannot be ignored

People / Consumer and their values

Conservative in a digital era

- ✓ Self-reliant and benefit-oriented
- ✓ Acknowledge technical progress
- ✓ Family and community centric
- ✓ Favor interpersonal contact

- Due to the incredible technological advantage, retail banks as well as conservative banking customers are realizing the benefits of the blockchain technology.
- Customers seem to be open to this new technology as it offers them more value through fast, more secure and convenient transactions. However, due to conservative values, customers only trust strong and traditional institutions as service providers.
- Technological advancements need strong attributes to become widely accepted. Skepticisms can be reduced by clear added-value and personal contact with their financial consultants.
- As citizens predominantly trust banks, they remain vital parts of financial system in Germany, and transactions are processed through their systems making them unavoidable and necessary in everyday life.

Exemplary daily routine of consumers in 2030

07:00 am
Mr. Maier gets out of bed and checks his banking deposit via smartphone.

8:00 am
While reading the newspaper, Mr. Maier sees that there is a neighboring house for sale.

1:00 pm
During lunch, Mr. Maier thinks about buying the house. He arranges a meeting with his financial consultant via app and pays his lunch via a blockchain-based wallet.

4:00 pm
On his way home, he quickly stops at the bank to discuss options about getting a loan for a desired home.

6:00 pm
At home, Mr. Maier reviews all the documents provided digitally by his financial advisor and agrees to the loan by signing a smart contract.

7:30 pm
After eating schnitzel and fries, Mr. Maier celebrates his decision with his wife.

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Sources: Graphs and narratives by the authors

In the “Banking without banks” scenario, the conventional financial system is revolutionized by Decentralized Finance and blockchain-based applications

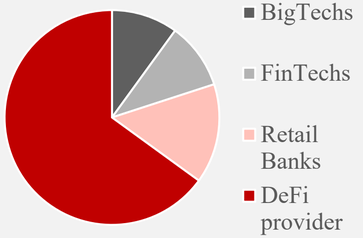
DATA ASSUMPTIONS

Blockchain and DeFi are revolutionizing traditional retail banking

Number of new entrants is drastically increasing year by year

UNISWAP, ethereum, 阿里巴巴 Alibaba.com, facebook, Google, AAVE, Tencent, coinbase

Traditional retail banks are losing large market shares



Strong market consolidation and rapid decrease of retail banks

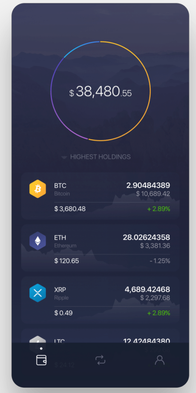
Retail Banks in Germany

2021	2030
~1700	100

People strive for digital disruption, liberty and expect individual, fast, efficient and sustainable banking services

65% of customers prefer Blockchain-based services

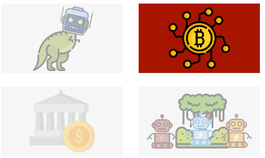
Manage your money in your (crypto) wallet via your smartphone will become the standard option



Deregulation to promote innovation and foster economic growth

BaFin
Bundesanstalt für Finanzdienstleistungsaufsicht

Sources: Graphs and narratives by the authors



Innovation leaders and DeFi providers squeeze traditional banks out of the competitive environment, which is characterized by liberty and deregulation

Industry and macro environment

- Driven by innovation and excellence, in 2030, a higher level of prosperity, strong economic growth and liberal, globalized, hyper-connected structures and markets predominate.
- Technological progress and the high affinity and adoption to novel technologies as blockchain, artificial intelligence or internet of things causes far-reaching, rapid and disruptive changes in society.
- Life without social media, digital devices and fast, decentralized (finance) applications is unimaginable. Thus, physical contact and banking branches are no longer necessarily in the foreground.
- Therefore, the German banking sector is facing a strong consolidation; of approximately 1700 individual institutions in 2019, only a few large ones with less branches will survive until 2030. However, even these will face immense challenges, as a parallel decentralized financial system will make financial intermediaries such as banks obsolete due to its efficiency, speed of transactions, and higher security and transparency.
- Traditional retail banking is completely outdated, and the market is dominated by a multitude of digital providers from all over the world, which primarily promote DeFi solutions. German retail banks lose large market shares.

Regulatory landscape

- Policy makers see the potential in technological advancements and foster (blockchain-based) innovations to strive for higher growth rates.
- Deregulation to promote innovation and freedom and to become more independent from US and China in a globalized world.
- Regulations for the new decentralized finance systems are introduced, however crypto currencies, for instance, will not be centrally controlled by national banks.
- An official digital EUR will be introduced but will only be a substitute for other virtual or cryptocurrencies.

Sources: Graphs and narratives by the authors

In this scenario, people are strongly influenced by the values of Gen Z, extremely digital-savvy and pursue an efficient, digital & sustainable lifestyle

People / Consumer and their values

Cosmopolitan digital native in a globalized world

- ✓ Self-actualizing and intellectual
- ✓ Liberal and post-material
- ✓ Ecologically and socially engaged
- ✓ Socio-critical and interrogative

- The old, traditional value system of the 2000s is losing relevance and people are continuously questioning the status quo.
- Customer values of the young generations Y and Z, including the rapid adoption to technologies such as blockchain, dominate society. Due to the high integration and scalability of blockchain technology, the advantages, such as speed, outweigh those of traditional banks. The technological progress even makes it possible to change blockchain into a resource-saving and sustainable solution. Thus, customers prefer innovation and technology leaders over traditional institutes.
- The transformation driven by technology and the shift in values results in a decentralized financial systems. Banking services are going digital and physical contacts become less important. Bank customers are processing financial transactions via blockchain-based crypto wallets.
- People place a particularly high value on individuality and self-realization.

Exemplary daily routine of consumers in 2030

07:00 am
Mr. Maier wakes up and is using his smartphone to turn on lights before preparing the breakfast.

9:00 am
At home, Mr. Maier invests in non-fungible tokens via the Opensea platform.

1:00 pm
For lunch, he orders food which he pays by transferring Ethereum from his crypto wallet.

4:00 pm
Online research for a new home to buy in Frankfurt as well as review of potential blockchain-based peer-to-peer construction financing.

6:00 pm
Brief conversation with bank employee regarding a mortgage. However, the application process takes too long for Mr. Maier.

7:30 pm
Before Mr. Maier travels to yoga class in his self-driving car, he eats a vegan bowl. When he returns, he goes to bed at 11:30 p.m.

NOVA SCHOOL OF BUSINESS & ECONOMICS

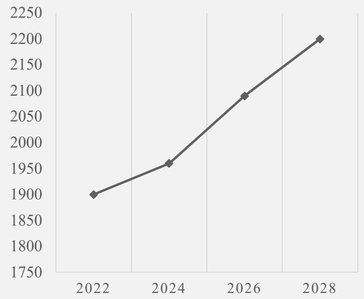
Sources: Graphs and narratives by the authors

In the “Tech-based Banking Jungle” the retail banking sector experiences a surge of new entrants offering innovative, digital banking services

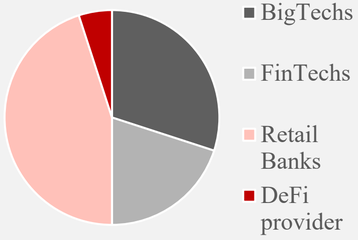
DATA ASSUMPTIONS

Visit your bank in virtual reality

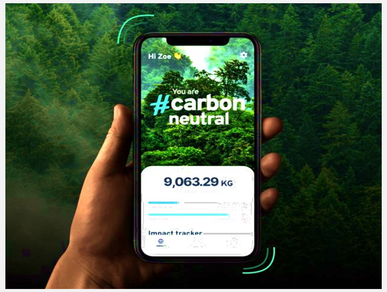
Number of players increasing



Retail banks lose market share to new players

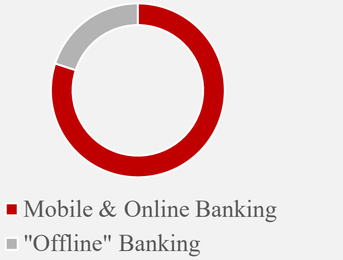


Carbon compensation in mobile payment



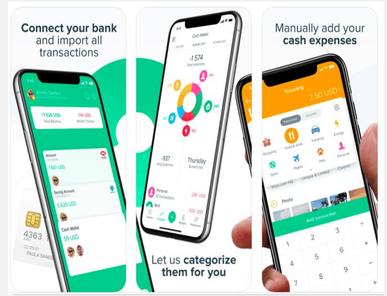
AI virtual assistance around the clock

80% of customers prefer online banking services over bank visits



German government offers funding support for tech start-ups

Various money management solutions



Sources: Graphs and narratives by the authors

The retail banking industry is heavily fragmented as a result and traditional retail banks struggle to keep pace with innovation

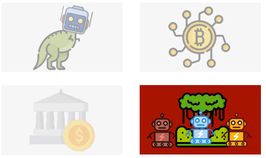
Industry and macro environment

- Innovation in retail banking is required and fostered to meet consumer needs but originates mostly from non-traditional, new players instead of traditional retail banks.
- There is an ongoing increase in market concentration as BigTechs and tech start-ups enter the market, thereby increasing competition.
- Players such as FinTech companies have the capabilities and resources to offer specialized services driven by new technologies that better meet the customers' needs
- However, blockchain technology failed to gain acceptance because they could not even fix the current unfavorable characteristics such as low transparency and high energy consumption in the future.
- Traditional banks still hold their position in the market by serving older generations and having gained trust due to longstanding expertise and reliability.
- Nevertheless, banks must fight to avoid losing further market share by upskilling, reskilling and retraining their employees to offer new services to a generation that demands sustainable and digital services; this includes reducing the number of branches to cut costs.

Regulatory landscape

- Policy makers foster technological innovations which keeps entry barriers low for technology-based start-ups and global BigTechs.
- Deregulation for classical retail banking providers to promote innovation and freedom and to become more independent from US and China in a globalized world.
- Low market concentration and high competition is not limited by regulators to drive progress forward.
- However, decentralized financial service providers, on the other hand, are more regulated to mitigate the risk to customers associated with manipulation and to maintain stability in the financial industry.

Sources: Graphs and narratives by the authors



Customers in this scenario, value digital, innovative and personalized services and make use of the available variety of products and services

People / Consumer and their values

Cosmopolitan digital native in a globalized world

- ✓ Self-actualizing and intellectual
- ✓ Liberal and post-material
- ✓ Ecologically and socially engaged
- ✓ socio-critical and interrogative

- The transformation driven by technology and changing values is leading to a sustainable but very divided banking system with many market participants.
- Banking services are going digital and physical touchpoints lose relevance.
- People place high value on individuality, self-realization and a sustainable way of living and expect this from their financial services provider.
- Consumers can choose between a variety of online banking services and switch flexibly between them to fit their lifestyle and depending on their situational needs.
- Specialized banks and service providers together can satisfy the demand for a high degree of personalization.

Exemplary daily routine of consumers in 2030

07:00 am
Mr. Maier is woken up by the sleep analysis application on his smartphone.

9:00 am
His coffee at the cafe, is automatically carbon compensated by one of his payment apps.

1:00 pm
At work, he gets vegan lunch with colleagues, switching his mobile payment method to his company credit card.

4:00 pm
Mr. Maier does some online shopping for fair fashion and pays in one-click with an e-wallet service.

6:00 pm
He regularly keeps track of his financial status and payments from different accounts in one app.

10:00 pm
Later at the bar, his subaccount “party space” limits his drinks spending.

NOVA SCHOOL OF BUSINESS & ECONOMICS

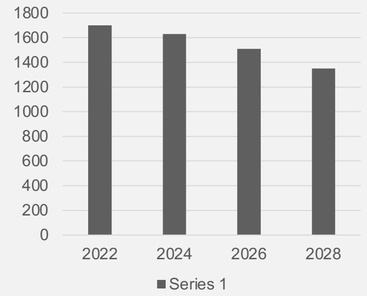
Sources: Graphs and narratives by the authors

The scenario “Banking dominance” represents banking as we know it today - traditional, conservative and highly regulated

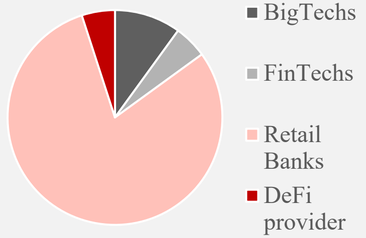
DATA ASSUMPTIONS

Retail banks and personal advices are preferred by customers

Number of retail banks are decreasing in Germany



New players only have minor shares of the market

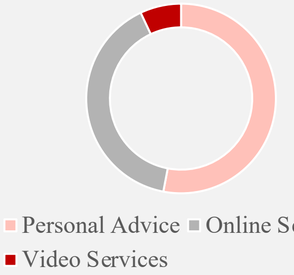


Traditional banks have a strong standing

Postbank, ING, HypoVereinsbank, COMMERZBANK, DKB Deutsche Kreditbank AG, DZ BANK Die Initiativbank

Direct contact and trustful relationships are more relevant than ever, making safety the highest objective

Only 7% of customers use video-banking services



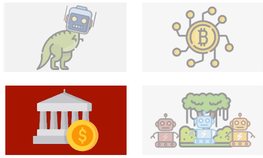
App stores are overloaded with outdated banking apps lacking in convenience or optimal, digital customer journeys

Strong regulation makes it difficult for new players to enter the market

EBA EUROPEAN BANKING AUTHORITY

BaFin Bundesanstalt für Finanzdienstleistungsaufsicht

Sources: Graphs and narratives by the authors



Regulators create high barriers of entry; new competitors can hardly survive making it easier for traditional banks to keep their market share

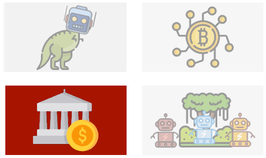
Industry and macro environment

- Market consolidation continues due to the increasing pressure on profit margins.
- Along with the consolidation, banks are gradually closing physical stores to cut costs and rely on outdated online banking and mobile banking options, leading to problems with customer satisfaction.
- The sector is still stuck in old patterns and was not able to strongly innovate as a result of high regulation, for instance.
- Connectivity to the European market plays a central role but increases burdens in regulation and compliance.
- The banking sector is struggling to remain profitable, and with fewer and fewer personal touch points, the only way to differentiate is through pricing.
- New entrants do not enter the market because of the unfavorable conditions, high entry barriers, low profitability and strong competition, so that only the large German banks prevail.
- Niche players using blockchain technology cannot attract enough customers to reach the critical mass and according network effects.
- The regular retail bank is still necessary and cannot be replaced by any new entrants offering new business models.

Regulatory landscape

- Regulation is rigid and sees a threat in the liberalization of blockchain technologies and cryptocurrencies as it can promote criminal activities and is not yet developed enough.
- Citizens that are not familiar with the technicalities are uncomfortable with the technology and the majority urges politicians to highly regulate blockchain use cases.
- Regulators do not intend to introduce a cryptocurrency as legitimate payment method.
- The European Central Bank also increasingly introduces laws to decrease the impact of blockchain on the markets.
- The banking sector keeps it current Three-Pillar-System and stays highly regulated and thus, does not enable fast technological development on a larger scale.

Sources: Graphs and narratives by the authors



Banking is a conservative business and so is the German population - they still prefer not to talk about money and only trust traditional banks

People / Consumer and their values

The conservative of today

- ✓ Self-reliant and structured
- ✓ Family and leisure centric
- ✓ Conservative and skeptical
- ✓ Direct and competitive

- People like things the way they work and don't want to change - convenience is king.
- Customers are skeptical of new technologies and prefer familiar companies and structures. Blockchain still scares consumers because the knowledge about the topic is limited and only few recognized players offer these services.
- New technologies are perceived as a burden that only makes things more complicated than face-to-face interaction.
- Citizens only trust banks because they have been an important part of the financial system in Germany for centuries. All transactions are handled centrally through their systems, making them inevitable and necessary in everyone's life. Even cash will still be widely used in this system.
- Personal responsibility is important; therefore, customers avoid technologies they cannot understand or influence.
- Only minorities care about sustainability, the majority puts their own interests first.

Exemplary daily routine of consumers in 2030

07:00 am
Mr. Maier gets out of bed and prepares his favorite breakfast: sausage sandwich.

8:00 am
Before going to work, he reads his everyday newspaper and heads out.

1:00 pm
Mr. Maier goes to his usual canteen to have lunch and pays with cash – he does not mobile payment.

4:00 pm
On his way home, he quickly stops at the bank to discuss options with his financial consultant about a loan for a new house.

6:00 pm
At home Mr. Maier checks all his documents to make sure the bank employee was right about his financial situation.

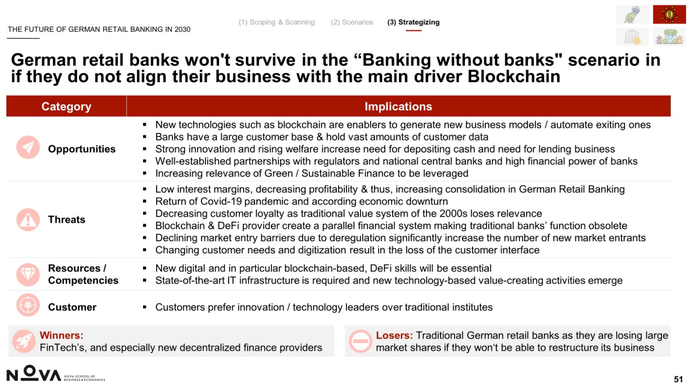
7:30 pm
After eating schnitzel and fries with his wife, Mr. Maier drives with their car to the pub to watch soccer.

Sources: Graphs and narratives by the authors

The next chapter discusses and evaluates the implications per scenario for German retail banks and the resulting strategic options

Process of developing strategic options for each scenario

Implications per scenario → **Strategic options per scenario** → **Option assessment**



THE FUTURE OF GERMAN RETAIL BANKING IN 2030 (1) Scoping & Scanning (2) Scenarios **(3) Strategizing**

German retail banks won't survive in the "Banking without banks" scenario in if they do not align their business with the main driver Blockchain

Category	Implications
Opportunities	▪ New technologies such as blockchain are enablers to generate new business models / automate exiting ones ▪ Banks have a large customer base & hold vast amounts of customer data ▪ Strong innovation and rising welfare increase need for depositing cash and need for lending business ▪ Well-established partnerships with regulators and national central banks and high financial power of banks ▪ Increasing relevance of Green / Sustainable Finance to be leveraged
Threats	▪ Low interest margins, decreasing profitability & thus, increasing consolidation in German Retail Banking ▪ Return of Covid-19 pandemic and according economic downturn ▪ Decreasing customer loyalty as traditional value system of the 2000s loses relevance ▪ Blockchain & DeFi provider create a parallel financial system making traditional banks' function obsolete ▪ Declining market entry barriers due to deregulation significantly increase the number of new market entrants ▪ Changing customer needs and digitization result in the loss of the customer interface
Resources / Competencies	▪ New digital and in particular blockchain-based, DeFi skills will be essential ▪ State-of-the-art IT infrastructure is required and new technology-based value-creating activities emerge
Customer	▪ Customers prefer innovation / technology leaders over traditional institutes

Winners: FinTech's, and especially new decentralized finance providers

Losers: Traditional German retail banks as they are losing large market shares if they won't be able to restructure its business

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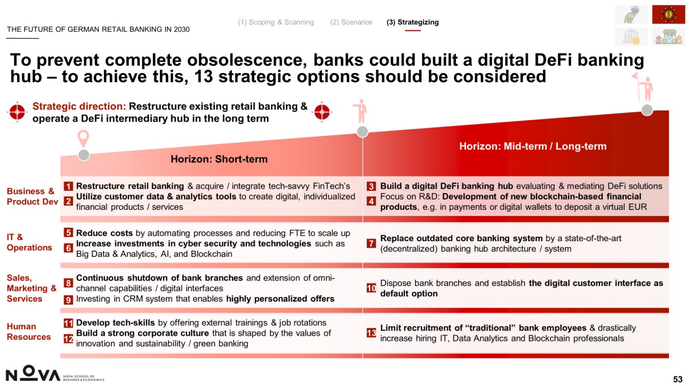
- What do the developments in each of the possible future scenarios imply for traditional retail banks?



THE FUTURE OF GERMAN RETAIL BANKING IN 2030 (1) Scoping & Scanning (2) Scenarios **(3) Strategizing**

To prevent complete obsolescence, banks could built a digital DeFi banking hub – to achieve this, 13 strategic options should be considered

Strategic direction: Restructure existing retail banking & operate a DeFi intermediary hub in the long term

	Horizon: Short-term	Horizon: Mid-term / Long-term
Business & Product Dev	1 **Restructure retail banking** & acquire / integrate tech-savvy FinTech's 2 **Utilize customer data & analytics tools** to create digital, individualized financial products / services	3 **Build a digital DeFi banking hub** evaluating & mediating DeFi solutions 4 Focus on R&D: **Development of new blockchain-based financial products**, e.g. in payments or digital wallets to deposit a virtual EUR
IT & Operations	5 **Reduce costs** by automating processes and reducing FTE to scale up 6 **Increase investments in cyber security and technologies** such as Big Data & Analytics, AI, and Blockchain	7 **Replace outdated core banking system** by a state-of-the-art (decentralized) banking hub architecture / system
Sales, Marketing & Services	8 **Continuous shutdown of bank branches** and extension of omni-channel capabilities / digital interfaces 9 Investing in CRM system that enables **highly personalized offers**	10 Dispose bank branches and establish **the digital customer interface as default option**
Human Resources	11 **Develop tech-skills** by offering external trainings & job rotations 12 **Build a strong corporate culture** that is shaped by the values of innovation and sustainability / green banking	13 **Limit recruitment of "traditional" bank employees** & drastically increase hiring IT, Data Analytics and Blockchain professionals

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- How should traditional retail banks adapt in the four scenarios?
- What are the strategic options in the short-term and mid-/long- term?

THE FUTURE OF GERMAN RETAIL BANKING IN 2030 (1) Scoping & Scanning (2) Scenarios **(3) Strategizing**

Some options are no regret moves and deliver proper financial value, others bear high(er) risks for German retail banks

Option	(Financial) Benefits / Value delivered	Risks
1	▪ Future cost savings through economies of scale and expected benefits from gaining new digital skills & resources	▪ Very high capital expenditures for acquisition and restructuring of the whole organisation and synergies that are lower than expected
2 9	▪ Increase in today's sales (No-regret option(s))	▪ Investment in CRM system & personalization exceeds sales increase
3 7	▪ Ensures innovation power, efficiency and creates new revenue streams to not become completely obsolete in a decentralized financial system	▪ High risk and high capital requirements, as the development of DeFi is very uncertain & an incorrect analysis can threaten banks' existence
4	▪ Increase in future sales by extending the product portfolio	▪ Medium risk of the product not being accepted (sunk costs)
5	▪ Generating higher efficiency levels and cutting costs quickly (No-regret option(s))	▪ Low risk – reputational risk can occur when employees are dismissed
6	▪ Higher data security and expected profits / efficiencies in the future	▪ Rather low risk that the high initial investment ends up as sunk costs
8 10	▪ Reduce material and infrastructure costs and increase value for customers by better meeting changing needs toward digital solutions	▪ Medium risk of misinterpreting the change in customer needs and consequently, the (physical) customer interface could be lost
11	▪ Higher skilled / reskilled employees (No-regret option(s))	▪ Low risk as digitization requires a set of digital skills
12	▪ No financial benefit, however it facilitates employees embodying corporate values (internally and externally) (No-regret option(s))	▪ Low operational risk, as the values of innovation and sustainability are deeply anchored in society
13	▪ No initial financial benefit, but a change in business model requires employees with new skills & academic backgrounds to enable the shift	▪ Medium to high risk in the event of a misjudgment of the trend, as the bank may not be able to operate if the current assumptions of the business model continue to be valid in the future

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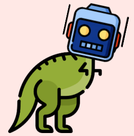
- What are the benefits, what value is delivered per strategic option?
- Whare are associated risks?

Sources: (1) Wright, Bradfield and Cairns (2012)

Depending on the scenario, a specific strategic direction is recommended for German retail banks – all strategic options are described in detail on the following slides

1

Restructuring & diversification strategy to become a trusted advisor for advising centralized and decentralized financial services and products. Thus, retail banks should leverage the existing customer trust and the blockchain technology for expanding the portfolio to become an "All-in-one financial intermediary".



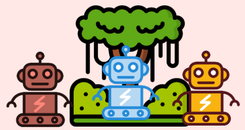
2

Restructuring and reduction of the existing retail business and change of the core business model to create a DeFi intermediary platform connecting financial service providers and retail customers. Banks should focus on occupying the (digital) customer interface and cooperating with various providers of financial products and services.

4

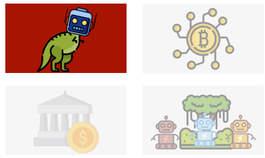
Cost reduction and expansion strategy through automation, the acquisition of competitors to achieve synergies, and the optimal utilization of customer data to offer more targeted products via all customer channels. The objective for retail banks will be becoming the largest and most powerful, traditional retail bank.

3



Digital transformation and open innovation through partnering with tech start-ups to connect their technological skills with the banks' traditional strengths and their customer data. Therefore, banks should focus on building innovation hubs and alliances with tech-savvy market participants.

Sources: Graph and strategic recommendations by the authors



In the "Dinosaurs get updated" scenario, banks need to sharpen their USP and at the same time break new ground for future blockchain-based developments

Category	Implications
Opportunities	▪ Well-known banks gain knowledge in technology and customer insights by acquiring or partnering with tech-savvy FinTechs. ▪ Established institutes push market consolidation, since niche banks can not cope with high investment needs to stay competitive. ▪ There will be a balanced mix of "high-tech" in operations and IT infrastructure and "high-touch" in terms of customer processes.
Threats	▪ High transformation costs with respect to employee training and investments in IT capacity as well as computing power. ▪ Loss of confidence due to activities during the transformation process, such as closing branches, laying off employees or acquiring companies, can undermine confidence in the competence and thus in the most valuable USP. ▪ The banking sector is lowering its own established barriers to entry by reducing its cost-intensive branch and staffing business, thus creating space for other established institutions that have not yet entered the market.
Resources / Competencies	▪ Trust, physical location, sparring partners to enter the blockchain world, IT capacity and computing power, CRM is key.
Customer	▪ There are different types of customers in terms of personal service and branch visits, but the typical customer will use DeFi or centralized banking services for most activities if they are offered by trusted institutions.

Winners:
Traditional, well-established and trusted banking institutes

Losers: Niche banks, FinTechs

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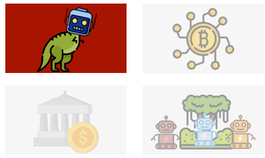
Sources: Graph and strategic recommendations by the authors



In the short term, banks must undergo a rigid transformation to harvest the future rewards of becoming "high-tech" and "high-touch" financial services providers

Strategic direction: Restructuring and diversification strategy to become a centralized and decentralized finance provider

	Horizon: Short-term	Horizon: Mid-term / Long-term
Business & Product Dev	1 Integrate first **Blockchain-based products** in banks' product portfolios to become as a trusted advisor for DeFi products and services.	6 Building a **bank's image as an indispensable DeFi expert** and interface that serves as a gatekeeper. 7 **Intensify and diversify the "traditional" product portfolio** to remain a leading hub for all types of financial services.
IT & Operations	2 Utilize current **computing power to support the integration of blockchain technology** and increase digitization investments. 3 Digitize**, automate and optimize processes and current work flows** to cut costs.	8 Increase **computing power and exchange outdated IT systems** to serve as blockchain-based service provider and **to leverage customer insights from data analytics**.
Sales, Marketing & Services	4 **Introduce and test new physical sales concepts**. Pop-up stores and banking hubs must promote the best of two worlds „the trusted bank in the background" as well as „the advantages of DeFi and the blockchain technology.	9 **Expand bank branches into ultimate banking hubs,** where personal advice remains essential, but can be fully digital as well as physical. And **promote banks as trusted advisors for financial services** of all kinds.
Human Resources	5 **Invest in the development of technical skills** and the t**raining and recruitment of two essential job profiles** "human resources managers" and "product experts".	10 Increase relevance and personal objectives for blockchain-based products to create a **trusted customer experience for both, advising people on the essentials and DeFi products.**

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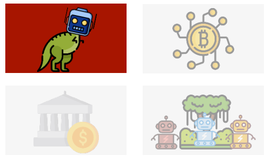
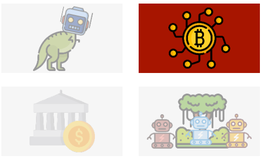
Sources: Graph and strategic recommendations by the authors



10 strategic options emphasize the balancing act between exploiting opportunities while reducing potential risks

Option(s)	(Financial) Benefits / Value delivered	Risks	
1 7 Increase Product Portfolio	▪ Adding blockchain based products (e.g., Tokenization, e-wallet,) to existing portfolio will prepare banks for the future leading to increase in sales and embodies digital competencies, while leaving space for traditional banking products.	▪ Customers use traditional banks as a playground to learn about new technologies and maintain security while moving up the learning curve to advanced service providers.	
2 3 Invest and optimize IT & Operations	▪ Using computing power for blockchain based service will enable to profit from DeFi and fully exploit resources while opening new profit pools. (No-regret option(s)) ▪ Digitizing, automating and optimizing workflows will cut costs.	▪ Knowledge needs to be built in terms of operations and risk management, which can lead to investment-intensive activities and erosion of previously saved costs.	
4 9 Restructure branch business and develop new sales formats	▪ Old unprofitable branches will be closed rigidly to save costs, while new sales format will be introduced to cover market demand and reach and convert customers in order to increase sales and customer base.	▪ Branch closures might erode the brand image of a trusted partner and leading to loss in trust as well as the rejection of new sales formats by customers.	
5 6 Invest and transform workforce	▪ Investments in training and recruiting will lead to highly skilled and relationship-focused employees that drive digital and customer-centric transformation	▪ Resistance to change from employees, high efforts of recruiting and personnel development and possible employee fluctuations	
8 10 Utilize data to improve customer experience and CRM	▪ Increase in customer-loyalty and promoting a brand image as indispensable financial and technical advisor.	▪ Cybersecurity concerns from regulatory and customer side.	



German retail banks will not survive in the “Banking without banks" scenario if they do not align their business model with the main driver Blockchain

Category	Implications
Opportunities	▪ New technologies such as blockchain are enablers to generate new business models or automate exiting ones. ▪ Banks have a large customer base and hold vast amounts of customer data. ▪ Strong innovation and rising welfare increase the need for depositing cash and need for lending business. ▪ Well-established partnerships with regulators and national central banks and high financial power of banks. ▪ Increasing relevance of green and sustainable finance to be leveraged.
Threats	▪ Low interest margins, decreasing profitability and thus, increasing consolidation in German retail banking. ▪ Return of Covid-19 pandemic and according economic downturn. ▪ Decreasing customer loyalty as the traditional value system of older generations loses importance. ▪ Blockchain and DeFi provider create a parallel financial system making traditional banks’ function obsolete. ▪ Declining market entry barriers due to deregulation significantly increase the number of new market entrants. ▪ Changing customer needs and digitization result in the loss of the customer interface.
Resources / Competencies	▪ New digital and in particular blockchain-related skills will be essential. ▪ State-of-the-art IT infrastructure is required and new technology-based value-creating activities emerge.
Customer	▪ Customers prefer innovation and technology leaders over traditional institutes.

Winners:
FinTech’s, and especially new decentralized finance providers

Losers: Traditional German retail banks as they are losing large market shares if they won‘t be able to restructure its business

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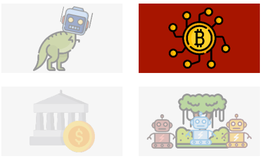
Sources: Graph and strategic recommendations by the authors

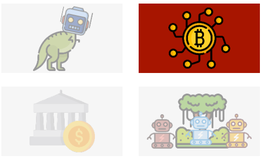


To prevent complete obsolescence, banks could build a digital DeFi banking hub – to achieve this, 13 strategic options should be considered

Strategic direction: Restructuring of existing retail banking and disrupting the core by building a DeFi intermediary platform

	Horizon: Short-term	Horizon: Mid-term / Long-term
Business & Product Dev	1 **Restructure retail banking,** acquire and integrate tech-savvy FinTechs. 2 **Utilize customer data & analytics tools** to create digital, individualized financial products and services.	3 **Build a digital DeFi banking hub** evaluating and mediating DeFi solutions. 4 Focus on R&D: **Development of new blockchain-based financial products**, e.g., in payments or digital wallets to deposit a virtual EUR.
IT & Operations	5 **Automate processes** and reduce FTE to cut costs and scale up. 6 **Increase investments in cyber security and technologies** such as big data & analytics, AI, and blockchain.	7 **Replace outdated core banking system** by a state-of-the-art (decentralized) banking systems to create a digital banking hub.
Sales, Marketing & Services	8 **Continuous shutdown of bank branches** and extension of omni-channel capabilities and digital interfaces. 9 Investing in CRM system that enables **highly personalized offers.**	10 Dispose bank branches and establish **the digital customer interface as default option.**
Human Resources	11 **Develop tech-skills** by offering external trainings and job rotations. 12 **Build a strong corporate culture** that is shaped by the values of innovation, sustainability and green banking.	13 **Limit recruitment of "traditional" bank employees and** drastically increase hiring IT, data analytics and blockchain professionals.

Sources: Graph and strategic recommendations by the authors



The strategic shift towards a DeFi intermediary platform is risky in principle, but also includes four no-regret moves for retail banks

Option(s)	(Financial) Benefits / Value delivered	Risks	
1 Restructure Retail Banking	▪ Future cost savings through economies of scale and expected benefits from gaining new digital skills and resources.	▪ Very high capital expenditures for acquisition and restructuring of the whole organization and synergies that are lower than expected.	
2 9 Utilize customer data & invest in CRM	▪ Increase in today's sales. *No-regret option(s)*	▪ Investment in CRM system and personalization exceeds sales increase.	
3 7 Build a DeFi banking hub with new IT core	▪ Ensures innovation power, efficiency and creates new revenue streams to not become obsolete in a DeFi-based system.	▪ High capital requirements, as the development of DeFi is very uncertain and an incorrect analysis can threaten banks' existence.	
4 Develop blockchain-based products	▪ Increase in future sales by extending the product portfolio.	▪ Product will not be accepted by the customers (sunk costs).	
5 Automate processes & reduce FTEs	▪ Generating higher efficiency levels and cutting costs quickly. *No-regret option(s)*	▪ Reputational risk can occur when employees are dismissed.	
6 Increase investments in technologies	▪ Higher data security, expected profits and efficiencies.	▪ Risk that the high initial investment ends up as sunk costs.	
8 10 Dispose bank branches	▪ Reduce material and infrastructure costs and increase value for customers by better meeting changing needs.	▪ Risk of misinterpreting the change in customer needs and consequently, the (physical) customer interface could be lost.	
11 Develop tech skills	▪ Higher skilled and reskilled employees. *No-regret option(s)*	▪ -	
12 Build a strong corporate culture	▪ No financial benefit, however, it facilitates employees embodying corporate values (internally and externally). *No-regret option(s)*	▪ Operational risk, as the values of innovation and sustainability are deeply anchored in society but the risk of resistance to change exists.	
13 Limit recruiting of "traditional" staff	▪ No initial financial benefit, but a change in business model requires employees with new skills.	▪ The bank may not be able to operate if the trend was incorrectly anticipated and current assumptions remain valid in the future.	

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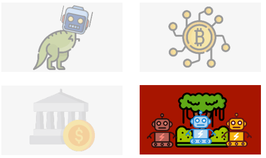
No-regret option(s) Options that pay off regardless of the future situation

High risk | Medium risk | Low risk



In a “Tech-based jungle”, traditional retail banks are facing high competition by new tech-savvy market entrants

Category	Implications
Opportunities	▪ Use of new technologies such as automation can reduce costs and have potential to improve the customer experience. ▪ Build on established structure and position in the market to scale up innovative products and services fast. ▪ Leverage existing and loyal costumer base in introducing new products and services. ▪ Well-established partnerships with regulators and high financial power of banks. ▪ Expand portfolio by satisfying new customers needs e.g., in personalization and sustainability.
Threats	▪ Digital transformation requires large investments in IT which is risky. ▪ High competition due to low entry barriers increase the need for differentiation. ▪ Decreasing customer loyalty as personal customer interactions lose relevance and switching costs of digital banking are low.
Resources / Competencies	▪ Technological capabilities and IT-heavy infrastructure. ▪ Innovation mindset - digital and sustainable products and services.
Customer	▪ Customers choose providers of innovative, personalized financial service providers to expand their options depending on situational preferences.

Winners: Technologically native companies: BigTechs, FinTechs, Digital Banks

Losers: Traditional German retail banks lose market share to many new entrants

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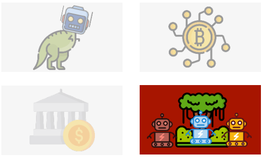
Sources: Graph and strategic recommendations by the authors



To stay competitive, banks must transform digitally and become more innovative, while marketing differentiating factors

Strategic direction: Digital transformation and innovation through synergies with tech start-ups

	Horizon: Short-term	Horizon: Mid-term / Long-term
Business & Product Dev	**1** **Analyze vast customer data** to better understand current customer needs, especially of younger generations. **2** Develop **new digital services and products** for an improved customer experience e.g.: by focusing on individualization.	**3** **Acquire tech companies and create (open) innovation hubs** to increase product and services portfolio and **benefit from research and development activities in synergies.**
IT & Operations	**4** Use **AI in back-office activities to automate processes.** **5** **Invest in Cybersecurity** as an issue resulting from digital banking.	**6** **Build an IT infrastructure** that can compete with tech-savvy companies including advanced technology and skilled staff.
Sales, Marketing & Services	**7** **Reduce bank branches** and market omni-channel experience **8** Invest in CRM system for **highly personalized offers**	**9** Partner with tech-savvy companies to integrate in their ecosystems to establish **digital services as a first choice.**
Human Resources	**10** **Talent Strategy: Reskilling** through talent development and **upskill** by hiring new talents. **11** **Communicate strategy for new vision and mission** focused on innovation.	**12** **Reduce jobs** that can be replaced by automation and increase **hiring of data scientists and data engineers.**

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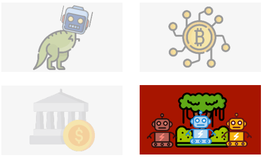
Sources: Graph and strategic recommendations by the authors



Some options are no regret moves and deliver proper financial value, others bear high(er) risks for German retail banks

	Option(s)	(Financial) Benefits / Value delivered	Risks	
1	Utilize customer data	▪ Customer needs can be anticipated to adapt timely, fraud prevention by analysis of transaction pattern: *No-regret option(s)*	▪ Costs of data analysis, customer concerns and regulatory hurdles regarding data safety.	
2 8	Develop digital services & products	▪ New revenue streams by broadening product portfolio that serves to retain and attract customers by satisfying current demand.	▪ High R&D costs in a field of low expertise compared to competitors	
3	Create open innovation hubs	▪ Source talent from externally by cooperation und foster mutual learning.	▪ Mergers & acquisitions costs, ”culture clash” of companies regarding work approach, etc.	
4	Use of AI for automation	▪ Reduced cost of employees and value creation potential. *No-regret option(s)*	▪ Employee acceptance of new technology, fear of being replaced by machines.	
5	Invest in Cybersecurity	▪ Necessary from a regulatory perspective as a response to customer concerns.	▪ -	
6	Build IT Infrastructure	▪ Stay competitive and be prepared for increasing online traffic and online solutions moving into focus.	▪ Costs of restructuring, change aversiveness and lack of skilled applicants.	
7 9	Reduce Bank Branches	▪ Higher efficiency and reduced costs.	▪ Loss of human touch and not satisfying needs of customers of older generations.	
10 12	Develop Tech Skills	▪ Having the right people in place to carry out transformation and become a technological leader. *No-regret option(s)*	▪ High efforts of recruiting and personnel development, possible employee fluctuations and culture imbalances.	
11	Communicate Strategy	▪ Employee engagement and an open creative exchange that fosters innovation. *No-regret option(s)*	▪ High resistance to change if communication strategy fails.	

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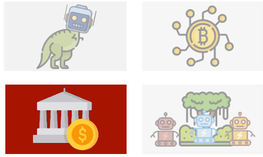
No-regret option(s) Options that pay off regardless of the future situation

igh risk | Medium risk | Low risk



Even though banks enjoy high market share and trust by the consumer in the “banking dominance”-scenario, profitability is not secured without change

Category	Implications
Opportunities	▪ Trust in banks can be leveraged by increasing service offerings, as trust cannot be copied by competitors. ▪ Based on customer data a better segmented offering is possible for different age groups and demands. ▪ Experience with handling new legislations gives traditional banks advantages over new players that struggle with applying new legislations.
Threats	▪ Stagnation in innovation development can have negative effects, risking relevant market share and profitability. ▪ BigTechs such as Amazon can threaten the business as they can offer similar products and are known for their service quality. ▪ Outdated systems pose a threat as customer might change their provider and higher risk of cyber attacks. ▪ Decrease of physical banks can lead to lower customer satisfaction as many traditionalist and older customers prefer face-to-face services.
Resources / Competencies	▪ High customer knowledge and large customer base and thus sufficient customer data to clearly identify needs. ▪ Enough funds to finance the digitalization processes.
Customer	▪ Personalized services from a trusted provider are highly relevant.

Winners: Large, traditional banks that can get bigger by acquisition

Losers: DeFi providers are not able to generate trust, cannot implement new laws and are increasingly targeted by authorities

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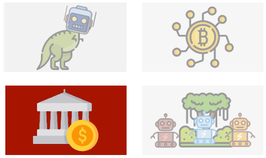
Sources: Graph and strategic recommendations by the authors

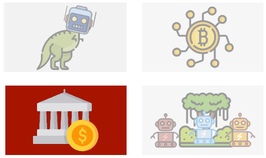


Decreasing costs will be critical in a denser competitive landscape – investments into digitalization and training of personnel will be crucial

Strategic direction: Cost reduction through automation and expansion by acquiring competitors and leveraging data

	Horizon: Short-term	Horizon: Mid-term / Long-term
Business & Product Dev	1 Focus on **customer retention through higher customer service** through further professionalization of client advisory.	2 **Increase R&D activities to optimize products and** make them accessible from anywhere to improve the customer experience. 3 **Raise M&A activities** by acquiring neo-banks or other FinTechs to strengthen innovation power.
IT & Operations	4 Invest in technology and **user experience** for mobile/online banking solutions. 5 **Decrease dispensable assets, automate processes** and reduce FTE to increase profit margins.	6 **Exchange IT infrastructure** to be able to adapt to the new market needs and build a solid base for potential technological innovation.
Sales, Marketing & Services	7 **Communicate advantages of traditional banks** such as high security. standards try to increase promotion for younger generations to be attractive for all generations and customer segments.	8 **Improve the personalization of offers**, by using data analytics. 9 Introduce a fully harmonized **omnichannel approach** to accessing all types of customers.
Human Resources	10 **Increase trainings for employees** to guide customers to use more online services rather than in-store services. 11 Create strong **bond** between customers and employees.	12 **Reduce jobs that can be replaced by technology** and increase hiring allrounders (IT and banking knowledge). 13 **Employees must become generalists** who can deal with all types of issues to reduce the need for service level support.

Sources: Graph and strategic recommendations by the authors



Most initiatives bear medium risks as the anticipated outcomes might not be accepted or wanted by the consumer

Option(s)	(Financial) Benefits / Value delivered	Risks
1, 11 Customer service and retention	▪ Ensure critical customer base that is highly relevant for the long-term implications and sustain cash-flows. *No-regret option(s)*	▪ Medium risk as measures need to effective otherwise high impacts on the business, training costs bear low risk.
4, 2, 6 Investment into IT infrastructure & innovation	▪ Increased sales as the customer has more possibilities to access the banking services.	▪ Do or buy analysis is relevant as digitalization of customer journey and internal processes can be costly.
3 Increase M&A activities	▪ Gain relevant knowledge and resources highly relevant to adapt the to changing needs and increase the service portfolio.	▪ Increased leverage due to high costs and potential increased complexity in organizational structures and incorporation.
5 Decrease assets, increase automation	▪ High impact on profitability due to decreasing the fixed costs. *No-regret option(s)*	▪ Possible negative consequence of divesting assets that might upset customers used to the current structures.
7, 9 Omnichannel approach & communicating advantages	▪ Increasing customer base to younger generations that can be attracted by trust and modern communication. *No-regret option(s)*	▪ Understanding the needs is relevant and can be misinterpreted and requires experts to handle the different channels.
8 Increased personalization	▪ Willingness of customers to spend more is increased enabling banks to offer products that have higher provisions.	▪ High risks associated with analytics and the shift toward an infrastructure that can deliver personalized services.
10, 12 Increase training & reduced positions	▪ Decreasing costs of physical stores by moving services more into the online space. *No-regret option(s)*	▪ High risks involved with acceptance of customers and development of necessary infrastructure.
13 Transform employees to generalists	▪ Increased portfolio offered by generalists create new revenue streams and potential higher provisions.	▪ Medium risks as customers might not be interested in other products and perceive service staff as not knowledgeable enough.

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No-regret option(s) Options that pay off regardless of the future situation

High risk | Medium risk | Low risk

For tracking how the competitive environment will develop and what scenario will unfold, constant monitoring of in total 18 early and macro indicators is recommended

Early Indicators

1 Trust in traditional banks	2 Blockchain and crypto adoption rate	3 Dominating customer values and needs
4 Number of crypto- and virtual wallets	5 Number of new competitors (e.g., FinTech's) per year	6 Importance of sustainability and innovation in society
7 Distribution of payments by transaction type	8 Usage of smart contracts and NFTs	9 Integration of financial services in tech-ecosystems

Macro Indicators

10 Market capitalization of crypto currencies	11 Regulation for new competitors and DeFi	12 Fragmentation of European retail banks
13 Interest rates in European Union	14 Intensity of consolidation (number of banks)	15 Number of M&A activities of traditional banks
16 Speed of tech-nological development (time-to-market)	17 Development of the euro exchange rate	18 Investments in technology and blockchain

360°

KPIs on corporate level

- **Investments in blockchain technology**
- **Number of current accounts**
- **% share of customers using mobile banking**
- **Number of partnerships with FinTechs**
- **Customer satisfaction / Net-promoter score**

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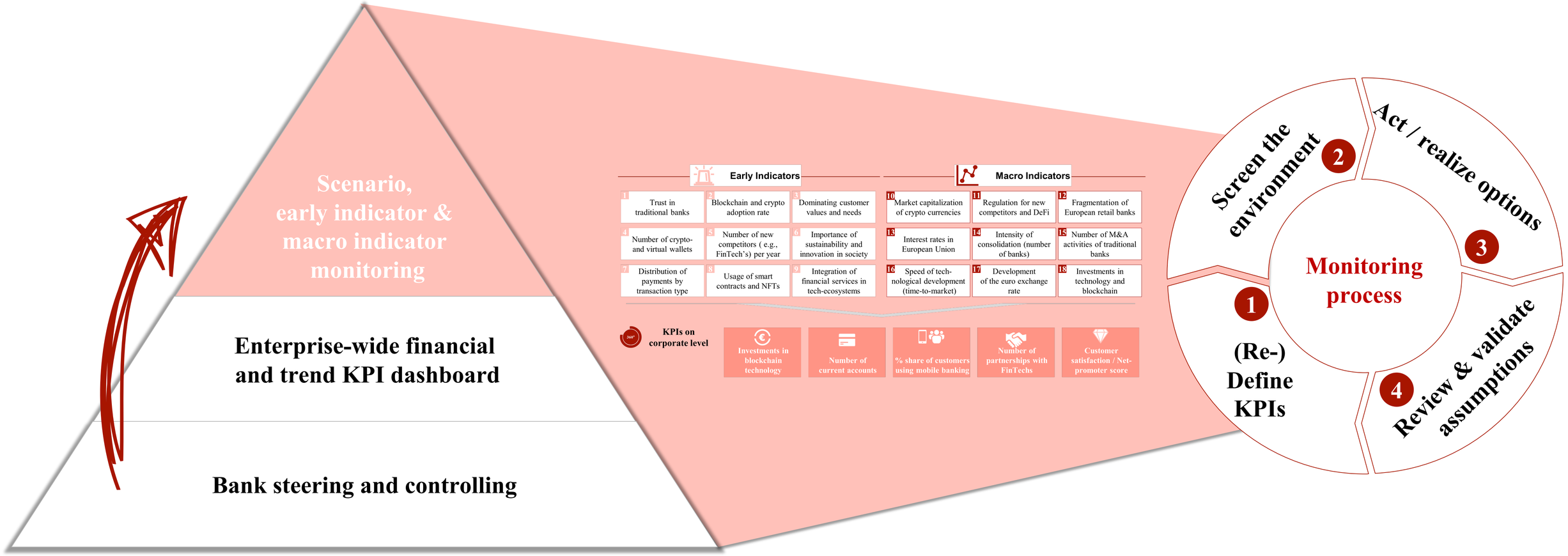
Sources: (1) Ranen (2020)

Monitoring of the indicators must be integrated into the company-wide KPI tracking to detect changes at an early stage and to take appropriate action

At regular intervals, the tracking including KPIs must be validated and, if necessary, redefined. Depending on the change in trends and uncertainties, strategic countermeasures (options) must be implemented



Sources: Graph by the authors

In conclusion, the report supports bank managers to prepare for the future of German retail banking, however, minor limitations need to be considered

Conclusion

- The high disruption in the financial industry led the team to focus **their research on the question how the retail banking landscape will change in Germany until 2030** and how can banks be prepared.
- To be able to answer the research question, **the process of strategic foresight and scenario planning was used** to identify drivers of change, build future scenarios and derive strategic options per future scenario.
- The findings from the desk research were complemented by interviews from industry experts which enabled the authors to **derive four potential scenarios that consider the key uncertainties** 1) Shift in societal values and, 2) The integration of blockchain in the financial industry.
- Our findings show that no **matter which scenario will unfold, becoming a lean, digitized and customer-centric financial advisor** will be relevant to deal with the increased competition and profit as well as innovation pressure.
- **Finally, monitoring factors allow practitioners to identify and be prepared for upcoming changes**, depending on the scenario that will occur.

Limitations

- **As this work is based on** trends, **assumptions** and subjective opinions of experts, the findings are subject to change, **may be biased** as well as dependent on external variables.
- **Recommendations are valid only for retail banking and not applicable to other business divisions** such as investment or corporate banking.
- **The paper relates to the entire banking industry in Germany and not to a specific bank**. Thus, recommendations must be adapted to company-specific needs.
- **The paper only represents a moment in time,** trends and innovations can change fast and thus, the previous findings need to be evaluated with care and must be validated over time.
- Finally, **only the most relevant factors were used for the scenario planning** and foresight process as it would not be possible to include all influencing variables that exist.

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Glossary / List of Abbreviations

Abbreviation	Definition
AI	Artificial Intelligence
AR	Augmented Reality
CAGR	Compound Annual Growth Rate
CIR	Cost to Income Ratio
CRM	Customer Relationship Management
DACH	Germany, Austria and Switzerland
DeFi	Decentralized Finance
ESG	Environmental, Social, and Governance
FTE	Full-Time Equivalent
Gen Z	Generation Z
IoT	Internet of Things
IT	Information Technology
KPI	Key Performance Indicator
M&A	Mergers and Aquisition
NFT	Non-Fungible Token
R&D	Research and Development
ROE	Return on Equity
STEEP+I	Social, Technological, Economical, Environmental, Political + Industrial
VR	Virtual Reality

Table of content

Appendix A:

Industry analysis

Porters Five Forces: The German retail banking industry is highly fragmented and competitive and indicates low profitability due to current challenges

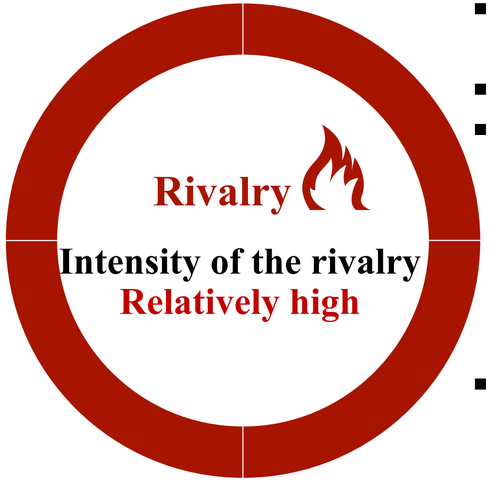
Suppliers

- Depositors (resource of capital)
- Employees (resource of labor) show high bargaining power in terms of salary
- Higher concentration of IT service provider market and high dependence of banks results in high bargaining power of IT suppliers

Substitutes

Banking and leasing services of FinTechs, BigTechs, etc.

- Good availability of substitutes such as leasing, digital wallets, etc.
- Similar price-performance characteristics compared to industry`s product



Bargaining power of the suppliers: High

Threat of new Entrants: Medium-low

Threat of Substitutes: Medium to high

Bargaining power of consumers: Medium

New Entrants

Foreign regional banks especially from developing countries with lower pricing strategies, reduced costs, etc.

- High capital requirements to entry
- High legal entry barriers by governmental regulation regarding risks, capital, liquidity, money laundering
- Easy access to distribution networks
- Economies of scale and scope advantage of existing banks & exclusive contracts with suppliers in place

Consumers

- Well-informed and price sensitive retail customers, but they are also seeking for trustful banking service providers
- Medium customer switching costs

Appendix B:

Analysis of drivers of change / trends

The COVID-19 pandemic has shown employees across all industries how flexible the work actually is

New Work

- In the recent months, the way humans work has changed fundamentally, this was accelerated by digitalization and the need of social distancing
- Covid was the first time to manage branches with minimum viable personnel
- As customers embrace contact with banks more digitally, also employees tend to use a hybrid model of working
- Work from anywhere can help reduce costs and will further drive reduction of real estate and closing of branches
- Repeatable, less demanding tasks will increasingly be automated and freeing up staff
- This new hybrid world enables companies to find talent everywhere increasing the pressure to compete for employees
- However, digital exhaustion comes as a threat leading people to realize the downside of remote working

Relevant Macrotrend Data

- 73% of employees want to keep their flexible working structures
- 67% of Germans prefer a hybrid version of work, only 17% would opt for home office only
- 66% of companies consider redesigning of their work structures
- 46% of employees consider moving as they can work remotely
- Before the crisis the level of employees in home office was at around 4% during the pandemic this level increased by more than 20%

Relevant Sources

- KPMG (2020)
- Kropp (2021)
- Microsoft (2021)
- Statista (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

The German population will get older and older in the coming decades, decreasing the working population, which can only be offset by migration

Demographic Change – Migration to Germany

- Further migration could lead to an increase in the population in Germany
- It is expected that until 2024 the population will grow due to an average of 400,000 migrants per year
- However, if migration decreases the effect of the declining population will set in, also decreasing the working population
- Increasing Muslim community can have effects on the election and the demand for banks with different values aligned with the Sharia
- Currently, Germany is in the top countries with highest demographic change and the oldest population worldwide
- The demographic change also increases the number of older voters, which can lead to a more conservative government
- In rural areas and eastern Germany this effect is much stronger, leading to large regional differences and customer bases

Relevant Macrotrend Data

- Between 2014 and 2017, 2,6 million people came to Germany, predominantly young migrants
- 9 out of 10 migrants since 2014 are younger than 40
- In 2019, around 21.2 million people were migrants, which relates to approx. 26.7% of the population
- 7.9 million of those were eligible to vote in the Bundestag election of 2021
- Around 3.2 million of the migrants are from the Middle East

Relevant Sources

- European Commission (2020)
- Siems (2019)
- Statistisches Bundesamt (2016)
- Statistisches Bundesamt (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Generation Z is distinct from other Generations and is appealed by different offerings

Change in values and purchasing habits of Generation Z

- Gen Z has seen quite severe changes during their short life, including economic, political, social, and technological changes
- Mainly two factors influenced them:
- 1) Technological advancement and the internet - as they were born into a digitalized world and never experienced life without the internet - they expect fast and immediate services
- 2) They were raised during a post-crash world characterized by economic stress, unemployment & uncertainty leading to skepticism about the future and putting high importance on financial rewards
- Generation Z has a strong drive for freedom, individualism and meaningful experiences and thus is expecting a completely different compared to their predecessors
- Another relevant aspect for them is environmental cautiousness and their activism around sustainability and societal issues
- For retail banking this could potentially impact their business model which needs to be adapted to the changed expectations

Relevant Macrotrend Data

- 79% of Generation Z will stop using brands that act racist
- 88% prefer omnichannel experiences
- 68% expect companies to contribute to society
- The majority of Gen Z will refrain from using applications or websites which are either slow or difficult to navigate
- 58% is willing to pay more for personalized products

Relevant Sources

- Ariker and Toksoy (2017)
- American Psychological Association (2018)
- Cheung (2018)
- Francis and Hoefel (2018)
- Groves (2021)

Impact on Banking 

Uncertainty level Low [ ] Medium [x] High [ ]

Individualization and personalization do not stop at the banking sector - in the future, this can be the source of a competitive advantage

Individualization and Personalization

- The megatrend of individualization refers to the fact that private individuals want to self-actualize and be personalized
- In banking, this refers to personalized products and financial services. Accordingly, customers expect personalized advice as well as products and services that are perfectly tailored to their needs
- To truly personalize, organizations must develop a thorough understanding of customer needs and design a set of individual experiences across both human and digital channels
- This trend will be fueled by improvements in customer relationship management (CRM) technology. Banks must leverage their customer data and develop 360-degree customer profiles
- The impact on retail banking is high, as retail banking mainly offers standardized financial products to private individuals. This must change in the future in order to address personal needs

Relevant Macrotrend Data

- Personalization can increase revenue growth by $300 million for every $100 billion in assets a company has
- The current financial services market places a high importance on personalization, according to 72% of customers
- The majority of respondents expressed their desire for having personal and physical conversations with bank representatives

Relevant Sources

- Businesswire (2021)
- Brodski, Desmangles, and Fanfarillo (2019)
- Dudovicz (2020)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

In almost every field, women today share the spotlight with men as their roles change dramatically

Change in gender roles

- Gender is still a strong social determinant, that is a role constructed by society referring to behaviors, attributes, and activities considered correct for men or women”
- According to current social sciences, gender is created through an individuals’ interaction with others and behavior instead of a preset state
- The banking industry is still far away from gender equality as the imbalance is constitutionalized and thus hard to change
- FinTech's have a massive opportunity to learn from the traditional financial services industry. Gender roles are shifting, and therefore also attitudes and compensation has to change

Relevant Macrotrend Data

- According to 44 out of 79 women interviewed, their high performance was more likely to be discounted than that of men
- Each year, businesses lose $700 billion by failing to cater to the needs of women as customers
- Women occupied less than a quarter (21.9%) of senior leadership positions within financial services firms in 2019

Relevant Sources

- Fleming and Agnew-Brune (2015)
- International banker (2020)
- Oliver Wyman (2020)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Increasing global welfare is leading to a rise in consumer expectations and increased purchasing power

Globally growing middle class

- In emerging countries, the middle class is increasing drastically, whereas the middle class in industry countries is slowly growing or even stagnating. However, the rising middle class could become a key driver of economic growth globally
- In the world, there will be 5.3 billion people belonging to the middle class by 2030. That's a growth of 2 billion people with more desires and purchasing power compared to today. Most of this growth will take place in Asian countries
- Global demand for goods and services is largely driven by middle class consumption which highly influences global economic growth and impacts the amount of private wealth
- The general growth in prosperity, also in industrialized countries such as Germany, has a medium-high impact on banking, as customers will accumulate greater financial assets, which will be available to banks in the form of savings deposits

Relevant Macrotrend Data

- Globally, the middle-class population increased from 899 million to 1.34 billion between 2011 and 2019, on average 54 million people per anno
- The combined population of China and India will represent 66% of global middle-class consumption by 2030

Relevant Sources

- Canals (2019)
- European Commission (n.d.)
- Kochhar (2020)
- McKinsey & Company (2016)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Uncertainty has increased due to natural disaster and infectious diseases occurring more frequently, leading to reduced economic activity

Increasing Need for Security

- The rise in infectious diseases and geopolitical uncertainties increased the need for security
- This can have influences on the economic activity and the behavior of the citizens
- Uncertainty can lead people to so called “wait and see” behavior, meaning citizens postpone important decisions
- Companies are more cautious as well, they do not hire people or even lay off employees, worsening the situation and increasing uncertainty
- The effect of the uncertainty had high impacts on the economic activity and creates a vicious circle of fear of job loss or bankruptcy
- Germans are currently mostly fearing inflation and tax increases
- Especially in eastern Germany the worries about migration are high

Relevant Macrotrend Data

- After the natural disasters in Germany in 2021, the fear of natural disasters and climate change has increased from 41% to 69% and 40% to 61% respectively
- Throughout the Covid pandemic, the level of uncertainty reached a new record level of 227 index points, which is even higher than the level during the financial crisis in 2009
- Savings rate of the German citizens was up to 23,2% due to the effects of Covid-19 and the constant insecurity

Relevant Sources

- Accenture (2021)
- R+V Versicherung (2021)
- Siedenbiedel (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

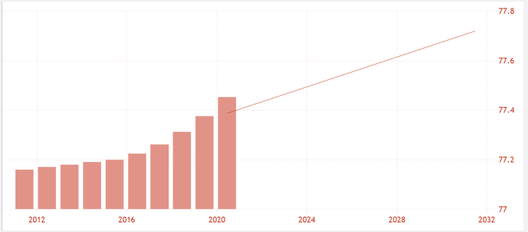
The proportion of the world's population living in cities is expected to increase further

Urbanization

- Most of the global population lives in cities, and increasingly in densely populated regions
- Urbanization is transforming the way humans live, travel, work, and build networks
- Urbanization is expected to continue increasing globally, in relation to rising incomes and a growing middle class
- Technology upgrades the infrastructure of cities further (smart cities), making urban areas more attractive
- Cities offer improved internet access, health care, better education, more recreational activities, and social assistance
- Negative side effects such as overpopulation, poverty and environmental hazards

Relevant Macrotrend Data

- 56% of the gloabl population live in urban areas
- Globally, 43 megacities are expected to develop by 2030, each with more than 10 million inhabitants
- The urban population in Germany, as a percentage of the total population, is expected to increase further



Relevant Sources

- United Nations (2018)
- Worldbank (2020)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

The mass generation of digital-based knowledge ensures a steady rise in global educational standards, even in OECD countries such as Germany

Culture of knowledge

- Global education levels are higher than ever and continue to grow almost everywhere, reinforced by the megatrend's globalization and connectivity
- Due to the high level of digitalization and connectivity, knowledge is generated and shared globally - anyone with access can participate. Furthermore, new learning methods and providers of knowledge are emerging, e.g., via e-learning platforms such as Udemy
- The global sharing of knowledge also has disadvantages in the form of fake news or similar, which means that sources must be questioned, and the truthfulness of information has to be verified
- Education is going to change in the future. Driven by the Covid-19 crisis, we see an emerging trend towards digital teaching channels. Thus, people can learn at any time and with an unlimited range of options
- Driven by this trend, the knowledge of customers and investors about financial products could improve and transparency increase. Therefore, banks might have less room for flexibility in pricing etc.

Relevant Macrotrend Data

- Increasing educational level in Germany, in 2018, 33% of the population can show A-level certificate compared to 24% in 2008
- Governmental investments in (digital) education have been rising by 30% from 2010 to 2018 (€310 billion)
- In 2020, almost all households (96%) in Germany will have an internet connection and will increasingly consume online educational resources

Relevant Sources

- Bundesregierung (2020)
- Khan, Pramjeeth, and Kader (2017)
- Statista (2020)
- Zukunftsinstitut (2020)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Cybersecurity in digital banking plays a vital and fundamental role as people go more and more cashless and digital

Cybersecurity

- Cybersecurity describes measures to protect people and institutions from criminal, i.e., unauthorized access to and use of data
- As banking is increasingly done online, people use digital money for transactions which can be subject to cybercrime
- The purpose of cybersecurity is to protect digital banking customer's personal data and assets
- Cybersecurity in banking represents fundamental measure of trust from a customer perspective and will therefore gain relevance from a regulatory viewpoint

Relevant Macrotrend Data

- 74% of financial institutions experience an increase in cybercrime since the pandemic
- Recorded cybercrime attacks increased by 8% in 2020 in Germany.
- 92% of ATMs can be hacked

Relevant Sources

- Craig, Thibault and Purse (2014)
- Bundeskriminalamt (2020)
- Haigh and Grantham (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

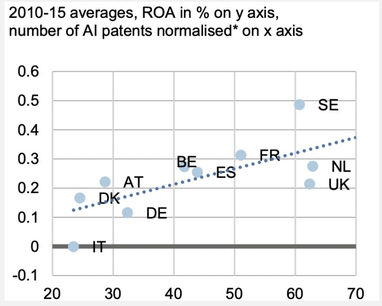
Artificial Intelligence is advancing many technologies such as automation which impacts business, economy, society

Artificial Intelligence

- By utilizing computers and machines to mimic the human brain's decision-making abilities and problem-solving skills, artificial intelligence can simulate human thinking and decision-making
- There are many practical applications for artificial intelligence technologies, which are disrupting major industries
- AI spurs economic growth by increasing productivity and innovation
- Advantages of employing AI systems in business include improved performance, and cost savings
- Banks could benefit from great efficiency gains and increased revenues
- Several retail banks are already using AI for customer support, detecting anomalies and credit card fraud
- Social acceptance of AI technology will determine the pace of its adoption

Relevant Macrotrend Data

- Overall, 50% of work activities may be automatable
- In the banking industry, artificial intelligence can add potential incremental value of 50% over other analytic technologies
- There is an almost linear relationship between bank profitability (ROA) and AI (see figure) due to reduced labour costs and potential increased revenue generation



Relevant Sources

- Digalaki (2021)
- IBM Cloud Education (2020)
- McKinsey & Company (2018)
- McKinsey & Company (2019)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

IoT technologies have a variety of potential applications and are increasingly integrated into everyday devices and systems

IoT

- The Internet of Things describes (IoT) the connection of the internet to devices and is therefore also called digitisation of the physical world
- It is an internet-enabled system of physical objects whose sensors, software, and other technologies allow them to interact and exchange data with other devices
- IoT has emerged as one of the most significant technologies of the 21st century, allowing for seamless communication between people, processes, and things possible
- IoT technologies affect every industry and benefit the banking industry by enhancing user experience and reducing costs
- With IoT, products can be designed to meet specific customer preferences
- ATMs for example, as one of the first IoT devices, have improved banks efficiency through real-time transactions
- Consumers and financial institutions must adapt to new trends in retail and mobile banking with the IoT playing a growing role

Relevant Macrotrend Data

- By 2025, there will be an estimated 22 billion IoT connected devices
- From 2018 to 2021 global banks' IT budgets rises by 14% up to $297 billion reflecting investments in IoT technologies
- Banks invest 79% of IT budgets on digital customer experience
- Germany was responsible for 5% of all global IoT spending in 2019

Relevant Sources

- CBI Ministry of Foreign Affairs (2021)
- Meola (2018)
- Oracle (n.d.)
- Wortmann and Flüchter (2015)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Virtual and Augmented Reality enable the banking industry to create more personalized services to offset the decline in branches and service personnel

Virtual and Augmented Reality

- Digital innovations will also push banks to use the technology to create more personal connections
- First banks already work with the technology, such as Westpac, using data visualization through AR
- Decreasing prices in VR headsets increase the attractiveness of the market
- Depending on the coverage of 5G, virtual reality will rise even stronger
- Virtual reality and augmented reality are well known topics in Germany, 90% have heard of VR and 71% of AR

Relevant Macrotrend Data

- In 2018 only 17% could imagine using VR, in 2020 this has changed to 37% and the trend is expected to rise
- Nearly 75% of German companies are using or planning to use VR and AR
- VR market shows a CAGR of 19.2%
- In 2024, the market could already generate €530 million of sales

Relevant Sources

- Ballhaus (2021)
- Kreger (2021)
- Tenzer (2019)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Digitalization & Connectivity will change the world into an almost fully digitized place to live – no matter if in private or professional life

Connectivity and Digital Transformation

- The digitalization, also known as 4th industrialization, stands for the digital transformation of societies, companies, etc. to create more value caused by digital technology such as AI or Blockchain
- The megatrend digitalization describes a transition into an almost fully digitized future, from digitized cities, to connected machines and robots that could have the power to make human work unnecessary
- The digitalization has mainly impacted private life so far but is immensely shaping the business world today and tomorrow. However, the real scope and its power is not entirely forecasted.
- It contains countless of sub-trends, referring to technologies such as AI, Web3, 5G, etc. Furthermore, it includes the digital and virtual connection of the world via IoT and the next version of the internet (metaverse)
- Digitalization does not stop at retail banking and is responsible for making banking services fully digital and seamlessly integrated into everyday life. Moreover, entire business models are subject to change and people prefer online and mobile banking offers

Relevant Macrotrend Data

- The information and communication technologies (ICT) is one of the biggest driver of growth of Germans economy with a volume of €160 billions in 2017
- Value creation will massively rise due to digital gains. According to McKinsey, one can expect an increase in value of $11 trillion caused by IoT by the end of 2025
- Currently low investments (0.02% of the GDP) in tech-start-ups are yearly increasing in Germany

Relevant Sources

- Althaus et al. 2018)
- BMWi (2016)
- Coppola (2020)
- Goldyrev (2020)
- Grijpink et al. (2020)
- Hüther (2015)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Blockchain technology on a decentralized basis will create new business models and reshape the banking landscape – regulation will be a high risk

Blockchain and Distributed Ledger Theory

- The hype around blockchain technology has been growing rapidly. The technology is based on a decentralized network. With its special kind of verification, decentralization, permanence, transparency and security, it is revolutionizing every use case of transactions
- In addition, blockchain technology allows property rights to be mapped more directly and efficiently via smart contracts and can therefore replace conventional legal validations
- It has the power to transform a wide range of industries, from energy to the automotive sector, but the banking industry is likely to be affected the most. Several use cases such as cryptocurrencies (Bitcoin), tokenization of assets via NFTs, etc. are already known
- Enormous impact, as decentralization and the consensus mechanism can provide access to the financial market for any person without the need for an intermediary such as a bank.
- The future of blockchain in combination with IoT and DeFi will be exciting as they revolutionize currencies, trading, payments and money other areas

Relevant Macrotrend Data

- Total market for crypto currencies has risen by 675% in only one year to approx. $2.2 trillion in September 2021
- Bitcoin has been approved as official legal tender in El Salvador
- Germany’s Fund Location permits special funds, to invest up to 20% in cryptos
- German parliament follows a blockchain strategy with the aim of becoming a European leader by financing start-ups, creating innovation labs and establishing a proper legal conditions

Relevant Sources

- BaFin (2017)
- BMWi and BMF (2019)
- CB Insights Research (2021)
- CoinMarketCap (2021)
- Thiele and Siegel (2017)

Impact on Banking 

Uncertainty level Low [ ] Medium [ ] High [x]

The Covid-19 pandemic led to a noticeable decline in economic power (-4.1% in DE) – despite the positive outlook, high uncertainties remain

Covid-19 and economical volatility in Germany

- The DACH region and especially Germany is one of the most stable and leading economic markets in Europe and belongs to the top 4 nations worldwide with a GDP of $3.8 trillion in 2020
- The Covid-19 pandemic arising in 2019/20 had an immense impact on the markets with a clear setback in 2020 due to several lockdowns of the economy
- In 2021, a comeback of the economic power is recognizable, caused by the increasing consumption rate of private households, vaccination progress, and the strong fiscal policy measures
- Economic growth is expected to be strong in the next two years, although at a slower rate than in the US and China (7% and 8% per year respectively)
- Uncertainties remain due to the pandemic as well as geopolitical and political risks that could impact the return to stable economic growth rates negatively, such as increasing interest rates or disruptions in the global supply chains which could impact the lending business of retail banks in case of downturn

Relevant Macrotrend Data

- The Covid-19 pandemic caused a negative growth of the economy in 2020 of -1.2% in DACH and even -4.1% in Germany
- Germany's debt-to-GDP exceeded the Maastricht criteria of 60% in 2020 (68.9%) the first time within 16 years to fight against pandemic aftermaths
- Economic growth is expected to reach 3.3% in 2021 and will further grow up to 4.4% in 2022
- Inflation rate is drastically increasing in the short-term up to 3.8% in July 2021

Relevant Sources

- Deutsche Bundesbank (2020)
- Eurostat (2021)
- O'Neill (2021)
- OECD (2021)
- Prittwitz and Joachim (2021)
- The World Bank (2020)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

The low interest rate policy, introduced in 2008, is likely to be continued in the short to medium term, despite negative effects on domestic banks

Low-interest rate policy of the ECB

- The European Central Bank has been pursuing a strongly expansive monetary policy since the global economic crisis of 2007/08 to stimulate the domestic economy and encourage consumption and investment
- The main goal is to bring inflation, which was low until recently, to a long-term level of close to 2%
- The ECB's base rate has even been stable at 0% since 2016. However, critics have accused the ECB of state financing
- To reduce the negative economic consequences of the Covid-19 pandemic an additional bond purchase program (PEPP) was set up (which will expire in March 2023)
- Despite the positive outlook and the short-term increase in inflation in Germany and Austria to 3.8% and 2.9% respectively in July 21, a turnaround of this trend in monetary policy is not expected
- The interest margins in the traditional lending and deposit business of the retail banks has suffered a lot and risks in the credit portfolio are increasing, having drastic consequences if interest rates will increase

Relevant Macrotrend Data

- The ECB's current base rate in 2021 is 0.00%, the peak refinancing rate is 0.25% and the deposit facility is even -0.5%
- The banks have achieved a strong below-average valuation (-20%) compared to the market (benchmark) over the last 15 years
- The ECB has flooded the market with money in the total amount of €1.85 trillion by introducing the PEPP
- Consumer prices are forecasted to grow at 1.4% in 2023, which is still below ECB’s aim

Relevant Sources

- Deutsche Bundesbank (2021)
- European Central Bank (2021b)
- Schnabel (2020)
- Triami Media BV (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Germany, along with China, is one of the world's strongest exporters, which leads to an increase in financial assets and assets in banks' balance sheets

Strong international trade of Germany

- As consequence of the strong globalization and global connectivity, value chains among many companies are internationalized. Thus, services and products are traded cross boarders to attract new customers and maximize profits. Together with China, Germany is one of the biggest beneficiaries of this export business
- Germany's most important trading partner in 2021 is China, with €212.9 billion in exchange of goods
- The majority of international trade involves the purchase and sale of industrial equipment, consumer goods and raw materials. But services such as banking and insurance also account for a non-negligible share
- Retail banking is only slightly to medium-highly influenced in some cases. For example, strong exports are increasing the wealth and financial assets of private households, which has a direct impact on banks' balance sheets / assets

Relevant Macrotrend Data

- Germany maintained its position as the third largest exporter (behind China, U.S.) and third largest importer (behind U.S., China) in 2018
- With a share of 15.6% of exports, motor vehicles and motor vehicle parts were the most important German export product in 2020. Machinery (14.6%) and chemical products (9.3%) came in second and third place among the major export goods
- Employment in Germany depends on international trade, as the country is highly integrated in global economy, approx. one-third of jobs are directly or indirectly related to exports, with manufacturing accounting for 56%

Relevant Sources

- BMWi (2019)
- Destatis (2021)
- Sprich and von Unger (2019)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Inflation rate has reached 3.1% and is expected to further increase, leading to a decrease in profitability of banks

Increasing inflation in Germany

- There are indications that point towards a further increasing inflation
- According to economists this is attributed to the readjustments of the reduced VAT and the introduction of the CO_2-tax, increasing consumer prices
- Additionally, due to the increased prices of crude oil in 2021 (almost double the price of 2020) the inflation rate is likely to further rise
- The demographic change will worsen this effect as retirees will continue to consumer heavily but will no longer produce, this leads to an imbalance of supply and demand
- The impact on the banking sector is high, as investments and assets will become less worth if interest rates do not rise
- People will also suffer from negative interest rates, making it less attractive to keep their money at the bank

Relevant Macrotrend Data

- Inflation has reached 3.1% of yearly average compared to 1.7% in 2018

Relevant Sources

- Coface (2021)
- Deutschlandfunk (2021)
- Göpfert (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Companies and governments must respond to increasing environmental awareness in society

Sustainability and Neo-Ecology

- Due to the pandemic, society is more concerned about environmental issues and sustainability than ever
- With an increased awareness for environmental issues, values of global society are realigned with a focus on sustainability and nature
- Neo-ecology (societal mega trend) is establishing a new importance extending into every area of our everyday lives.
- Sustainability is fundamentally realigning entrepreneurial action and the entire economic system
- The future is geared toward a new kind of consumption, toward the intelligent, sustainable use of resources in which technological innovations play an important role
- Instead of growth and profit maximization, tomorrow's economy focuses on sustainability, long-term growth and the common good

Relevant Macrotrend Data

- 65% of Germans consider environmental and climate protection as a central issue
- 70% of respondents to a recent BCG survey indicated they were more aware now than prior to COVID-19 of human activity threatening the climate which in turn is threatening humans

Relevant Sources

- Kachaner et al. (2020)
- Seider (2020)
- Zukunftsinstitut (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Natural disasters are increasing in Germany and globally due to climate change

Climate change & increasing natural disasters

- In the past 50 years, disasters have increased five-fold, driven partly by climate change, leading to extreme weather conditions
- The frequency, intensity, and complexity of natural disasters have also been increasing
- Germany ranks third among countries most heavily affected by extreme weather conditions
- Heat, drought, and heavy rainfall will become more frequent and severe throughout Germany if climate change continues unchecked
- An adequate legal and financial framework must be created by the federal government to enable effective adaptation to climate change

Relevant Macrotrend Data

- An average of 115 people perished every day over the past 50 years in weather, climate or water related disasters, causing daily losses of US$ 202 million
- Between the 1970s and the 2010s, economic losses have increased sevenfold
- There has been a 1.5 degree increase in air temperature in Germany between 1881 and 2018 and a 0.3 degree increase in the last five years alone

Relevant Sources

- DW (2019)
- Poetschke (2021)
- WMO (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

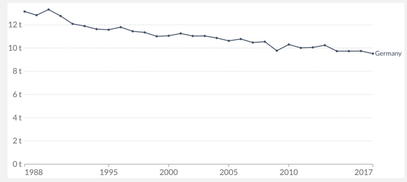
The decline in CO2 emissions in the Germany continues and is expected to decrease even further, with more climate measure being adopted

Decreasing Co2-pollution in Germany

- Due to the collapse of coal power, reduced air travel, and a 50% share of green power, Germany reached its 2020 climate targets to cut CO_2 emissions by 40%
- According to available data, approximately one third of the reductions are attributed to the consequences of the Coronavirus pandemic, particularly in the transport and energy sectors
- Despite another expected increase of emissions, the overall trend will decline further based on the EU climate target
- In addition, Germany aims to reduce emissions by 65% by 2030
- Therefore, there is an urgent need to be able to develop without heavily relying on coal and other fossil fuels
- New measures such as the Climate Protection Act including the successful reform of European emissions trading, which has led to higher CO_2 prices, support the transformation to green energy

Relevant Macrotrend Data

- In 2020, german carbon emissions decreased by 42.3% compared to 1990 levels (figure, CO_2 per capita)
- The energy sector saw the greatest reductions in emissions, about 38 million tons of CO_2, which is a reduction of 14.5%
- Globally, energy demand was reduced by 4.5% in 2020, representing the largest annual decline since post-war after WW2



Relevant Sources

- DW (2021)
- Poetschke (2021a)
- Rapier (2021)
- Ritchie and Roser (2020)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Every business, including banks, is affected by environmental concerns and at the same time receives an opportunity for value creation

Green Finance & ESG

- In 2021, Germany introduced its first sustainable finance strategy to address climate risk affecting the financial system and invest in climate action
- Climate change acts as a catalyst for green finance and is increasing in priority in Europe (e.g., EU Green Deal)
- With countries raising capital for sustainable development, there is a growth in ESG investment (Environmental, Social and Governance factors used to evaluate level of sustainability)
- People to look at green finance as being more secure and more reliable in the future
- Therefore, being proactive about environmental risk can be a source of competitive advantage
- Banks should aim for a credible sustainable finance strategy that defines how a bank will position itself from an ESG perspective

Relevant Macrotrend Data

- EU ESG assets are estimated to represent over 50% of investment funds by 2021
- Companies and governments will issue $500 billion in green debt in 2021 in order to fund a sustainable economic recovery following the COVID-19 pandemic
- In a McKinsey survey, 44% of companies identified sustainability initiatives as the source of business and growth opportunities

Relevant Sources

- Federal Ministry of Finance (2021)
- Henisz, Koller, and Nuttall (2019)
- Jeucken (2004)
- Ritter et al. (2021)
- Rooney (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

The trend and the mission towards a CO2-free world continues, but Germany will have to cope with a setback in 2021

CO2-Neutrality in Germany

- Climate change is a major challenge that must be overcome globally. In Germany, the incidence of extreme weather conditions increased more than twofold in the last 50 years
- Germany is trying to take a pioneering role in Europe in the trend towards sustainability and is promoting and subsidizing innovation more strongly than before
- According to the Paris Agreement, greenhouse gases are to be reduced by at least 40% by 2030, but Germany will probably miss the target
- Germany wants to be largely greenhouse gas neutral by 2045
- Banks can be indirectly affected by climate disasters through credit default and financial risk. Stricter regulations on investments of banks as part of the CO2 neutral strategy will also arise. Opportunities for financing private or business conversions to the green world are predicted for the future

Relevant Macrotrend Data

- To limit global warming to under 2 degrees, greenhouse gas emissions must be reduced by 80% in comparison to 1990
- More than €16 billion have been invested in the expansion of renewable energies in Germany these years
- Greenhouse gas emissions in Germany fell by 8.7% by 2020 compared to the previous years, but are expected to rise again in 2021
- In 2021, CO_2 equivalents will rise from 739 (previous year) to 786 million tons

Relevant Sources

- European Commission (n.d.)
- Salb, Gül, Cuntz, Monschauer and Weishäupl (2018)
- Umwelt Bundesamt (2020)

Impact on Banking

Uncertainty level Low [x] Medium [x] High [ ]

Although the GDPR has posed a challenge to financial services firms, it has also created several opportunities

Data Protection and Consumer Laws (GDPR)

- The European Union's implementation of the General Data Protection Regulation (GDPR) created a stir in the digital world in 2018. Businesses and individuals across the globe scrambled to adapt to new laws and establish the necessary legal frameworks
- The GDPR will directly affect banks, aside from large technology companies, because banks have a lot of private data of their own
- The already high standards of European firms has been further improved through the GDPR and helped to increase to confidence in financial institutions
- The GDRP enabled customer to choose which providers are allowed to have access to their data, which information are shared and the when the data can be accessed
- The GDPR offers several advantages such as increase transparency, trust and customer relationships

Relevant Macrotrend Data

- GDPR compliance is a medium to high priority for 74% of organizations
- In terms of GDPR compliance, 41% consider themselves at least moderately prepared

Relevant Sources

- Craig (2019)
- Garble Cloud (n.d.)
- Security Metrics (2019)

Impact on Banking

Uncertainty level Low [x] Medium [x] High [ ]

As part of the German Stability Program 2021, Germany and the KFW bank introduced large fiscal policy measures

Increasing fiscal policy measures

- Due to the Coronavirus pandemic and the attempt to contain it, the German economy has suffered a serious downturn in 2020
- Subsequently, large fiscal policy measures were introduced to support firms struggling from the Covid-19 crisis and to accelerate digital transformations
- By taking such measures, the foundation will be set for sustainable growth after the Coronavirus crisis has passed, and thus will ensure the maintenance of sound fiscal policy

Relevant Macrotrend Data

- Federal budget funds of €48.8 billion in 2020

Relevant Sources

- Federal Ministry of Finance (2021)
- Federal Ministry of Finance (n.d.)
- Umwelt Bundesamt (2021)

Impact on Banking

Uncertainty level Low [x] Medium [ ] High [ ]

Global power balances are changing and G7 states' influence is diminishing due to a shift in power distribution towards Asia

Shift of political power

- Power is shifting globally as a result of emerging nations, that are reshaping balance of power, transforming the nature of global political economy, and creating new international interests
- The G7 countries' share of the world's GDP (PPP) halved to below 30%, while the emerging markets and developing economies achieved 60%.
- A growing number of international institutions play an increasingly important role in international politics, such as intergovernmental organizations including WTO and IMF to informal groups as the G7, BRICS and IBSA
- These institutions and their policies will most likely be affected by a change in power

Relevant Macrotrend Data

- Asia could outrun North America and Europe combined in terms of global power by 2030 due its high economic growth, high population, and military spending
- It is estimated that the economic power of the E7 nations will be twice as large as the G7 nations (the U.S., the UK, France, Germany, Japan, Canada, and Italy) by 2040

Relevant Sources

- Berlin Social Science Center (n. d.)
- European Commission (2021)
- Fels, Kremer and Kronenberg (2012)

Impact on Banking 

Uncertainty level Low [ ] Medium [x] High [ ]

Digital Strategy 2025 shows how the government is establishing priorities, building capabilities, and using new tools to digitize

Germany's strategy to foster digitization and innovation

- As described in the Digital Strategy 2025 program, the priority of the German government is to develop digital capabilities and to use new tools to enhance Germany's digitalization processes
- Besides the Federal Ministry for Economic Affairs and Energy, other public sector organizations, businesses, universities, and social partners are actively involved in the development of the strategy
- The Strategy consists of 10 pillars and its actions allow the German economy to respond to challenges in both quality and technology while also securing its leadership position for the future
- The majority of the Strategy's actions are essential to every financial institution and the banking industry; however, individual organizations have little impact on this trend

Relevant Macrotrend Data

- Europe invests just 0.21% of its gross domestic product in ICT, while Japan, the USA and South Korea each invest 0.57%, 0.58% and even 1.47%, respectively
- Patents in Europe relating to Internet of Things technologies comprise just 6% of the global total - far less than the US., South Korea, or Japan

Relevant Sources

- Bundesministerium für Bildung und Forschung (2019)
- Federal Ministry for Economic Affairs and Energy (2016)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Geopolitical fragmentation in the European Union might increase in the future due to inequality among the member states

Geopolitical fragmentation in the EU

- Since 2017 election, the fragmentation of the European Parliament has increased due to growing dissatisfaction with mainstream parties
- Geopolitical fragmentation as well as wealth disparities within the EURO zone are expected to increase in the coming years
- More member states may follow the UK's example and could plan to leave the EU - growing Euroscepticism in the continental core of the European project is reaching a new dimension
- The driving forces of fragmentation are inequality in wealth, state stability and economic power, which will continue to shift
- In the future, therefore, we could see a two-tier Europe
- Banks must consider currency risks resulting from fragmentation. European banking system including supervisors will also play an important role in unifying the EURO Union. Otherwise, there is a risk of further fragmentation and diminishing opportunities in the international market or consolidation of the national banking market

Relevant Macrotrend Data

- Average national income varies widely – In Eastern Europe it is only €19,500 compared to €46,000 in Northern Europe
- An expert survey of 800 professionals forecasts further fragmentation in Europe
- Differences in national and private wealth are clearly visible: The GDP per household in Luxembourg is €101,640 compared to last place Bulgaria with €8,750 in 2020
- Strong differences in social justice within the EU: The social justice index varies from 7.9 to 4.91

Relevant Sources

- Klasen and Külz (2020)
- Statista (2021)
- Zerka (2019)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

Due to the high impact on global economies, financial institutions are heavily regulated and will further increase in the coming years

Increasing regulation in Banking

- The banking industry is one of the most regulated sectors due to its high impact on economies
- Basel III was one of the most important regulations enforced in 2014 to improve prudential regulations and risk management
- Anacredit, a regulative system for granular credit reporting was especially time and cost intensive
- In the last years PSD2 (the new Payment Services Directives), SEPA Instant Credit Transfer, as well as money laundering and terrorist financing regulations came into force
- Currently banks need to handle the new rules of EBA-iCT, MaRisk version 6 and BAIT
- Increasing importance is also put on the IT of banks and their cybersecurity
- In the coming years this regulations will also increase as for example ISO 20022 must be implemented and until 2025 the SWIFT credit transfer format needs to be used

Relevant Macrotrend Data

- To cope with new regulations:
- 44% of the financial institutions recruit new staff
- 76% invest in targeted training and further education of existing staff
- 80% purchase temporary consultants for external know-how

Relevant Sources

- Krah (2017)
- Jendro (2020)
- Staperior Consulting (n. d.)

Impact on Banking 

Uncertainty level Low [x] Medium [x] High [ ]

In a digital ecosystem, retail banks can offer a broader range of services and meet the customer's needs better

Platform Banking in a Digital Ecosystem

- Traditional retail banking services shift to digital ecosystems with customer satisfaction as the company's top priority
- “Beyond banking” solutions are the key element of new partnerships, which emphasize the way in which banks are transformed to offer services outside the scope of traditional banks
- Digital ecosystems of partnerships are the backbone of business models such as platform banking
- Platform banking refers to a digital marketplace, which is run and owned by either a bank or another (potentially nonbanking) entity and provides both banking and nonbanking services
- There are various types of partnerships (e.g. outsourcing) between banks and FinTechs (e.g. outsourcing)
- The FinTech sector in Germany has witnessed considerable growth and innovation in recent years, particularly in digital banking
- Germany's banking market continues to see high partnership establishment rates

Relevant Macrotrend Data

- A recent Accenture survey shows that 88% of the banks believe that ecosystems will play a central role in interacting with customers in the future
- From the same study, 89% of surveyed banks believe customer-facing ecosystems will contribute directly to future value creation

Relevant Sources

- Junghanns and Niebudek (2019)
- Gera, Secchi, Gagliardi and Svahn (2019)
- Accenture (2018)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [ ]

As central guiding entity, the European Banking Union will be able to legislate changes that can heavily impact the German banking market

Further integration of the European Banking Union

- The need for a banking union emerged from the financial crisis in 2008 as problems in the financial sector could easily spill over in a monetary union causing distress in other countries
- Aim of the union is the supervision of the market in Europe comprising of the national authorities and the European central Bank
- In 2015 another element was proposed to introduce a European Deposit Insurance Scheme (EDIS)
- The EDIS urges banks with higher risks to pay higher contributions than low-risk banks

Relevant Macrotrend Data

- Within the framework of the Banking Union, national funds are still planned to cover sums of up to €100,000 per customer and institution
- For this purpose, funds amounting to 0.8 percent of insured deposits are to be collected via bank levies by 2024

Relevant Sources

- European Central Bank (2021a)
- Magnus (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [x]

Low-profit margins in lending business is risky for well-established banks, however it might be a source for innovation

Low-profit margins in lending business

- Traditionally, lending business played a dominant role in a financial institutions, at the same time it is also one of the main sources of risks to banks
- The traditional lending business is less effective and more attractive in an environment where there is low interest, such as the current one resulting from EU monetary policy
- Banks offer financing solutions to a substantial share of the global population, but a large segment of customers is underserved or not served at all, which gives banks great opportunities
- Traditional banks may not be able to offer customers innovative, tailored solutions as they aren't always cost-effective - A new entrant is free of legacy processes and infrastructure, which lets them design new offerings quickly

Relevant Macrotrend Data

- 69% of lenders believe industry profit margins will decline in the three months ahead, compared with 52% in the previous quarter
- 19% expect profits to remain the same, while 11% believe that profits will increase

Relevant Sources

- Deutsche Bundesbank (2013)
- Gerhard, Harlalka, Kremer and Suvanam (2021)

Impact on Banking 

Uncertainty level Low [x] Medium [ ] High [ ]

New competitors, from BigTechs, FinTechs to nonbanks are attacking traditional institutions in retail banking

New entrants in banking

- The German banking industry is experiencing the greatest change in decades. Digital transformation and the shift towards a platform or even a decentralized economy as well as changing customer needs are reshaping business models and the entire competitive landscape
- New start-ups / FinTechs specialized in certain parts of the customer journey, for example payment transactions (PayPal, Klarna) or credit business (auxmoney - credit platform) appear
- Neobanks and Neobrokers emerged in the market and target the younger generations (Y and Z) by focusing on mobile and online banking applications only
- An increasing number of international technology companies (BigTechs) such as Google, Facebook, Apple and Amazon will enter the market with (full) banking licenses and capturing market shares by occupying the customer interface through their digital ecosystems
- The European, and especially the German, banking sector is significantly overloaded and traditional banks must find der role in the future of banking with completely new competitors

Relevant Macrotrend Data

- According to BCG, retail banking profits of €20 billion will be redistributed in Germany over the next ten years
- Despite the current low interest rate environment, profits in retail banking more than doubled in the last 5 years from €7.3 billion to €15.5 billion in Germany
- 58% of consumers in Germany still have a high level of trust in Sparkassen, but only 13% in Neobank N26
- In online payments, competitors are grabbing customers from banks; e.g., in e-commerce, PayPal ranks well ahead of bank transfers with a share of 24.9%

Relevant Sources

- Balz (2019)
- Leichsenring (2020)
- Oliver Wyman (2018)

Impact on Banking

Uncertainty level Low [ ] Medium [x] High [x]

In the coming years, decentralized finance and tokenization will transform banking and could potentially make intermediaries redundant

DeFi and tokenization of assets

- Decentralized finance (DeFi), is one of highest trending topics in the blockchain sector in 2021
- The objective of DeFi is to create an alternative financial system that is fully decentralized, censorship-free & fully automated at low costs
- Anyone can participate in a financial system that is neither controlled by the government nor requires intermediaries such as banks
- The concept implemented on a blockchain can be applied to various segments, including loans payment solutions or trading (NFTs)
- The main area of application so far has been cryptocurrencies. By 2021, numerous use cases have been developed, such as security tokens where tangible assets like real estate can be integrated into the blockchain
- Banks need to keep a close eye on this trend, as it can make traditional business via an intermediary redundant. However, decentralization also currently entails risks in the areas of technology, regulation, efficiency and liquidity

Relevant Macrotrend Data

- The total volumes locked (TVL) crossed $1 billion in February 2021, and this number is going to increase over the period
- Decentralized Finance is growing fast - more than two billion US Dollars (USD) were invested in June 2020
- The digital asset tokenization market is anticipated to increase from €355 billion in 2021 to €1,821 billion in 2026
- Total capitalization of the crypto market is forecasted at $11 trillion by 2023

Relevant Sources

- Birch (2021)
- Dörner, Holtermann, Maisch and Müller (2021)
- Grigo, Hansen, Patz, von Wachter (2020)
- Solution Analysts (n. d.)
- Weber (2021)

Impact on Banking

Uncertainty level Low [ ] Medium [ ] High [x]

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Appendix C:

Expert interviews (n=11)

The valuable insights from the expert interviews, enabled the team to validate and enrich the findings of the trend and uncertainty research

Key learnings

Increased competition due to FinTechs and Challengers Banks threatens the market share of traditional Bank. New players offer innovative, digital solutions however they do not receive the same level of trust.

Lower interest rates will challenge banks to offer more products customers are willing to pay for and have higher provisions. At the same time cutting cost by decreasing branches will be critical, which will further drive the consolidation of the industry.

Digital transformation will be essential to offer customers a fully digitalized customer journey as the smart phone will be the main access point to banking services. Needs of customers will further change and they will expect sustainable products, faster and more convenient services as well more personalization anywhere at anytime.

Quotes

"[Traditional banks] have an enormous amount of customer data, including sensitive data, but we do not utilize this potential or build strong business model around them"

Head of Operations, BHW Bausparkasse

"Banking customers will look mostly for convenience, cost & return and safety. And this will determine their behavior as it always has."

Bank Director, Deutsche Bank

"Customer centricity is key. Banks cannot just sell their products, they need to evaluate what the customer wants, otherwise Challenger Banks will get stronger"

Partner Financial Services Strategy, EY Germany

"Blockchain and DeFi have the highest level of uncertainty"

Deputy Board Member, Sparkasse Memmingen

"I strongly expect less face-to-face and more online consultation."

Area Manager, Sparkasse

"It will be especially interesting how the values of the younger generations will influence the business – this generation is growing up with e-commerce and has never been to a physical bank branch, they won't miss talking to a person in a store"

Director of Process and Analytical Development

"Trust is the only aspects that banks still hold today."

Manager Financial Services, KPMG

Overview of the 18 questions asked during the Expert-Interviews


Trends & Uncertainties

1. What are the biggest drivers of change in German retail banking - from today to 2030?
2. Which trend concerns you more or which trend has the greatest impact on retail banking? 1. increasing regulatory requirements, 2. disruption by new competitors such as Big Techs, FinTechs and Neo banks, 3. changing customer needs towards digital and individualized products, 4. sustainability and green society or 5. new technologies such as blockchain and/or decentralized finance? Please rate the trends in terms of impact (low, medium, high)."
3. What do you think are the greatest uncertainties that could affect retail banking?
4. Please rate the following 4 drivers based on their level of uncertainty (disruption rate by new competitors, relevance of DeFi, Blockchain and Crypto Currencies for Retail Banking as well as the topic of sustainability / green finance).
5. Please tell us briefly what you think will be the most influential factors on the banking industry in the next 10 years?


Competitive & Regulatory Environment

6. Who is currently your main competitor and why?
7. How do you think your competitive landscape will change by 2030?
8. How do you assess the relevance of BigTechs, FinTechs, DeFi providers, etc.? Do you think you will lose market share in retail banking through their platforms / ecosystems?
9. Do you think startups pose a high threat to traditional banks? If yes, which startups or business models pose the greatest threat?


Customer & Values

10. How do you see the importance of blockchain and decentralized finance for retail banks?
11. How do you think the regulatory environment for banks will be in 2030 compared to today? More regulation?
12. Do you think new technologies, cryptocurrencies will be heavily regulated?
13. Do you think the market will evolve faster than regulation and therefore open the opportunity to drive innovation?

Role of traditional banks in 2030

14. Will platforms, big techs and decentralized finance permanently change the traditional business model in retail banking, which means that the role of traditional banks will have to be redefined?
15. In such a fast-paced world with many competitors, what role will your bank play in 2030 and will it be different from today's business model?
16. What strength (e.g., high customer trust) could the bank use to secure your position against your competitors?
17. What needs to be done to remain competitive?
18. Due to the competitive market with over 1600 banks in Germany, which additional revenue streams could be developed?

Interview #1: VP Strategy, BU Retail Banking, Deutsche Bank

Trends & Uncertainties	▪ Renewal of legacy IT systems & digital Transformation of the entire bank including processes – bank must enable fast and fully digital account openings and loan approvals. ▪ Profitability pressure due to Corona, the low-interest phase, new competitors & new regulations (Basel IV) ▪ Changing customer needs also in terms of sustainability ▪ Change in branch network and strong consolidation in the market ▪ Increasing regulatory requirements are already having a very strong impact on retail banking ▪ Sustainable finance will remain important, as banks must learn how to act in a sustainable manner ▪ Finally, blockchain technology has a high impact in the far future (2030+) – highly uncertain
Competitive & Regulatory Environment	▪ Largest competitors are retail & direct banks, e.g., ING DiBa, savings banks, cooperative banks or Commerzbank ▪ The basic 3-pillar structure of the banking sector will remain in place - however, the strong consolidation will lead to significantly fewer institutions existing ▪ More new players such as FinTechs & BigTechs will enter to occupy the digital customer interface ▪ Banks will lose market share to new entrants such as FinTechs, BigTechs as they offer very innovative banking solutions, but the more they grow, the more they will be controlled by the regulator ▪ Banks need to invest in the digital transformation, renewal of core banking systems, cloud solutions, and big data & analytics to offer a digital customer journey with individualized products. ▪ In the long term, investments in Blockchain will be relevant, but currently resources are insufficient and in addition currently it is rather a niche, since only early adopters use DeFi products
Customer & Values	▪ Customer behavior is still rather uncertain , but presumably behavior will change to the extent that customers want to conduct banking transactions quickly via digital channels, regardless of location and time ▪ The need for personal advice will probably remain ▪ Sustainable and "green" financial services and, above all, digital solutions ▪ "Banking must become sexy again and innovative" ▪ FinTechs and BigTechs won't gain the same acceptance, especially when it comes to money, trust is essential. Acceptance of new players will increase, but will be far from being as high as for traditional banks
Role of traditional banks in 2030	▪ The retail bank will still play the central role in banking. However, every bank must question whether it wants to become a "customer bank" and provide a platform that is responsible for the entire customer interaction, and if necessary, sources better products. The second option would be a product bank that offers optimal digital solutions and becomes rather a supplier ▪ Banks should leverage existing customer relationships incl. customer interface, employee expertise in banking business and existing customer trust ▪ Competitive business models would be the "customer bank" and the "product bank" - needs & products will not change fundamentally - only more digital & sustainable / greener ▪ Monetization of customer data, and profiting from sustainability are becoming relevant as well as Investments in technology, innovation and know-how (talents) ▪ It will be important to be more innovative, to protect the customer interface & another strategic advantage is that banks are already compliant, while new competitors still have to master this

Interview #2: Bank Director and Senior Client Advisor, Deutsche Bank

Trends & Uncertainties

- Digitalization
- Consolidation
- Decarbonization (becoming greener operations wise and product wise)
- Medium impact of regulatory requirements and blockchain/decentralized finance
- New competitors: High uncertainty level
- Relevance of DeFi, blockchain & sustainable finance: Medium uncertainty level

Competitive & Regulatory Environment

- High disruption by new competitors, changing customer needs and sustainability
- FinTechs becoming more so by the day (payments, robo-advising, trading platforms), it' a crowded playing field in German retail banking
- It will become more standardized and consolidated in basic services like payments and plain vanilla lending and wealth management
- It will be more tailored to individual preferences and needs in products with higher value added and higher margins i.e. specialized lending, wealth management for very affluent clients
- I expect a kind of consolidation in the higher margin segment of the retail banking market as well but not as pronounced as in the market segment of more basic products
- If new technologies, especially cryptocurrencies become too volatile and (potentially) threaten financial stability this most likely will lead to tighter regulation (see political discussion in the aftermath of the Wirecard bust)

Customer & Values

- I do not think for basic financial services that are needed will change significantly (payments, financing and wealth management)
- Might be that there will be different channels through which they are provided
- Banking customers will look mostly for convenience, cost & return and safety. And this will determine their behavior as it always has. At least in my experience
- The older generation age > 50 will probably prefer more traditional providers of financial services.

Role of traditional banks in 2030

- Guess it (Deutsche Bank) will still be a major player
- I hope less volatile, more basic drivers of revenues and earnings will play are more important role than now. The ambition is to become a platform provider for financial services, I hope we succeed.
- Experience & knowledge of markets and products, quality of workforce, longstanding and broad customer relations and related intelligence on customer needs, traditional reluctance of retail clients to switch providers of financial services, big balance sheet (not quite so sure anymore)

Interview #3: Deputy Board Member, Sparkasse Memmingen

Trends & Uncertainties

- Decline in net interest income due to low interest rate phase and Corona
- Completely changing customer behavior and declining customer loyalty - to what extent are customers still willing to go to branches (currently these still have the greatest sales power)?
- Increasing regulatory requirements are having the highest impact on banks' profitability
- New competitors currently have the second-highest impact, as some of them serve new, digitally-affine customers better or faster
- Currently rather low relevance of DeFi, blockchain, but high impact in the future for stock markets but also transaction banking, however it shows a high uncertainty level

Competitive & Regulatory Environment

- The main competitors are currently cooperative institutions / banks
- Structure of the banking sector will remain; however, market shares will be shifted
- More new, digitally savvy players are expected to enter the market as smartphones will be the primary device for banking services and transactions
- Banks will lose market share to new entrants
- The impact of the political tensions between the EU and China on German retail banks will be rather small so far, but platforms will become larger competitors regardless of the firm location
- Investments in technology are increasing – particularly in mobile banking technologies, user-friendly front-end systems and the implementation of regulatory requirements in the IT system to better serve the customer

Customer & Values

- Customer will be more digital-affine and might prefer digital channels for banking, however physical touchpoints will still be relevant for more complex services
- The mobile-managed checking account is the linchpin. Stocks and custody accounts as well as electronic payment transactions complete the product portfolio for young customers
- FinTechs, BigTechs and DeFi will not gain the same acceptance as traditional banks soon as Germans tend to rather trust in traditional institutes

Role of traditional banks in 2030

- In 2030, the bank will continue to play a central role and the existing business model will not really change from today. Payments, lending business, deposit business and investment business will still exist
- "Customer trust in banks is the beginning of everything"
- The banks' business in 2030 will be almost identical to today's business model, only leaner
- The core will be financial services consulting. Other corporate functions such as HR, finance, etc. will be outsourced
- Market consolidation will continue to intensify, but the focus of retail banks will still be more on bank-related
- Existing customer trust and innovation power will be the most strategic aspects

Interview #4: Publisher & Editor, German Banking Blog

Trends & Uncertainties

- Most important trends are digitalization, ESG, low interest rates
- Most important uncertainties are currently the issue of fees after the BGH ruling and in the future the possibility of new crises

Competitive & Regulatory Environment

- The relevance of big techs / decentralized finance and Fin techs is high in terms of orientation, but rather low to medium in terms of new competitors
- Startups will not threaten traditional banks
- Political global tensions will only have minor impacts on the German retail banking
- Impact of Blockchain is rather low unless it is possible to scale up the technology
- Regulation will increase and a secondary financial system will be prohibited by regulators
- However, the market will develop faster than the regulation

Customer & Values

- Customers will increase their digital interactions and lessen their contact with their local bank
- Digital products will gain importance however Blockchain will not gain enough trust
- Main services will barely change and still be: to keep money, to transmit money, to make money available, to increase money
- Blockchain and startups will not reach the same level of trust as compared to traditional banks

Role of traditional banks in 2030

- BigTechs can have an impact. So can platforms. However, the role of traditional banks will not be redefined because of this
- Digitalization and sustainability will be the core areas to invest in
- No substantial source of additional income can be developed for traditional banks, the existing ones must be profitable

Interview #5: Partner Financial Services Strategy & Transactions, EY Germany

Trends & Uncertainties	▪ Digitalization and sustainability play a crucial role: Ethical aspects and digitalization of the customer journey ▪ Customer centricity: Advisory approach needs to be revised, instead of a singular approach a more holistic approach is needed not focusing on the products but the customer (segmentation) ▪ Regulation is extremely high compared to the US decreasing the competitive advantage – the government needs to change the regulatory environment to stay competitive internationally ▪ Cryptocurrencies: Will be important topic to deal with (how to offer it to the customer?), custody management and removing uncertainty will be central aspects ▪ Consolidation: the branch network will further reduce ▪ Interest level is currently the most difficult pain point for banks ▪ Challenger Banks – business models are not profitable but play an important role which could lead either to co-existence or they will gain more importance
Competitive & Regulatory Environment	▪ Traditional banks will lose market share ▪ BigTechs, FinTechs and DeFi-Provider will only have medium relevance ▪ One can currently see the threat of challenger banks it in the securities sector (as banks earn a lot there) - Trade Republic e.g., have offered opportunities to deduct commission due to non-transparent pricing models; transaction fees are not reflected – traditional banks will level off again to counteract this ▪ Relevance of Blockchain and AI will not play a major role until 2030 as this has been a topic for the last 6-7 years and not much has changed ▪ More regulations but more focused regulation for specific business models (not all need not comply with all regulations) ▪ Cryptocurrencies will be more regulated but due to the decentralization it will be heavily impacted but other states especially the US
Customer & Values	▪ ESG will play a major role for customers ▪ Digital products, blockchain, and challenger banks will gain trust but will never threaten fiat currencies or reach the same acceptance as traditional banks
Role of traditional banks in 2030	▪ Banks will have to adapt to the changing landscape (because of new business models, startups and platforms) ▪ Customer centricity will be vital which means banks must adapt to the new trends but keep the good aspects of the original business model ▪ The customer journey needs to be fully digitalized – customers need to be able to go through the whole process of for example creating a bank account virtually ▪ Banks must be able to make customer willing to pay for their services

Interview #6: Partner and Banking & Capital Markets Lead, EY Germany

Trends & Uncertainties

- Digitalization, which goes along with decrease of physical stores
- Consolidation of branch structure and cost optimization
- Entry of new competitors into the traditional retail business, especially from the areas of payments and technology
- Sustainability and Green Society
- Uncertain what the further impacts of the pandemic will be and possible force digitalization
- Customer behavior of the new generations will it be crucial ad uncertain

Competitive & Regulatory Environment

- Payment provider will increase their influence (established providers like Master and Visa, but also players like PayPal and Klarna) and will offer credit cards and deposits
- Big Techs will be highly relevant and increase their offering in terms of credit and deposits; FinTechs will consolidate
- Consolidation will increase as there are too many brokers and loan providers
- Platform economy will be more relevant
- More or less the same regulatory environment for the capital side, however consumer protection and fairness will increase, to decrease discrimination of customers and hidden costs
- The ECB will not allow a parallel financial system, as they are also planning a digital euro
- Market will develop faster than the regulatory environment but only for a short time as regulation can be done post-ex and thus decrease incentives
-

Customer & Values

- Increased need for digitalization and usage of an omni-channel approach
- Hybrid approach: only for some aspects of the banking business the customers will want to talk to a personal advisor
- Customers will demand service immediately
- Customer journey will be shaped by e-commerce providers such as Amazon, customers will demand a high degree of immediate service
- Decentralized Finance will always have a trust issue
- Digital products and Big Techs will achieve the same level of trust as traditional products

Role of traditional banks in 2030

- Banks need to adapt their business model and cannot wait to long otherwise they will lose a lot of market share to other players especially Big Techs
- The products of a bank will stay the same as they have been for centuries, but customer will demand easier, faster and more digitalized products

Interview #7: Head of Operations, BHW Bausparkasse AG

Trends & Uncertainties

- Automated work processes and machine learning play a major role.
- The short- and midterm development of the entire branch business will be great uncertainty.
- The proportion of IT specialists within banking operations continues to rise sharply.
- The computing capacity is increasing enormously, we will invest heavily here in the future. We currently have a balanced mix of our own and rented computing capacity
- Cross-location cooperation and the consolidation of competencies internally are playing an increasingly important role

Competitive & Regulatory Environment

- In terms of regulation, the use of data will play a major role in the future. We have an enormous amount of data, including sensitive data, but we do not fully utilize this potential.
- We can partially process internal information and documents in real time, the biggest time wasters are information that comes from government authorities or lawyers and notaries.

Customer & Values

- Thanks to automated processes, customers will quickly receive feedback on their inquiries. Forms, documents and customer information are processed and analyzed in an ever-shorter period
- In the area of sustainable housing loans, we can already offer very good financing offers today, and I think that this will increase even more in the future. Energy efficiency and the energy pass are already considered today. In the next few years, we will certainly have to adjust the criteria more strongly to push customer in a more sustainable direction.

Role of traditional banks in 2030

- Banks are and will remain an indispensable part of the economy. I consider a completely open system to be conceivable but unlikely.
- In the area of sustainable living in particular, we can already offer very good financing offers today, and I think that this will increase even more in the future. Energy efficiency and the energy pass are already considered today. In the next few years, we will certainly have to adjust the criteria more strongly.

Interview #8: Manager Financial Services, KPMG

Trends & Uncertainties	▪ Demography plays an extremely important role. Human component is essential. In Germany face-to-face is extremely important compared to other EU nations. Willingness to switch to another bank is extremely low in Germany. ▪ The share of cash payments is still very high in Germany. Covid-19 had a positive effect here. Nevertheless, the percentage of credit card usage is lower than abroad. Securities investments are also viewed with skepticism by the general public. ▪ I would consider German bank customers to be more cautious. I am curious to see whether the younger generation and adolescents will be able to shed this behavior pattern. I doubt it though. ▪ Trust is the only aspect that banks still hold today.
Competitive & Regulatory Environment	▪ I could well imagine that the requirements for cash payments will be handled more restrictively. The state and the regulators have a great interest in curbing such payment flows.
Customer & Values	▪ Direct investments in photovoltaic systems, wind systems, or generally sustainable investment opportunities, will meet the needs of private customers. ▪ Real-time payments and new, simple credit options as well as private analysis options for financial structuring
Role of traditional banks in 2030	▪ The function of the bank advisor will not become obsolete and can be organized on a decentralized basis ▪ Digital products are more important than blockchain technology ▪ Consulting services for blockchain will increase, banks will have to find business models here. ▪ AI and automated processes will handle major stake of operating processes

Interview #9: Manager Financial Services Strategy, KPMG

Trends & Uncertainties

- The reduction of operating costs is the main trend with respect to P&L statement of the big banks, the logical consequences are the downsizing of employees and the closing of unprofitable locations
- At the same time, the trend towards the low interest rate policy must also be mentioned, which will not change in the foreseeable future. Banks therefore urgently need to examine new business models and expand profitable business areas
- Fewer and fewer customers go to the bank on site. The younger generation in particular hardly ever goes into a branch these days. New market participants, some of whom have no branches at all, are much more accessible to the younger generation
- ESG is currently the hottest trend

Competitive & Regulatory Environment

- The consolidation in the market will increase further. Niche banks will certainly not be able to keep up with the high pressure to innovate. The current customer groups in such banks will grow out over time
- Consolidation continues to increase. Small banks will find it difficult to cope with cost pressures and investment costs. "Value" will replace "Size"

Customer & Values

- Customers will be able to conclude contracts digitally
- Financial products are becoming more individual and personal
- Advice is supported and made more accessible by new technologies

Role of traditional banks in 2030

- As the bank's special position as an intermediary, we have to meet ESG requirements in both directions. I see a lot of potential here in our clients, but there is also great uncertainty as to how this should be designed or implemented.
- Banks will certainly disappear in the far future, people will certainly still be needed for interpersonal contact, but this will not necessarily have to take place physically. New technologies such as video telephony or VR can replace a visit to the bank without completely ignoring the interpersonal component.

Interview #10: Managing Director, Commerzbank

Trends & Uncertainties	▪ Digitization and automation, "retail banking by app” ▪ Standardized services such as loans from the classic banks away as FinTech and Apple, Amazon etc. can offer the same ▪ Blockchain and/or decentralized finance is a hype that will be regulated ▪ Decreasing customer loyalty
Competitive & Regulatory Environment	▪ Competition is no longer comparable, new competitors disrupt the market ▪ Substitution by non-bank companies ▪ New online providers ▪ FinTechs can offer standardized products, no need for individual support ▪ High number of DeFi providers will decrease ▪ Increasing regulatory requirements, regarding blockchain when the US starts regulating this will happen in Germany too
Customer & Values	▪ Trust is no longer relevant the big players have that anyway ▪ Price and performance over trust ▪ Smartphone, internet, online consulting ▪ Branches will continue to close; ATMs will also go away there will be no more cash
Role of traditional banks in 2030	▪ Offer high quality advice and top products ▪ Standardized products must be individualized and digital, not sure whether retail banks will continue to offer them ▪ Trust is not a strength and that is a big problem. Banks lose business to asset management companies, work according to best-advice. ▪ The future is to detach from inhouse products ▪ Banks cannot offer the best price, will continue to lose share

Interview #11: Area Manager, Sparkasse

Trends & Uncertainties

- Financial instruments imitating Indexes or other investment products (Crypto, real estate etc.)
- Less face-to-face and more online consultation, less need for local subsidiaries, more centralization
- Changing customer needs
- High uncertainty regarding sustainability and blockchain

Competitive & Regulatory Environment

- Increasing regulatory requirements, at least in the EU. Other economies might differ, especially the UK, the US is a wildcard
- Cryptocurrencies have to and will be more regulated. Especially due to high risk and use of cryptocurrencies and unregulated markets
- Regulation and innovation are not opposites. Nevertheless, markets will always evolve faster than regulation.
- Big Techs are the only players with enough equity to enter the retail market in any relevant capacity. But I don't think traditional retail banking would be any priority for them. Specific financial services, like credit cards might be a different topic
- Small start-ups don't have the equity to insure deposits to the same extent. While start-ups might be short-term trendsetters there is no real reason why big incumbent companies can't imitate the successful innovations and avoid the unsuccessful ones.

Customer & Values

- Digital services will be more important.

Role of traditional banks in 2030

- More passively managed financial products, more online services, but nothing major will change
- Strength of being more prominent in rural communities