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MULTIDIMENSIONAL FINANCIAL ASPECT OF THE MARKET

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Abstract

The digitalization of the economy, scientific and technical progress, the elimination of language barriers along with the internationalization of economic life have led to the development of new business models called multidimensional platforms. Such names as MasterCard, Visa, Airbnb, Amazon, Facebook, etc. are widely known for their fast development and represent business models in the form of multidimensional platforms. Defining multidimensional markets, identifying the characteristic elements, determining the relevant market, and analyzing the competitive environment in multidimensional markets, represent a real challenge for competition authorities. Assessing unilateral or coordinated behavior in the multidimensional market is a rather difficult exercise due to the complexity of these relationships, for which traditional approach is insufficient. In order to clarify these issues, a theoretical analysis of this structure is needed, but the decision-making experience of the competition authorities in the European Union is also useful. Multidimensional markets are found in different sectors of the national economy, therefore several segments of the financial market have the characteristics of multidimensional markets, and, at the same time, thanks to a complex, theoretically grounded approach to multidimensional platforms one can avoid errors and identify solutions.

This paper presents and analyzes the concept of a multidimensional market, the particularities of determining the relevant market, and the analysis of the competitive environment depending on the type of market and the specifics of the financial sector.

***Keywords**: multidimensional market, financial market, relevant market, competition*

1. Introduction

The concept of multidimensional market has become more widespread in recent decades thanks to the work of Jean-Charles Rochet and Jean Tirole [14] who were among the first to distinguish between traditional (one-dimensional) markets and multidimensional markets. Subsequently, it was accepted that multidimensional markets require a different approach from traditional markets, but for a correct assessment of the multidimensional market, it is necessary to determine how they differ from traditional markets. Currently, there is no consensus on the terminology applied, for these reasons we consider that the notions of "two-sided market", "two-dimensional market", "platforms", and "multidimensional platforms" could be used in the same sense as the notion of "multidimensional market", for a uniform exposure. If a business serves two or more distinct consumer groups (each group represents a market size), it is considered to be active in a multidimensional market. There are many examples of multidimensional markets: the media market, the payment card market, stock exchanges, shopping centers, digital platforms, the press, etc.

Although it may seem that multidimensional markets have emerged with the digitalization of the economy, this impression is wrong. Along with the digitalization of the economy, these markets have stood out and developed. Multidimensional markets previously existed in the "off-line" environment, such as the print media market, which serves: readers, content trainers (journalists) and advertising agencies.

In the opinion of the OECD Competition Committee Chairman, Frédéric Jenny [13], platforms (multidimensional markets) are not a new business model, but rather an old one that has been invigorated on a larger scale in the interest of participants in the modern economy. Platforms differ from traditional markets and, in particular, due to important externalities, which, if ignored, can lead to wrong decisions. Platforms are business models used in various branches of the national economy and should be seen as technologies that minimize trading costs, facilitating transactions that would not possibly take place outside the platform. The issue of multidimensional market analysis is also determined by the lack of relevant statistical data, so official statistics do not have data on the economic activity of entities or systems qualified as multidimensional platforms or these data reflect the truncated situation and do not characterize the complexity of economic relations.

This paper analyzes the research results related to multidimensional markets, the criteria for defining the multidimensional market, its characteristics, typology and their specificity in the process of analyzing the competitive environment, especially on the financial market.

2. Present stage of problem investigation, the aim of the study

2.1. Defining the multidimensional market

The delimitation of a multidimensional market from a traditional one starts from its features. In the case of a traditional (one-dimensional) market, we have a confrontation between supply and demand for the same goods. The market in conventional vision [1] is presented as a vast complex of bilateral relations, involving information, negotiation, and an indispensable institutional framework.

The pioneers of multidimensional market theory, Rochet and Tirole [14], delimit one-dimensional markets, starting from Coase Theorem. They suggest that the market is considered one-dimensional if end-users adjust the actual allocation of the task, the asymmetry of information between buyer and seller is maintained, and the price is determined by monopoly or the negotiation of the parts. Rochet and Tirole define the multidimensional market relying on the price structure. Thus, "a market is two-dimensional if the platform can affect the volume of transactions by charging more on one side of the market and reducing the price paid by the other part, by an equal amount. In other words, the pricing structure matters, and the platforms need to design it to bring both sides on board. However, their approach to price structure may not always be applicable. For example, if a party does not pay for using the platform's service (for example, free newspapers, free smartphone applications, etc.), prices for different parties cannot be "tied together in a fixed proportion" because there is no price for one of the parts.

Most multidimensional markets are free to consumers; platform managers have waived the fee to enter or use their platform services but instead have used the available technology to monetize the information given by users. Thus, platforms differ from traditional markets due to the existence of externalities, in particular the demand manifestation, which, if ignored, can lead to inaccurate conclusions and decisions.

According to Marc Rysman [15], the following elements portray the two-dimensional markets:

1) Two groups of participants (agents) with different interests cooperate through an intermediary or a platform;
2) Decisions of each group of participants (agents) affect the results of the other group of agents, usually through external factors.

Andre Hagiu and Julian Wright [11] introduced a new definition for multidimensional platform enterprises, which is based on two elements: (i) multidimensional platform enterprises allow direct interactions between two or more distinct sides and (ii) "each part is affiliated to the platform". This definition is completed by the explanation of the notions of "direct interactions" and "affiliation". "Direct interactions" are described as occurring if "two or more distinct parts preserve control over the key terms of the interaction, as opposed to the intermediary taking control of those terms". "Affiliation" is used in the sense that "users on each side make platform-specific investments that are necessary for the interaction directly with each other". Thus, Hagiu and Wright do not consider prices as a key term of interaction between the parties, and the qualification of the market as multidimensional.

Evans and Schmalensee [7] suggested a less formal definition that captures the key characteristics of platform enterprises. A multi-sided platform (called an economic catalyst), "has (a) two or more customer groups; (b) who need each other; (c) but which cannot capture the value on its account; and (d) rely on a catalyst to help value-creating interactions between them". This definition focuses on the platform's role in creating the value that would not exist (or would be much lower) in its absence. This value is created as a result of solving a coordination issue and the cost of the transaction between customer groups. Production and allocation of this value between several sides are determined simultaneously. How much value each party gets, determines whether they will participate, and also how much remains in profit for the platform. Price structure is essential for determining this allocation.

There are numerous definitions of multidimensional markets. We believe that the multidimensional market is the one in which a company acts as a platform and sells different products to diverse consumer groups, recognizing that the demand for a product from a group of customers depends on the demand for another product, from the other group.

2.2. Characteristics of a multidimensional market

Certain aspects of multidimensional markets are more or less common in each definition. There are four specific elements of multidimensional markets: platforms, users gathered by platforms, pricing structure and indirect network effects.

- **Platforms**

Evans and Schmalensee [7] refer to platforms as "catalysts". The reason is that it works as an interface, connecting different users, which, without the help of platforms, would be particularly difficult or even impossible to transact. Multidimensional platforms considerably reduce trade costs and vary extremely: academic journals, payment card systems, search engines, PC operating systems, dating sites, auction sites, etc. In terms of competition, the platforms compete with others, but they can also face traditional market companies. An illustrative example is Uber service and traditional taxi services.

- **Users**

Users in multidimensional markets can be either distinct groups, or also the same users who can change sides in each transaction. Besides, users can access and use multiple platforms (multi-homing). A user may find several platforms attractive because of distinct features and may use multiple platforms for a particular service. This is possible due to the differentiation of the product, which is materialized by the differentiation of the platforms. This is done either by product quality (vertical differentiation) or by characteristics and prices (horizontal differentiation).

- **Price**

Platforms would charge fees for all parts, as they provide products or services on each side of the platform. However, the price in multidimensional markets is based not only on its costs and demand but also on the benefits of their participation on the other side/part, in particular-demand and profits on the other side. An important consequence is that in many multidimensional markets, the cost of interaction on one side is reduced, sometimes to zero. In fact, in multi-part markets, one group of agents using the platform is usually subsidized by the platform, while another group of users pays for the services provided by the platform.

- **Indirect network effects**

There is an indirect (or intergroup) network effect "when the utility of a consumer belonging to one group of consumers depends on the number of consumers in the other group (s)". In other words, there are indirect network effects when "the value that a consumer derives from a good or service increases with the number of additional users of identical and/ or interoperable complementary goods". Therefore, in markets with network effects, each consumer's choice affects the value obtained from the market for other consumers.

Demand characterized by the *indirect effect of the network* is the process when the consumer's desire to purchase a product depends on the number of consumers of another product. *The direct network effect* is when consumers are willing to pay for a product depending on the number of consumers of that product.

The different parts of a multidimensional market are interconnected due to the existence of network effects. Several agents on one side bring more agents to the other side. Often, network effects are associated with limitations to entry, with anti-competitive potential. On the other hand, network effects are not "necessarily problematic". In this regard, in the case of the Facebook/ WhatsApp merger [6] the Commission provided that no network effects are indicating a competition issue in the market affected by the merger.

2.3. The typology of multidimensional markets

Although the presence of several groups of customers with whom a certain type of interaction takes place characterizes all multidimensional markets, the type and purpose of the interaction, as well as the role of the platform operator, may vary.

Multidimensional markets can be divided into two groups, depending on the role of the platform:

- ***Platforms on which transactions can take place*** are intermediaries whose purpose is to allow direct (observable) transactions between two distinct customer groups. Both groups have the same goal, to make a transaction with the other part. There are indirect positive network effects between the two groups that are internalized by the trading platform. (The card payment market, where the payment of the right to use the consumer card and POS terminals for purchases takes place upon fee. Thus, the higher the number of cardholders, the greater demand from membership merchants to payment systems.)
- ***Platforms on which transactions cannot take place (non-transactional)*** mediate another type of interaction. They do not necessarily involve a subsequent transaction (observable) and do not necessarily have positive bilateral effects in the network. They can be divided into:
    a) Non-transactional platforms that connect users (e.g. social networks)
    b) *Non-transactional platforms* that provide information to some users and access to an audience for other users (e.g. the media market, where the sale of content and advertising takes place. In this market, the demand of merchants for advertisement space in a media market increases, as the number of content consumers (viewers, readers, listeners, etc.) rises. Although, the amount of publicity can latter affect them, positively or negatively).

From another point of view [17] multidimensional markets can be divided into matching platforms and advertising platforms (information).

Matching platforms are intermediaries that connect customers with common interests to achieve common goals. Transactions can take place as a result of these actions. Thus, platforms on which transactions can take place are as a variation of matching platforms.

Advertising (information) platforms create conditions for the interaction of one group of users - advertising providers, with another group- the public that accepts advertising. The platform facilitates interaction between advertising providers and users in the form of subsequent transactions because of the reaction to publicity.

2.4. Defining the relevant market for multidimensional platforms

Traditionally, the starting point for analyzing an anti-competitive practice is to define the relevant market that may be affected. This allows us to define demand and identify competitors. However, when an anti-competitive practice involves a platform or a company that has a business relationship with a platform, the situation is different because it is necessary to define the markets at the preliminary stage.

The problem is that multidimensional markets, as mentioned, involve distinct groups of customers, different products, and for these reasons, there can be two alternative approaches to market analysis: defining markets separately for each group of customers or defining a single market that includes all customer groups. To answer this question, we should take into account the following suggestion [9]:

- In multidimensional (non-transactional) markets, we must define several interdependent markets for each side,
- In multidimensional (transactional) markets, we should define a single market.

For companies with several products and locations, which work in traditional markets, it is necessary to determine the relevant market for each product, location to determine whether they are part of the same or different markets.

In contrast, in multidimensional markets, the product supplied on one side of the market does not compete with the product supplied on the other side of the market. Nevertheless, the demand for the product on one side of the market influences the product demand on the other side.

The most common method of determining the relevant market is the Hypothetical Monopoly Test or the SSNIP (Small but Significant Non-transitory Increase in Price). This speculative analysis examines whether a hypothetical single supplier of a product can profitably apply a small but significant and lasting price increase, in conditions that all other products' prices remain unchangeable. A small, significant and long-term rate increase is 5-10% for one year. If this cost increase is considered not profitable, since the product would have been substituted with other products, then these products as well as the areas where their suppliers are located will be included in the relevant market. The process is repeated for a new product group and a new geographical area until the price increase is profitable, therefore no other products or areas can be included in the relevant market.

The definition of the relevant product market in multidimensional markets should include all elements "to properly assess the competitive restraints faced by firms". However, it may not be beneficial [10] to set a uniform SSNIP methodology for all multidimensional cases, due to the variety of multidimensional markets and pricing structures, as well as the level of indirect effects of the network on multidimensional markets.

The method of applying the SSNIP test in multidimensional markets:

i. In a multidimensional non-transactional market, we should monitor the profitability of a price increase on each side of the market;
ii. In a multidimensional transactional market, we must examine the profitability of an overall increase in the price level (the sum of the prices paid per transaction by the other parts).

Because the transaction price is often zero, the task of defining the relevant market in multidimensional markets is complicated. However, in this situation, the Hypothetical Monopoly Test can be used. In this case, Lapo Filistrucchi suggests the SSNDQ (Small but Significant Non-transitory Decrease in Quality) Test, which can be applied since the Hypothetical Monopolist Test is a test of profitability. A company can gain surplus value, both by increasing price and reducing costs, by investing less in quality [13]. The problem with applying the SSNDQ Test [8] is due to the fact that consumers cannot always make a difference between quality reductions and cost reductions.

Competition authorities may be tempted to determine the relevant product market only on a payment basis, as one part of a multidimensional market is usually subsidized by another one. Each part of a multidimensional market, paying or non-paying, could theoretically be a separate product - market, which should be taken into account when forming a market opinion. In addition, it should be broader, multidimensional.

Although firms operating within two-sided markets have a strategy similar to those in unilateral markets with complementary (interdependent) products, the fact that buyers do not notice and appreciate indirect network effects differentiates the two-sided platform from the market with additional products. In the case of complementary products, they are bought by the same consumers who take into account both prices when making a purchase decision. Two-sided platform customers do not consider both prices.

The Court of Justice of the European Union has confirmed by its decision in the Groupement des cartes bancaires [12] that the interaction between activities in multidimensional markets is to be taken into account in the analysis of anti-competitive practices.

Important aspects could be omitted by the fact that one of the facets is not taken into account in defining the relevant market. For example, if one platform increases the price on one side, this would have an impact not only on the number of consumers deciding to leave this facet but also on the consumers from the other side [16].

In a multidimensional market, we have to analyze all the needs of its units, as we can achieve all benefits of the network's indirect impact when participation of several entities from all sides is ensured. In a traditional market, consumers and producers are often considered as a whole, while in multidimensional platforms, consumers with different preferences could be divided and considered as independent groups. Increased use of the platform by one consumer group would create an external effect compared to other groups [16]; therefore, special attention must be paid to indirect externality of the network from the demand side.

The use of quantitative methods in determining the relevant market also involves certain difficulties, in particular when estimating the impact of indirect network effects. Accumulating the necessary data is a real challenge for assessing the indirect network effects because a part of the demand change is a feedback effect. In addition [18], the time before indirect network effects can fully manifest themselves may vary. Thus, beyond the econometric methods in determining the relevant market for multidimensional platforms, it would be useful to apply quantitative descriptive and qualitative methods.

In general, characteristics of multidimensional markets do not allow competition authorities to continue operation in their usual ways. One can use the tools previously created to define the relevant product market in multidimensional markets with the necessary adjustments. To properly assess the competitive environment for multidimensional markets, we need a clarification of the concept of a multidimensional market and a review of financial market approaches.

The aim of the research is to identify the characteristics of the multidimensional market, especially in the financial market, so that the analysis of the competitive environment in these markets takes into account the identified particularities.

3. Applied methods and materials

Different research methods were used during the research process, such as systemic, normative and dynamic approach, as well as other research methods, such as synthesis; economic analysis; induction and deduction, applied in the dialectic of knowing the researched problem. We also examined the decisions of competition authorities of the European Union and the USA.

In addition, to recognize the main concepts presented in the paper, we used the results obtained in a series of publications and articles by relevant experts that are an important source of arguments based on empirical data.

4. Obtained results and discussions

Multidimensional aspect of a financial market

Approaching the concept of financial market in the competitive analysis involves reviewing the criteria that underlie the configuration of a financial market.

Competition between rival subjects in a financial market is a dynamic process that provides consumers with identical or similar financial services, and tends to improve their performance. The financial market is specific and its structure (number of competitors, barriers of entry and exit from the market, etc.) mostly determines the character and intensity of competition.

Economic advantages which financial institutions are aiming, determined by the market share, profitability, etc. represent the object of competition on the financial market.

Financial institutions are entities whose main function is to finance, namely to collect, transfer and distribute financial resources. The role of these institutions is to mediate, with profit or commission, between economic entities seeking funds and those seeking investments for their economies. *The existence of an intermediary, of a financial institution, does not necessarily mean that a full financial market is to be qualified as multidimensional without analyzing its characteristic elements.*

Consumers, whether natural or legal individuals are subjects of financial market relations, around which financial institutions revolve. This fact mainly determines the intensity of competition in the sector. Consumer preferences form the demand for certain financial products (services), and the satisfaction of these needs by financial institutions enhances their results.

Considering the fact that the consumer is the central element of competitive relations, one can divide the financial market in terms of competitive analysis according to consumer interests into the following components: the savings market; the multiplication market; the insurance market; the loan market; the money transfer market.

The structure of a financial market presented above better corresponds to the objectives of the competitive analysis of the financial market. At the same time, if solving a competitive problem requires a more detailed classification it is necessary to take into account the methods for defining the relevant market and the following sources of competitive constraints: substitutability of demand and supply sides and possible competition.

An interesting case of a multidimensional financial market is the payment card market, which is part of money transfer market and is one of the most obvious and studied examples of a multidimensional market. The card payment system provides services to cardholders that facilitate the purchasing process and renders services to merchants who receive cash more efficiently, but also make a larger amount of sales. Much more significant is that the demand on the given market sides is interdependent, so the value that the buyer assigns to a certain type of card depends on the number of merchants willing to accept the card to make the payment, while the value of the card payment system depends on the number of buyer users. Consequently, the operator of a card payment system must adopt such a pricing policy to ensure the widest possible presence on both sides of the platform.

The payment card market comprises two distinct business models: open system and closed system. *The closed system* (AmEx) is a payment system between the retailer and the purchaser operated by a single enterprise that interacts with both groups of customers. *The open system* (Visa, MasterCard) is not operated by a single company, but by an association of banks, which through their cooperation facilitates the payment process between the buyer and the merchant. In the last system, banks and other members of a payment association issue cards and provide POS services.

Both open and closed card payment systems imply the existence of certain fees for the services provided. Since the open system includes several participants, the transfer of resources through such systems involves additional fees and is more expensive.

Because of regulatory intervention and competition policy, the associations of banks involved in card payments were transformed into enterprises, giving rise to a fifth participant in the system. It is therefore possible to distinguish between the three-, four- and five-part payment systems.

Several competition authorities focused on cooperation between banks in the open card payment system and fees for services provided under the payment system. Although all agreed that the payment card market is multidimensional, they did come to a consensus on defining the relevant market limits.

In Visa-I [2] and Visa-II [3] cases, the European Commission has defined a single market for card payment transactions between cardholders and retailers. Thus, the Commission has identified competitive pressures in the upstream market, that refer to inter-system competition between different card payment systems and in the downstream market for intra-system competition between different banks, to attract as many customers as possible (merchants and cardholders). It should be noted that in these cases the European Commission did not find a violation of competition law, so a detailed market analysis was not required.

In more recent cases Master Card [4] and Visa-III [5] depending on the identified competitive problem, the European Commission has delimited: the upstream market or the network market which refers to inter-system competition, respectively the rivalry between different card payment systems, and the downstream market (intra-system), which was divided into two relevant markets: the issuance market and the acquisition market.

Supply and demand analyses of the purchasing and issuing markets have shown that neither the purchase nor the issuance of cards has been sufficiently substitutable for any equivalent services of other payment means, in particular cash, checks, credit transfers or debit payments, to be considered part of the same market. The European Commission has left open the question of whether procurement and issuance markets should be further subdivided.

In the Master Card case, the European Commission [9] acknowledged the two-dimensional nature of the market but refused to define a single relevant market. The reasons are the following: 1) the definition of a single market will not reflect the complexity of structural market relationships and will not be sufficient for the assessment of intra-system competition; 2) a relevant market includes not only payment services, but also issuance and acquisition services; 3) such an approach will be incompatible with the Commission's previous practices with multidimensional markets, for example in the case of newspapers. As can be seen in this case, the Commission did not distinguish between the transactional and non-transactional multidimensional market (media market).

In the case of Groupement des Cartes Bancaires, a relevant market was defined as the market for issuing payment cards. The European Commission accepts that there is an interdependent demand from merchants and cardholders, but not that there is a common amount of a single product. Card issuers and purchasers offer their services to individual customers. Issuing and purchasing are fundamentally different activities, involving different specializations and costs. Therefore, issue, purchase, and payment system each are a separate market, and according to the Commission's practice [12], a relevant product market comprises all those products and/ or services that are considered interchangeable or substitutable by the consumer, due to the characteristics of products, prices or intended use.

In the Commission's view, interdependencies are possible between issuing and acquiring activities, each of these being claimed to generate positive externalities for the other (the "two-sided" nature of card payment services). The Commission does not dispute that payment by card has two "sides" to the existence of network effects. Issuing and purchasing activities are indispensable for each other and for the operation of card payment system in general. Merchants would not agree to join a card payment system if the number of cardholders was insufficient. Similarly, consumers would not want to own a card if it was not used by a sufficient number of merchants. However, the "two-sided" nature of economic activity does not in any way mean that the system in question constitutes a single market.

Although the Court of Justice of the European Union in its judgment (T ‑ 491/07) upheld the decision of the European Commission of 17 October 2007 (COMP / D1 / 38606 - Groupement des cartes bancaires "CB"'), the Court of Justice of the European Union in its judgment of 11 September 2014 in Case C ‑ 67/13 P revoked that judgment. The reason for this action is that not all relevant factors were taken into account, in particular the nature of affected services, the actual operating conditions and structure of markets, with regard to the economic or legal context. Thus, in the opinion of the Court of Justice of the European Union, the Commission had to take into account the interaction between the two facets of a two-dimensional system when defining the relevant market.

In the case of multidimensional platforms, the risk of market expansion determines the concern of competition authorities in defining a relevant market. This fact would depreciate the importance of practices, which in authorities' view generate competitive problems. At the same time, we cannot ignore the specific nature of relationships in multidimensional markets, which are to be examined and assessed in the process of defining a relevant market.

5. Conclusions

The multidimensional market is at an early stage of research and is a challenge for competition authorities. At the same time, we consider relevant the definition that reflects the key characteristics of a multidimensional market: it has two or more groups of customers, who need each other but cannot independently achieve value and rely on a catalyst to facilitate interaction with customers, creating values between them.

Due to structural relationships, a multidimensional relevant market cannot be defined without taking into account all its aspects, including dynamic mutual impact (feedback). Indirect network effects are to be taken into account even at the risk of widening the market, and it is always necessary to take into account competition objectives, consumer welfare improvement, and innovation stimulation. Thus, in the case of multidimensional platforms, one could avoid errors and identify appropriate solutions only through a complex, theoretically grounded approach of the relevant market.

Currently, there is no single approach to the concept of multidimensional markets and the methodology for analyzing the competitive environment in these markets. For these reasons, clarification of these issues would allow a more complex analysis of multidimensional markets and a review of approaches to competition in financial markets.

The development of digital technologies is expanding the development of financial markets. Due to its characteristics, especially the existence of intermediation, they should be carefully studied in terms of consistency with the elements characteristic to multidimensional markets, and the development of a methodology that would allow identification of multidimensional financial markets.

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Rezumat

Digitalizarea economiei, progresul tehnico-științific, eliminarea barierelor lingvistice și internaționalizarea vieții economice a dus la dezvoltarea unor modele noi de business denumite platforme multidimensionale. Așa denumiri precum MasterCard, Visa, Airbnb, Amazon, Facebook etc. sunt pe larg cunoscute datorită dezvoltării sale vertiginoase, și reprezintă modele de afaceri sub forma de platforme multidimensionale. Definirea piețelor multidimensionale, identificarea elementelor caracteristice, determinarea pieței relevante și respectiv analiza mediului concurențial pe piețele multidimensionale reprezintă o adevărată provocare pentru autoritățile de concurență. Evaluarea comportamentului unilateral sau coordonat pe piața multidimensională este un exercițiu destul de dificil datorită complexității acestor relații, pentru care abordarea tradițională este insuficientă. În scopul clarificării acestor aspecte este necesară analiza teoretică a acestei structuri, dar este utilă și experiența decizională a autorităților de concurență din Uniunea Europeană. Piețele multidimensionale se regăsesc în diferite sectoare ale economiei naționale, astfel, mai multe segmente ale pieței financiare au caracteristicile piețelor multidimensionale, totodată numai printr-o abordare complexă, teoretic fundamentată a platformelor multidimensionale se pot evita erorile și respectiv identifica soluții.

Această lucrare expune și analizează conceptul pieței multidimensionale, particularitățile de determinarea a pieței relevante și analiză a mediului concurențial în dependență de tipul pieței și specificul sectorului financiar.

Cuvinte-cheie: *piața multidimensională, piața financiară, piața relevanta, concurența*

Аннотация

Цифровизация экономики, научно-технический прогресс, устранение языковых барьеров и интернационализация экономической жизни привели к разработке новых бизнес-моделей, называемые многомерными платформами. Такие имена, как MasterCard, Visa, Airbnb, Amazon, Facebook и т. д. широко известны своим головокружительным развитием и представляют бизнес-модели в виде многомерных платформ. Определение многомерных рынков, выявление характерных элементов, определение соответствующего рынка и анализ конкурентной среды на многомерных рынках, соответственно, являются реальной проблемой для антимонопольных органов. Оценка одностороннего *или скоординированного поведения на многомерном рынке является довольно трудным делом из-за сложности этих отношений, для которых традиционный подход недостаточен. Чтобы прояснить эти вопросы, необходим теоретический анализ этой структуры, но также полезен опыт принятия решений антимонопольными органами в Европейском Союзе. Многомерные рынки находятся в разных секторах национальной экономики, поэтому несколько сегментов финансового рынка имеют характеристики многомерных рынков, и в то же время только благодаря комплексному, теоретически обоснованному подходу к многомерным платформам можно избежать ошибок и найти решения.*

В данной статье представлена и проанализирована концепция многомерного рынка, особенности определения соответствующего рынка и анализ конкурентной среды в зависимости от типа рынка и специфики финансового сектора.

Ключевые слова: *многомерный рынок, финансовый рынок, соответствующий рынок, конкуренция*

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