

## Research Report

# Digital Attention Map: Unveiling Digital Competition Using Online Search

UNDERSTANDING THE COMPETITIVE ENVIRONMENT FOR DIGITAL CONSUMER ATTENTION IS CRUCIAL FOR BANKS' STRATEGIC ACTIONS. THEREFORE, BANKS NEED TO DETERMINE THE MARKET THEY COMPETE FOR, THEIR SUCCESS ON THIS MARKET, AND WHO THEY COMPETE WITH FOR CONSUMER ATTENTION. USING ORGANIC SEARCH ENGINE DATA, WE PROPOSE A NEW APPROACH TO (I) DEFINE THE DIGITAL MARKET, (II) IDENTIFY THE PLAYERS IN THE MARKET, (III) ESTIMATE THE DISTRIBUTION OF DIGITAL CONSUMER ATTENTION ACROSS BANKS, AND (IV) UNCOVER THE COMPETITIVE MARKET STRUCTURE FOR THE ONLINE RETAIL BANKING MARKET IN GERMANY.

Elham Maleki

Bernd Skiera

### Introduction

In recent years, the world experienced tremendous growth of Internet usage. The online landscape has thus become an attractive space where millions of firms seek to draw consumers' attention and improve their online presence (Heinze and Hu, 2006) in order to attract traffic to their websites and persuade consumers to become customers. The retail banking market has also experienced the same growing trend in the digital market. The massive number of consumers and firms in the World Wide Web which provide financial services makes market analysis complex for banks. Yet, understanding this digital competitive mar-

Daniel M. Ringel

ket environment for consumers' digital attention is crucial for managers since such understanding forms the basis for strategic actions around positioning, advertising, and communication as well as website content and design.

Competitive market structure has been studied with various approaches. Yet, those approaches are not applicable for studying competition for digital attention. The digital retail banking market is very large and experiences frequent market entries with various business models including FinTech start-ups. Therefore, banks need to have a precise understanding of who they compete with for digital attention and how

they compete in order to make informed strategic decisions. Moreover, analyzing markets from a demand-side (consumer) perspective is crucial (Adner and Zemsky, 2006) since such analysis provides insights on how consumers search, what is relevant to them in the banking market, and who manages to capture their attention. Although there are some approaches that analyze markets based on consumer decisions (such as surveys and panels), they are usually very time-consuming, costly, require repeat purchases, and suffer from limited cognitive ability of consumers to recall all competitors, and are therefore not applicable to large, fast evolving digital markets.

The aim of this study is to analyze the competitive market structure for digital attention from a demand-side perspective to answer the questions of (i) what is important in the market to define the retail banking market, (ii) who plays a role to identify players in this market, (iii) how important they are by estimating the total attention share they get, and (iv) who do they compete with to understand the structure of the retail banking market.

Our spatial approach is based on the notation that search engine data can be used as a collective memory of consumers (Martinez, 2012) since search engine data contains information about what is important (search terms) and who is important (consumers' clicks) in the market. Using a Digital Attention Map (DAM), banks can define the retail banking market from consumers' perspective, identify different players which are present in their market, evaluate their

success by estimating their digital attention share, and learn about retail banking market structure with different submarkets.

### Our Approach

We analyze competition for digital attention of consumers among firms in digital retail banking markets using organic search results in the following five steps:

- First, we define the market by its characteristics (i.e., keywords) to answer what is important in the market from the consumers' perspective.
- Second, we identify players in the market which appear in Google organic search results for our set of keywords.
- Third, we estimate the importance of the players by the amount of digital consumer attention they manage to capture.
- Fourth, we analyze the competitive relations and similarities of each pair of firms in the market and the market structure.
- Fifth, we combine the insights of the previous steps into a single DAM to provide decision makers with an intuitive, easy to grasp, yet rich analysis output.

### Empirical Findings

In the empirical application of DAM, we aim to analyze and visualize the competitive market structure for digital attention of consumers in the online market for retail banking in Germany.

We identified 902 keywords (search terms) which are important from the consumers' perspective to define this market. We also check the validity of these 902 keywords by ten experts in the respective market.

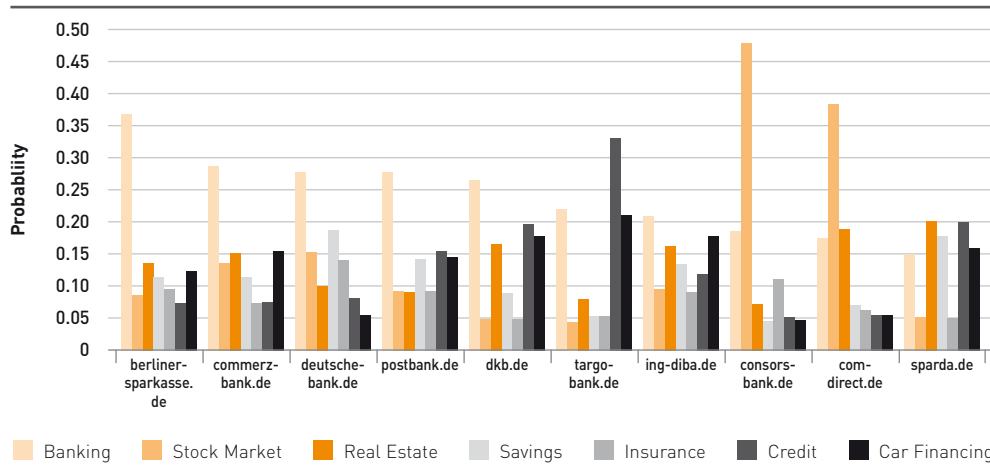


Figure 1: Share of Top Ten Banks in Germany for Each Topic in the Market

We collected search ranks and search volumes for 902 keywords that were selected as market defining keywords. The collected data accounts for a total of 4,360,030 consumer searches in just one month. We identify 606 firms which appear more than five times among the top 30 ranks of google organic search results for our set of keywords.

Using the Latent Dirichlet Allocation (LDA) model with Gibbs sampling, we identify seven main topics in the retail banking market. Figure 1 shows the contribution of top ten banks in Germany in each of the seven identified topics in the market.

Figure 2 depicts the DAM for the online retail banking market in Germany. Each identified firm in the retail banking market is represented by a bubble whose size corresponds to the firm's share of digital attention. The stronger

the digital relation between firms, the closer they appear in the map. We identify eleven distinct submarkets (indicated by bubble color) which upon deeper analysis match submarket themes expected by several bank experts we solicited before map generation.

We also note that the type of business model is a submarket-defining criterion as different colors represent different types of business model in Figure 2.

**Conclusion**

The stream of past research devoted to competitive analysis among products and brands in digital markets proves the importance of understanding digital competition. However, previous research fell short in investigating competition among hundreds of firms for digital attention of consumers in markets defined by consumer search and thus interest. The con-

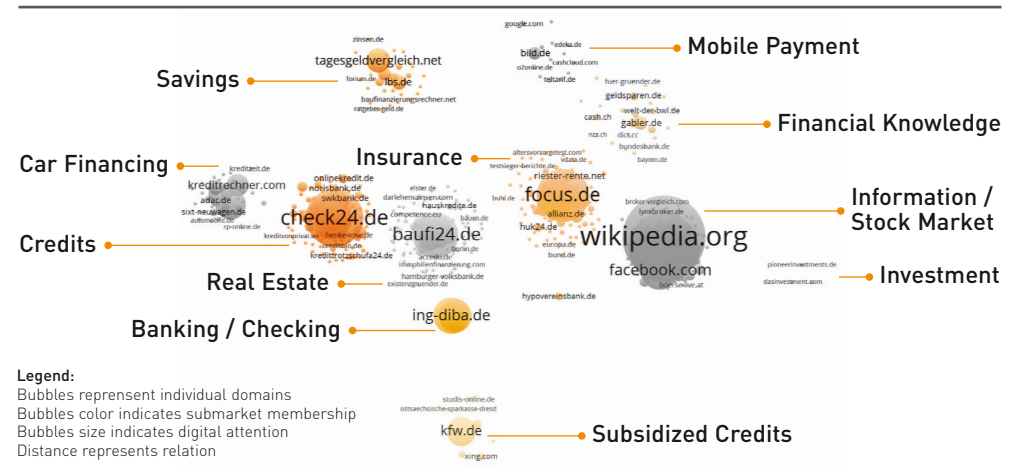


Figure 2: Digital Attention Map for the Online Retail Banking Market in Germany

tribution of this study is of both methodological and substantial nature. We are the first to use readily available and easy to access online search data to define the digital retail banking market, identify competitors which compete for digital attention of consumers in this market, and analyze competitive relations among them. Moreover, we introduce two new metrics to investigate the competitive market structure for digital attention and combine all in a single visual representation called DAM.

Furthermore, we provide banks with a fast and low-cost approach (which is essential in today's rapidly evolving and shifting retail banking market) to obtain insights into the competitive structure of the digital retail banking market, who their competitors for digital attention of consumers are, and how digital attention is distributed across competitors and submarkets. Finally, by using consumer search data from

millions of consumers, we ensure that our analysis reflects the motivation and interests of those targeted by competing firms: the consumers.

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