

Research Report

Virtual Portfolios as a New Data Source to Analyze Investment Decisions

EMITTERS OF MUTUAL FUNDS AND OTHER FINANCIAL PRODUCTS LACK INFORMATION ABOUT THEIR CUSTOMERS. THEY MOSTLY OPERATE WITH A PRODUCT-CENTRIC MARKETING CONCEPT. WITH INFORMATION ABOUT CUSTOMERS, THEY COULD SHIFT TOWARDS A MORE CUSTOMER-CENTRIC STRATEGY. HOWEVER, SUCH A STRATEGY DEMANDS INFORMATION THAT IS HARDLY AVAILABLE. VIRTUAL PORTFOLIOS CAN BRIDGE THIS GAP AND PROVIDE EMITTERS OF FINANCIAL PRODUCTS WITH KNOWLEDGE ABOUT THEIR CUSTOMERS AND THEIR COMPETITORS. THIS ARTICLE ILLUSTRATES THE INSIGHTS THAT VIRTUAL PORTFOLIOS CAN PROVIDE TO EMITTERS OF A MUTUAL FUND.

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Introduction

The 'producer' or emitter of financial retail products, such as mutual funds, warrants, and financial certificates, frequently has only limited knowledge about the actual 'customer', respectively investor. Usually the (financial) 'product' is administered in a securities account of a retail bank. The retail banks have information about individual customers' portfolios but communicate with the emitters of the financial product on an aggregate level. Therefore, producers lack important information about the individual actions, wants, and desires of their customers.

Need for Information

Producers have three major ways of marketing concepts: the product-centric, the market-centric, and the customer-centric view (Shah et al., 2006).

The first one, the product-centric view, assesses products from a technical point of view. The technical specifications and the ability of a company to deliver them is the orientation of an organization (Sheth et al., 2000). The focus is internal, resulting often in companies being organized around products.

The second is the market-oriented view (Lamberti, 2013). Market orientation recognizes the need for market intelligence to learn and capture market insights. Not only insights about customers' current needs and desires but also those of the future. Furthermore, the importance of intelligence being shared and used across organizational functions is emphasized when addressing market orientation. Additionally, as implied by the word 'market', this view also focuses on monitoring external stakeholders (e.g., competitors or government), technology, and all factors that shape the market.

The third one is the customer-centric point of view. This is a development of the market orientation and is not only about understanding needs and desires and sharing intelligence across functions, but also engages customers in firm activities (Lamberti, 2013).

In recent years, there has been a major shift in different industries from a product-centric view towards a market-oriented view and further onto a customer-centric view (Shah et al., 2006). Product-centric organizations tend to focus too much on technical aspects of products (which

are eventually not even valued by their customers) and miss important niches. Also they come and go with their products. When the once popular product is no longer popular, the company will either need to come up with another stellar product or close its doors.

The essential part of turning an organization towards customer centricity is fine granular information about the actual wants and desires of customers. Information about the actions and attributes of customers is the first step to elicit these preferences. The logical subsequent step is to gain reliable insights on the existing competitors and their individual strengths and weaknesses in satisfying the identified customer demands. Indeed, aggregate information such as the information available to emitters in the retail investment market is hardly sufficient for implementing customer centricity.

Different Degree of Knowledge About the Customer

There are different emitters of financial products that also have different degrees of integration into retail banks. In the following, this article focuses on emitters of mutual funds.

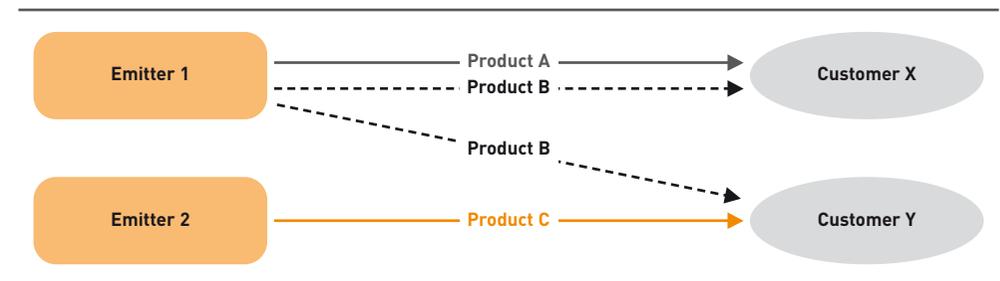


Figure 1: Desired Information Status

Figure 1 presents an idealized view of the information about customers of an emitter, where all customers and their investments are known and the emitter can get a complete picture of the investment of single customers and their competition.

In Germany, there are several major asset managers that emit mutual funds aimed at retail investors, their customers. However, these customers often hold more than one securities account eventually at different retail banks. Frequently, these accounts administer shares of mutual funds together with other types of securities like stocks or structured products.

In general, the emitter of the mutual fund only communicates with the bank as an intermediary, which pools the holdings and all transactions of its clients. Additionally, the counterparty of all associated payments and further information flows is again only the bank. Thus, emitters do not generally know:

- who their customer is (socio-demographic information and other characteristics),
- how many customers they have,

- what their customer holds besides fund, and
- what products are competing with their fund in the investment decisions of the customer.

Figure 2 displays this information set.

Some emitters operate on their own and their funds are marketed directly to customers, while others are part of a corporate group of financial services providers.

The first group of emitters (e.g., Blackrock, Vanguard, Flossbach von Storch) does not have further information about their customers, while the second group (e.g., DWS, Union Investment, Deka) may get some secondary information. A lot of the sales of the latter group stem from its own distribution network and sometimes the asset manager itself is the entity that manages the securities account in the corporate group. Although the second group knows more about their customers than the first group, its information set is less than perfect. They only know about one securities account of a customer, these securities accounts often just keep one type of security (i.e., mutual funds) and often these accounts are restricted to carry only own products.

Additionally, they only know about customers that already do business with them, but neither potential new customers nor the ones that are affiliated with a competitor.

Possibilities to Gain Information

Traditionally, when faced with such information constraints, producers turn towards a market research company. A producer of diapers also only sells to a retailer but gains information about his customers through a third company (here, a market research company, such as GFK or Nielsen).

In the case of financial products, however, market research companies and their usual methods are not adequate. First, these companies do not have a basket analysis of financial decisions on a granular level (single investment products). Second, granular surveys about hundreds and thousands of possible financial products are not feasible. Third, investment decisions largely depend on externalities such as the current state of the market. Furthermore, actual observed behavior is more reliable than survey data (Newman and Lockeman, 1975; Campbell, 2006). On top of that, it is important to assess granular decisions of a customer to distinguish between competing products. Surveys can reveal that, e.g., mutual funds are part of a customer's portfolio, but usually not which particular fund the customer owns.

Another and until now rather unexploited possibility to get information about investment decisions of hundred thousands of customers

provide virtual portfolios. Virtual portfolios are free and offered by many websites to let individuals gain experience about financial markets without forcing them to make an actual investment. They often offer comprehensive analytic tools for the portfolio and a time series of performance.

These virtual portfolios represent a novel data source and offer new insights to emitters who never had this kind of information before. Positive aspects are: virtual portfolios are not affected by banking secrecy, offer granular information about behavior, show portfolio composition at any point in time, and are available for multiple institutions, not only single retail banks. Also they are available in relative abundance and are cheap compared to survey data. The data set in this study has over 16 million virtual transactions of over 500,000 individual customers using over 450,000 different financial products. Yet, a typical restriction for data sets of virtual portfolios is their mixed quality. Cleaning and validating the data is essential for the validity of the results. But using only 10% of the data remaining after the cleaning process still results in a sample that is larger and more detailed than most survey studies.

Virtual portfolios can give an insight to the customer's perspective on investment decisions and reproduce her/his wants and needs. In contrast to observing just the volume of funds in comparison to other funds using the same technical investment strategy, emitters can look beyond the product focus toward the customer's preferences.

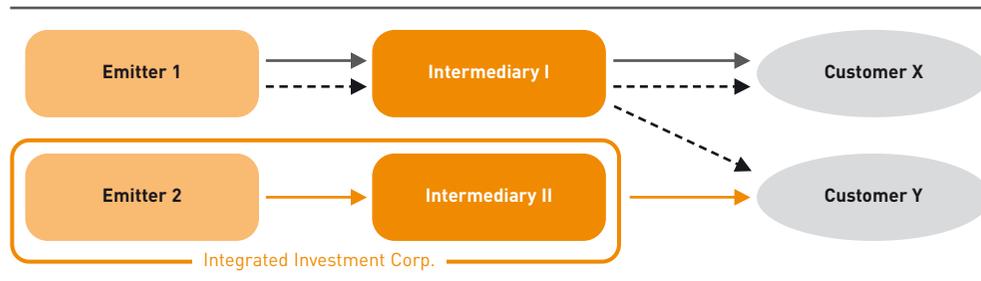


Figure 2: Actual Information Status

Forming customer archetypes, that is, a customer who stands representative for the behavior of a whole group, and segmenting customers can lead emitters to design better products that fit the customers of the respective archetypes. However, to create customer archetype there is a need for information, not only about the desired outcome and self-proclaimed risk preferences (Dorn and Huberman, 2005), but also about actual decisions. When facing market fluctuations, customer archetypes will differ in the way they deal with losses and knowing these types enables emitters to design special products that honor customers' individual preferences.

Example for Analyzing Competition for a Fund

The following example deals with one of many possibilities of leveraging this new data source to produce statistics about market environment that were simply not available before.

The aim of this example is to get information about the competition for a mutual fund, the name of which we do not disguise. The emitters of the mutual fund do not have access to a retail partner that provides information about the customers, their demographics, investment preferences, and portfolio composition.

In order to assess the competition, one computes the lift with every other financial instrument. The aim is to get those products that are most similar to the mutual fund in question. In this context, 'similar' means being picked by the same customer. The lift normalizes the frequency of two co-occurring products and, therefore, does not overemphasize the co-occurrence for a product, which has a very high probability to be in every portfolio (Turney and Littman, 2003). $Lift(A,B) = P(A,B)/(P(A)P(B))$.

Table 1 shows the ten funds that have the highest lift with our mutual fund, while Table 2

shows the ten financial products with the highest lift. Other than expected, only two of the products with the highest lift are actually funds. The customers of the mutual fund have a much higher probability to be invested in certificates and especially in discount certificates on the DAX than the average customer. So, instead of just watching their competition with other mutual funds, managers of our mutual fund should consider passively managed mutual funds (i.e., ETFs) as their strongest competitors.

This example shows that with new available data sources about granular investment decisions, companies can gain insights in customers' preferences and can turn into a more customer-oriented organization.

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1	ACMBERNSTEIN GLOBAL HIGH YIELD PORTFOLIO A	Funds
2	AMUNDI ETF MSCI EMERGING MARKETS UCITS ETF - EUR	Funds
3	BL EMERGING MARKETS A	Funds
4	DWS VORSORGE RENTENFONDS 7Y	Funds
5	ISHARES MSCI EMERGING MARKETS UCITS ETF (LUX)	Funds
6	DB X-TRACKERS PORTFOLIO INCOME UCITS ETF 10	Funds
7	DB X-TRACKERS PORTFOLIO TOTAL RETURN UCITS ETF 1C	Funds
8	LYXOR UCITS ETF EUROMTS ALL-MATURITY INVESTMENT GRADE (DR) EUR	Funds
9	DEKA IBOXX EUR LIQUID NON-FINANCIALS DIVERSIFIED UCITS ETF	Funds
10	SIEMENS WELTINVEST AKTIEN	Funds

Table 1: Other Funds That Occur Often Together with Our Mutual Fund

1	DISCOUNT CERTIFICATE (BLOC) ON DAX PERFORMANCE-INDEX	Certificate
2	DISCOUNT CERTIFICATE (BLOC) ON DAX PERFORMANCE-INDEX	Certificate
3	OPEN END TURBO PUT WARRANT ON DAX PERFORMANCE-INDEX	Certificate
4	UNLIMITED TURBO LONG ON DAX PERFORMANCE-INDEX	Certificate
5	UNLIMITED TURBO LONG ON DAX PERFORMANCE-INDEX	Certificate
6	WAVE UNLIMITED CALL ON DAX PERFORMANCE-INDEX	Certificate
7	UNLIMITED TURBO LONG ON DAX PERFORMANCE-INDEX	Certificate
8	ACMBERNSTEIN GLOBAL HIGH YIELD PORTFOLIO A	Funds
9	MINI FUTURE CERTIFICATE LONG ON ICE BRENT CRUDE FUTURES (BRN) - ICE/C1	Certificate
10	AMUNDI ETF MSCI EMERGING MARKETS UCITS ETF - EUR	Funds

Table 2: Other Products That Occur Often Together with Our Mutual Fund