THE ROLE OF ROBO-ADVISORS IN THE GERMAN BANKING MARKET – CRITICAL ANALYSIS ON HUMAN VERSUS DIGITAL ADVISORY SERVICES

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Abstract - Our research paper aims to assess the role of robo-advisors in the German banking market. We stress Germany as target market because there is only little academic literature existent, especially when compared to Anglo-American sources. In our research, we begin by conducting a (i) literature-review and examine main aspects of relevant and latest research results. Secondly, we use (ii) descriptive statistics on a quantitative data base of the isf Institute for Strategic Finance (n=1911). Based on the combined intermediate results from the document analysis and survey statistics, we conduct (iii) semi-structured expert interviews (n=18) with high-ranked representatives from banks, asset managers, robo-Advisors and management firms to thoroughly research the chances and challenges of robo-advice for the German market. The key finding implicates a relevant future role for the digital offering, but current market players fail to offer adequate services and market strategies. There are numerous existing limitations we reveal in our paper (e.g. individuality, cultural bias, artificial intelligence), which are still constraining the full potential of robo-advisory and ultimately confirming the sluggish acceptance and perception by German investors.

Keywords - Robo-Advisor, Digital Wealth Management, Digitization, FinTech.

I. INTRODUCTION

Since the financial crisis in 2007, German investors lost confidence in the financial markets and its actors. In general, the overall confidence in financial institutions was shocked by the incidents. As a consequence, the financial crisis was also titled as a "crisis of trust" because even the interbank trade was affected.

The given research paper shall show, how far new technological investment opportunities are able to win back client confidence and establish as competitive solution besides the classical advisory services. In doing so, we focus on robo-advice as investment innovation, which is characterized by the use of smart algorithms and artificial intelligence.

Among the relevant financial actors are banks and their investment advisors, which dealt with speculative and complex investment solutions, thereby stating them as alleged conservative investment vehicles. Consequentially, many private and institutional investors suffered losses from following the advice. It even led to numerous legal disputes and pathed the way for new regulations in form of the "Markets in Financial Instrument Directive", also called MiFID II. The basic message constitutes incorrect advisory services as well as inadequate risk disclosure by the investment advisors. In addition, there is suspicion that banks preferably offered expensive investment products in order to increase their commission revenues. In this context, the following accusations are often existent when it comes to investment advisory:

- Incorrect or inadequate investment advisory
- Incorrect or inadequate risk disclosure
- Forced decisions in expensive products
- Negligence of individual investor needs

Due to the stated lost in confidence, private investors often make their own financial decisions or refer to investment advice or recommendations from friends or family as well as internet sources (see upcoming survey result). Besides, investors started to look for new investment opportunities to reach capital preservation and growth. Thus, today's media often refer to the term of robo-advice or robo-advisory.

The neologism robo-advice consists of the English term "robot" and "advisory". The literal meaning stands for the advisory service via a robot or a form of machine. This neologism occurred for the first time in the year 2013 in Germany. Robo-advice offers a digital investment advice and portfolio management service, which is based on algorithms and rule-based investment actions. In doing so, the human – normally a component in the value chain – is completely or partially left out. In the original idea, robo-advisors can be seen as a fully digital and automated service, which is accessible via digital channels such as websites or smartphone apps [1].

In order to offer investment advice, a robo-advisor provides an online journey, so that the investor can input his personal data into the corresponding standardized fields. The questions are oriented towards elementary personnel data (e.g. age, occupation) as well as the investment experiences and goals. Based on the input data, smart algorithms are able to provide investment recommendations or sample portfolios. The robo-advisor offerings on market are often associated with benefits compared to their human pendants. In the following, we list the most common

chances, which are stated from robo-advisors as well as in current research debates [2]:

1. **Cost-efficiency**: Robo-Advisors mostly make use of passive index funds, the so-called Exchange Traded Funds (ETFs). Through passive investing and replicating a certain reference index, the robo-advisor is able to avoid costly active funds and still gain positive performances.
2. **Objectivity:** algorithms use client data to assign an adequate investment portfolio based on the given specifications. Human feelings or emotions are left out to guarantee an objective and rational decision-making-process. The idea is to avoid hasty conclusions and thus investment actions, which are characteristic for humans. Rule-based systems can ensure this rational behavior to circulate human errors made by investment advisors and portfolio managers. The objectivity and scientific investment concepts (e.g. Modern Portfolio Theory) are considered in favor of the investor.
3. **Transparency**: Robo-Advisors offer standardized investment services with transparent pricings. The costs are published online and can be accessed at any time.

While the American robo-market shows a volume of approximately USD 256bn (status: December 2018), the German market states approximately EUR 4bn (status December 2018). The German market thus show enormous business potential compared to the international markets and competition. Having said that, it is important to stress the fact, that you cannot compare the German savings mentality with the American investment attitude. Germany has always been a country of conservative investments, thereby showing high savings ratios in products such as savings accounts, fixed deposits and other conservative solutions. However, comparing both countries in regard to robo-advice is still legit to demonstrate the potential for this innovation. Therefore, there are many German robo-advisors on market, which already discovered the potential behind and offer their individual investment approaches. The business models differ in terms of targeted investor or client groups. On the one side, some robo-advisors focus on retail clients and correspondingly low initial financial hurdles (e.g. VisualVest, easyfolio, Oskar). On the other side, there are robo-providers (e.g. Quirion, Scalable Capital) competing for the trust of high-net-worth-individuals (HNWIs). Both approaches lead to the same goal of reaching scalable business and market growth in a sustainable manner.

II. METHODOLOGY

The research paper follows a mixed-methods research design. In the first step, we conduct a literature-review with the latest research results on robo-advisory. The elaboration on the literature reveals thematic priorities in terms of robo-advisory. Literature can possess different research perspectives. The research focus, which deals with the relevance of robo-advice on market, are eligible for selection. In doing so, the research underlines the necessity of further scientific endeavors due to the small offer of literature. Especially the German literature base shows considerable backlog. This can be referred to the late establishment of robo-advice on the German financial market. In comparison, there are more numerous researches from American companies or researchers. This literature might be valuable for the overall and generic contemplation of robo-advice. However, it misses the economic as well as cultural distinctive features of foreign countries such as Germany or generally Europe. This fact emphasizes the research demand on the digital wealth management. The conduct of the literature-review summarizes the research results by providing relevant categories. This content categorization is illustrated and quoted by exemplary works within the review. This deductive approach of forming categories also states the foundation for the coding guideline in the upcoming qualitative approach regarding the category formation. Ultimately, the literature-review provides an adequate foundation with the main aspects on the topic, thereby identifying the categories of “Customer Profiling”, “Portfolio Management”, “Customer Requirements” and “Disruptive Potential” for our research paper. We aim to follow this emphasis to contribute to the current state of literature.
In the second step, we analyze the quantitative data from the 2017/2018 survey conducted by the *isf Institute for Strategic* Finance in Essen, Germany. Participants in the survey are subsumed under the term of „Young Professionals”, thereby indicating individuals with mainly academic background and an age between 18 to 35 years. The survey was conducted online by providing the link on common social media sources (e.g. LinkedIn, Xing, Facebook). It is important to mention, that the survey does not only address matters of robo-advice, but financial investments in general. Hence, 5 out of 36 survey questions are designated with the topic of robo-advisory and exclusively serve the given research in this paper. The remaining 31 questions are not subject to our assessment. The analysis is performed by means of descriptive statistics. In doing so, we use frequency distributions and diagrams to provide an overview of the survey results. The utilized questions are as follows:

1. How do you get financial advice?
2. Would you recommend your personal advisor to your friends?
3. Please explain your answer on the recommendation.
4. Which of the given information sources do you take into investment considerations?

5. What do you want/expect from a bank of the future?

The third and final step states the qualitative research by making use of semi-structured expert interviews. The findings on the document analysis as well as the online survey are combined to develop a purposeful interview guideline. The guideline consists of 10 to 12 open questions and allows the author to pose a question in an order, that suits the individual interview situation. All questions show reference to the categories and subcategories developed in the literature-review as well as to the survey results from the *isf Institute for Strategic Finance*. Single questions in the interview guideline may be left out or added, if it suits the situation and helps to keep the flow of information transfer. All experts are chosen according to the criteria of (i) expert knowledge and (ii) longstanding professional experience in a renowned financial corporation. We interviewed 18 experts in total with an average interview duration of 52 minutes. All interviews are recorded and underwent a transcription process. We analyzed the transcripts by means of the structural content analysis according to Mühlfeld [3]. Text passages of all 18 transcripts are structured by using categories and subcategories in a coding process. The sums of all codes are utilized to reveal the contextual emphasis on the topic of robo-advice.

III. EMPIRICAL FINDINGS

1. The human component still matters

Our empirical results indicate that the human element is still important in the value chain of advisory services. German investors still appreciate the possibility to consult an advisor for different reasons. This can be referred to the discussion of negative performances in harsh times such as the financial crisis 2007 or the current shocks on markets due to the pandemic risks of Covid-19. However, a shift towards digital banking is currently carried out and this fact is already known and visible on the market. This is also applicable for investment services and not only banking in terms of cash management. The *PricewaterhouseCoopers* survey from June 2019 (n=5000) confirms our finding, that bank branches and human contact still matter. The results show that 61% of participants still see local branches as important for assistant services or financial support in complex life situations [4].

The survey data from the *isf Institute for Strategic Finance* shows one question, which deals with the decision-making-process in financial matters. Participants were asked how they make their decisions and if they make use of a third person.

The descriptive analysis of the given data base is demonstrated in Fig. 1 and will be elaborated in the following.

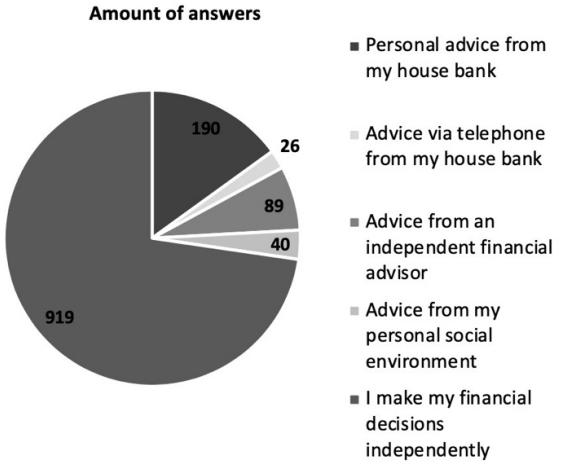


Fig. 1: Survey result on financial decisions

919 out of 1911 or 48% of all participants state, that they make their financial decisions independently. This can be linked to our statement in the beginning of the paper, that investors have lost faith and confidence in banks and financial advisors. They rather prefer or try to take their financial health in own hands to circulate advisory services. Nonetheless, the results also demonstrate, that human advice is still relevant in Germany, even if it is considerably less popular. 26% of the survey participants prefer advice via telephone and 10% are still choosing to go to a bank branch to have a consultation with her/his advisor.

The quantitative result matches the statements from our expert interviews. Many experts, especially the banking representatives, explicitly highlight the majority of their wealthy investors with high affinity for advice. The higher the amount of assets, the higher the need for personal advice (see quote from expert):

"Financial planning requires the planning of one's life situation. You cannot cover this service with robo-advice. Which life situation and planning do you have? Do you want to have children? How do I need to align my assets to different situations in life? The volume of assets under management correlates with the complexity in financial requests."

All experts agree on the fact, that complex financial situations require complex solutions, which cannot be adequately replaced by standardized and unpersonal online solutions. When we asked about the reasons behind it, the experts state (i) the need for security, (ii) the lack of trust towards new technologies as well as the (iii) German savings-culture as the major factors. The latter can be translated into the general German aversion of investments in capital markets (e.g. stocks, bonds). The feeling of security can be only conveyed through personal talks and discussions with advisors. Also, representatives from asset managers and consulting forms stress, that the current market

offering is often not ready yet to deliver this kind of service to make the investor feel comfortable in choosing a robo-solution.

2. Traditional banks must offer digital advisory service

In the previous section, we have already mentioned the relevance of human elements in the advisory service. If we take the sample result from the survey and transfer it to the population of German private investors, then there lies high business potential in reaching out for the entirety of independent investors (48% of participants in the sample). Thus, traditional banks have to use this potential by delivering adequate solutions to attract this target group [5], [6].

One question of the survey deals with the expectations and wishes from participants towards a bank of the future. The question aims to learn what banks can do to stay relevant in the near future. This is important because young startups and especially FinTechs are currently entering the market with aggressive and innovative concepts for financial products and services. The new generation of competitors challenge old-established banks and asset managers, thereby disrupting parts of their value-chains and stealing market shares. This happens in all parts of the financial industry such as in payments, credit solutions and investments. The interviewed bank experts confirm, that they take FinTechs long since as serious competition. This emphasizes the necessity to rethink traditional banking and try to reach out for new concepts or methods to deliver products and services. The results from the survey question provide four major aspects to start with, when considering a customer-centric-approach for new offerings. Table 1 illustrates the results in an overview:

Aspect of Future	No mentioning	I fully agree	I agree	I do not agree	I do not agree at all
Security standards	826	**957**	119	6	3
Cost-efficiency	828	766	268	45	4
Trustworthiness	840	952	110	5	4
24/7-availability	847	366	330	280	88
Branches	859	180	357	364	151
Fast processes	844	656	359	49	3
Ethical standards	849	452	424	132	54
Transparency	840	783	258	26	4
Individual financial products	850	435	427	155	44
Payment solutions	848	417	321	227	98
Personal contact	848	240	387	331	105
Robo-Advice	857	57	191	375	**431**
Highest value within column					
Lowest value within column					
Highest value within question					
Lowest value within question					

Table 1: Survey results on the bank of the future

Table 1 reveals four major aspects for the survey participants: (1) security standards, (2) trustworthiness, (3) transparency and (4) cost-efficiency. When comparing the results with the motifs for robo-advice, which we stated in our introduction, the benefits become visible. Robo-advisory is able to build trust, provide transparency as well as cost-efficiency. The service is available online and all information can be accesses via the website and the smartphone app. It also has the chance to build trust among investors due to their scientific and rule-based business model. Also, it is a cost-efficient solution because current robo-advisors in Germany are mainly using exchange traded funds (or ETFs) in their portfolio to replicate certain indexes. These funds are cost-efficient due to their passive nature, which is a contrary approach to actively managed funds. Regarding the aspect of security standards, neither our literature-review nor our interview experts from robo-advisors stated, that there has been a fraud case.

Table 1 also demonstrates, that robo-advice is not significantly among the wishes for a future bank. There are several reasons why this is the current case on the robo-market. We will elaborate on that in the upcoming section on robo-advice-limitations.

Besides, regulatory requirements are making both retail and HNWI investment business less attractive due to declining profit margins. The consideration of MiFID II, for instance, demands new personnel and technical requirements. This leads to significant increases in costs, thereby affecting the bank's profitability. Hence, robo-advice has the opportunity to solve this cost problem by replacing personal advisory with a cost-efficient digital offering, at least with major focus on retail business. The interview results from the bank and asset manager representatives give rise to the necessity of changing existing advisory services due to new regulations.

To sum up, traditional banks have to offer robo-advice as a complementary service in order to stay relevant for future banking and to retain profitability. The market potential is given among the investors and the competitive situation makes it imperative to cope with FinTechs.

3. Robo-advice is relevant, but shows current limitations

The qualitative expert interviews confirm the existing disruptive potential of robo-advisors on traditional bank companies and thus personal advisory services. All experts agree, that robo-advice states a crucial component in the value chains of banks. It has the potential to disrupt the retail business of banks with their digital accessibility and the cost-efficient strategies. Retail clients or investors naturally have less complex financial situations. They do not require individual advisory services in a way that high-net-worth-individuals may seek [7]. The offering of standard investment solutions – as it is currently provided by the market participants in Germany – is

sufficient to meet average investor needs.
Table 1 already presented a currently low perception of robo-advice in Germany. One reason we want to emphasize is that it often does not offer individual wishes such as stock picking, ethical investments or the exclusion of certain industries. Since the nature of wealth management service targets high-volume customers, the client base of HNWI show complex financial asset structures. In contrast to retail clients, HNWI demand customized and individual financial advisory services. Not only the bank experts, but also the representatives of robo-advisors confirm this factor as a significant weakness of digital wealth management (see quote from an expert):

"It is not always about security investments. Our customer meetings also include the advisory service regarding family-related topics, succession planning, corporate consultancy, cross-border-matters, investments in real estate and art. Investing in funds or ETFs is only a single component of the holistic advisory offer. This full-service approach cannot be covered by a machine in its current state and with its single specialization on digital wealth management."

Going deeper into the limitation of robo-advice, personal wealth management offers individual investment strategies. Provided a specific investment volume is given, investors can build an individual portfolio and take direct influence in the allocation. Bank experts confirm this desire of HNWI to purposefully target specific companies or branches. Also, the exclusion of non-sustainable investments experiences higher popularity. The result is a portfolio, which is based on the expertise of the bank and the investor's desires. Most of the existing robo-advisors on the German market offer either active or passive portfolio strategies. Investors can choose between a determined set of predefined asset allocations. A role model is the robo-advisor *VisualVes*t, which offers a "GreenFolio" with a selection of sustainable investments [8]. This USP pays justice to the rising demand for this kind of investments. The possession of an USP is relevant for the upcoming consolidation on the robo-advisory market.
Another limitation is emphasized in the research work of *Tertilt and Scholz*. Both authors state, that robo-advisors use fewer questions for risk assessment compared to in a personal advisory service. This finding impacts the overall quality of robo-advisors in terms of risk disclosure as well as risk classification [9]. This matches the statement from our experts, that robo-advisors are currently not able to fully replace human services due to their standardized nature. In a personal consultation, the advisor is able to individually dig deeper into the investor's financial situation and can gain a better assessment on the risk appetite.

4. Hybrid-robo-advisors as market opportunity

Combining the quantitative results from the survey on investor demands with the qualitative results on robo-potential as a future-oriented business, we come to the following conclusion: hybrid-robo-advice is the next level for German robo-advisors. The research from *Salampasis et al.* matches our result of introducing a hybrid services as the next "evolution of this model" [7]. We see it as realistic advancement for the future to offer a hybrid robo-solution in combination with optional human consultancy. In doing so, robo-advisors may reach an equivalent service quality to challenge the bank business with HNWI in a disruptive manner.
We already emphasized the necessity of traditional banks to implement a robo-advice solution based on our given interview experts. Against the background of the digital transformation in the banking industry, robo-advisory constitutes a natural "evolution" of the bank offering. *Beyer* states, that banks have to see technology as a chance and not as a threat to the existing business [10]. *Cocca* agrees and even goes one step further and sees the future in hybrid wealth management business models [11]. German bank clients are demanding general online and digital financial solutions. Therefore, product adjustments have to take place in order to meet the market demand. *Uhl and Rohner* even consider cooperation and acquisitions as opportunities to introduce robo-advice in traditional wealth management and bring it to the next level [12].
Traditional wealth management is currently benefiting from their existing HNWI customer base. The interviewed bank experts independently see their clients in the age group of 60 years and above. This group is currently securing the wealth management business in terms of profitability. Introducing hybrid-robo-advice can be a smooth way of gradually transitioning the personal business into the digitized world of finance. In doing so, a company does not run into danger of losing their investor base.

The following four facts are stressing the recommendation to implement hybrid-robo-advisory for future business stability:

1. The imminent generational change is going to shift private assets to the younger generation in the age of 40 and even younger
2. Succession planning of entrepreneurs are going to release new liquidity for wealth management
3. There is an upcoming generation of young entrepreneurs, which demands innovative and flexible solutions
4. Robo-advisory in general offers an adequate and additional investment channel in the digitized world of finance

The presented facts are not only underlining the urgency to attract new customers with a digital offering. It also shows the way to keep existing assets within the company. Succession planning and wealth transfer show the danger of losing assets to competitors. The next generation is more digital-affine and may have a house bank, that is characterized by a digital offering and lastly business strategy. For the future, *Fisch et al.* indicate a growing relevance of robo-advice due to the upcoming younger generations and their need for financial services [13]. *Iannarone* emphasizes in her research that it is imperative to educate the investors in terms of basic investment knowledge to win trust and be successful. This matches the statement from Fisch et al. to pay more attention to the younger generation in order to convince the from a robo-offer [14]. Hence, paying attention to their needs – with reference to our survey results – by introducing a hybrid business model is key to attract assets and gain loyalty for future business viability.

IV. CONCLUSION

The present research paper has the objective to examine the role of robo-advisory in Germany. By interviewing performing a document analysis and including the quantitative data base from the *isf Institute for Strategic Finance*, we use the insights to interview top-ranking experts from the financial industry. The obtained information represents a strategic management view in cross section. We were able to confirm robo-advice as a relevant business model for future investment services but encounter numerous limitations. These limitations hinder robo-advisors to develop their full potential.

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