St. Petersburg University
Graduate School of Management

Master in Corporate Finance

THE IMPACT OF M&A DEALS ON FINANCIAL PERFORMANCE OF RUSSIAN DIGITAL ECOSYSTEMS

Master’s Thesis by the 2nd year student Oleg I. Kalmykov

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**АННОТАЦИЯ**

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| Название ВКР | Влияние сделок M&A на финансовые показатели российских цифровых экосистем  |
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| Описание цели, задач и основных результатов | В данном исследовании проанализирован эффект от сделок по слияниям и поглощениям на финансовые показатели среди 5 крупнейших игроков рынка цифровых экосистем в России. Так как M&A – один из способов захвата новых ниш и усиления позиций на рынке экосистем, мы предполагаем, что рынок реагирует на такие активности со стороны компаний. Таким образом, цель исследования – исследовать эффект от M&A сделок на финансовые показатели компаний, создающих цифровые экосистемы в России. В качестве метрик финансовых позиций компаний были выбраны метрики повышенной доходности CAR и BHAR в рамках event study подхода. Были построены линейные регрессии и рассмотрены факторы, влияющие на повышенную доходность компаний после проведения M&A сделок. По результатам, можно установить, что активность в сфере слияний и поглощений имеет эффект на такие метрики, но только в крайне краткосрочном периоде – в периоде (-1 день; +1 день) и в день самой активности (анонс). Были выявлены факторы, имеющие связанность с повышенной доходностью в эти периоды .  |
| Ключевые слова | Цифровые экосистемы, M&A, event study approach, повышенная доходность, CAR, BHAR. |

ABSTRACT

|  |  |
| --- | --- |
| Master Student's Name | Oleg I. Kalmykov |
| Master Thesis Title | The Impact of M&A Deals on Financial Performance of Russian Digital Ecosystems |
| Educational Program | 080500 “Management”  |
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| Description of the goal, tasks and main results | In this research the impact of M&A deals of 5 Russian major digital ecosystem creators on their financial indicators is analysed. Since M&A activity is one of the methods to acquire new markets and strengthening on digital ecosystem market, we assume that stock market reacts on such events. Thus, the goal of the research is to to investigate what is the effect of M&A deals on companies' financial performance in Russian digital ecosystems. There were chosen event study approach metrics. Accordingly, there were used AR metrics (CAR and BHAR) as a financial indicators of acquirers. There were built linear regressions and there were viewed factors that are related with AR of acquirers.According to the results, we can state that M&A activity has and impact on financial indicators of the viewed companies, but only in a short-term. Precisely, in a day of a deal and in event window of (-1day; +1day) there were identified factors, that are related with AR in such periods.  |
| Keywords | Digital ecosystems, M&A, event study approach, abnormal returns, CAR, BHAR. |

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# **INTRODUCTION**

Many articles are devoted to the measuring performance of M&A deals in different markets and many metrics are used. Since M&A activity is one of the key components in the strategy building in giant companies, they are studied to get an answer to one important question: How M&A deals effect on performance of the acquirer? Literature review represents that results are ambiguous, and many variables must be taken into account. There are used different metrics, including event study indicators, accounting-based indicators, subjective assessments and some mixed metrics. And many other variables are used as independent variables with an aim to find correlation between them and these indicators of company’s performance after M&A. Still, the question of finding right variable is opened and for each market there are certain specifics.

On the other hand, there is number of studies, that are devoted to the ecosystem creation processes among different companies. This term evolved as a parallelism between business and ecology and become popular in the scientific community. Many authors examined various aspects of ecosystems, and eventually there occurred term of “digital ecosystem”, close to the “multiservice platform” in business. Then, there occurred certain research gap. It is obvious and can be empirically observed that during ecosystem creation many giants such as Google, Amazon, Apple, Alibaba and other big tech companies acquire some specific niche players to expand their product lines. Still, this field is understudied.

On this point there can be provided a parallel – not only global giants build ecosystem, but some Russian companies also do it. There are 5 major players – Yandex, Mail.ru Group, Sber, MTS and Tinkoff, which take an active part in creation of digital ecosystems in Russia. They are initially affiliated with 3 industries – online service providers, banks and telecom, but they all move in the direction of multiservice platforms. As they initially had large client base, they can try different product and to build an ecosystem of products around their clients. Still, they can do it via 2 options – to do it by themselves, organically growing internal startups and launching products or to acquire certain market player that provides perspective service. And this field is also understudied.

This research connects this 3 fields and there was made an attempt to review how M&A deals effect on acquirers’ financial indicators. Author primarily concentrates on financial performance on stock market, then “financial performance” does not include here accounting-based metrics. There were built several models in the event study approach, using common methodology of CAR and BHAR analysis. There were used some commonly used event-connected financial metrics, some indicators from financial statements of companies. An author proposes usage of 3 control dummy variables in order to state some hypothesizes and 1 common macroeconomic variable.

Before creating mentioned methodology, there were stated research goal, research question and hypothesizes to be tested to reach the objectives.

**Research goal**: to investigate what is the effect of M&A deals on companies' financial performance in Russian digital ecosystems.

**Research question** is corresponding to the research goal and can be stated as: what is the effect of M&A deals on companies' financial performance in Russian digital ecosystems?

With an aim to answer this question, there were stated 4 research hypothesizes:

1. *M&A deals have an effect on long-term financial performance of the acquirers (ecosystem creators).*
2. *M&A deals have an effect on short-term financial performance of the acquirers (ecosystem creators).*
3. *M&A deals have an effect on financial performance of the acquirers’ rivals.*
4. *M&A deals affiliation with ecosystem creation is positively related with financial performance of the acquirers.*

Also, there must be studied some other important aspects, such as relatedness of M&A impact on performance with initial industry affiliation, with method of acquisition (directly or through subsidiary) and with some other event factors.

However, there are met some limitations. According to the regression analysis, many models have low validity. This can be justified as due to the small volume of data sample. Such point is common for specific researches in M&A sphere, but still a lot work can be done in further researches. An author states that this research provides great ground for further academic articles and proposes to include some more companies in sample – specifically, VTB, Vimpelcom and Tele2 and to conduct research after some years, when the ecosystem market will be more developed. These companies are not playing high roles in Russian digital ecosystem market yet, but they are also moving to be aimed on it. With the time there will be more data in the initial sample, and including this companies will allow to review larger sample.

# **CHAPTER 1. THEORETICAL BACKGROUND.**

Analysis of theoretical background shows that there is certain research gap, that can be filled with proper research methodology on the topic. Some articles provide general description of different types of M&A and their performance. Other provide more detailed analysis of M&A strategy as a part of business diversification and ecosystem building. There are also some business examples of how ecosystems are built in Russia, paying much attention to 5 leaders in sphere – Sberbank, Yandex, Mail.Ru Group, MTS and Tinkoff. There are also mentioned some telecom operators, who now are in process of ecosystem creation. Then, there were reviewed scientific papers of different ways to measure effect of M&A on performance of acquirers. In addition, there articles that provide industrial specifics of 5 main ecosystem builders – online service providers, banks and telecom operators.

# **M&A: general overview.**

Many firms consider M&A as an important part of their long-term strategy, since it allows to acquire market share, takeover technological innovations and achieve synergetic effects and therefore to improve financial performance. Often, M&A deals are done with an aim to achieve some competitive advantage, such as market share, innovative technologies, skilled workforce and others. For example, Lukas et al. (2019) studied M&A as strategy for entering the market. They reviewed 2 main strategies, comparing them with each other. First is to acquire large market player, taking a “big leap”. Second is setting proper M&A program in several steps, starting from acquisition of small firm. Concluding, authors state that the choice of strategy must be based on possible synergy of it.

In order to go in details, there were done analysis of theoretical views on types of M&A. In basic general review of mergers and acquisition activities types, Toguzova and Dzhioev provided such classification (2016):

1. By type of integration (functional roles in market)
	1. Vertical
	2. Horizontal
	3. Conglomerate
	4. Co-generic
2. By state affiliation
	1. Domestic
	2. Cross-Border
3. By the method of combining the potential:
	1. Corporate alliances
	2. Corporations
4. By deal participants’ attitude to the merger
	1. Friendly
	2. Hostile
5. By the terms of mergers, acquisitions:
	1. Mergers on parity terms
	2. Mergers not on parity terms
	3. Mergers with the formation of a new legal entity
	4. Acquisitions
6. By the mechanism of mergers and acquisitions

6.1. Mergers and acquisitions involving all assets and liabilities of target company

6.2. Purchase of some or all of the assets of the target company

6.3. Purchase of company shares

Accordingly, different authors studied aspects of M&A deals through mentioned lenses. For instance, there are some articles about horizontal and vertical M&A deals. Ardislamov and Kokoreva (2010) reviewed a lot of articles on the topic and came to a several conclusions. According to their statements, both horizontal and vertical M&A can bring synergy. In case of horizontal deals synergetic effects are mostly devoted to operational aspect, while diversification allows to get financial synergy. Authors state that there must be more researches in field of changing value of acquirers after M&A, since results of current articles are contradictory.

Effect of horizontal and vertical M&A often is measured by relatedness of target to the acquirer. Precisely, this relatedness depends on how industrial specialization of one company is close to another. For instance, Lasse B. Lien and Peter G. Klein found positive correlation between relatedness to acquire returns, basing mostly on SIC code. Other authors came to opposite findings. (Agrawal et al, 1992). This can be supported by the idea that usage of SIC codes as a source for the measure of relatedness can lead to bias. For instance, Richard P. Rumelt (1982) stated that there is significant variation between different SIC classes and that it is wrong to assume that difference between various is equal. As Yang et al. (2018) pointed out, this is crucial for researches about M&A in high tech industries, since many IT startups share same or close SIC code, even being significantly different. Moving to the idea of ecosystems, there can be stated that M&A for ecosystem can be considered as vertical deal for diversification.

Another important direction of studies about M&A is researches using lenses “domestic or cross-border” M&A. Scientists state that cross-border M&As positively effect on average acquirers’ domestic sales (Stiebale & Trax, 2011). Such deals can positively influence not only on acquirer but also on target firm, improving cash ﬂow proﬁtability and labor utilization (Fraser and Zhang, 2009). However, it is significant to mention that there can be bias in studies of this field. As Reynolds and Teerikangas (2016) revealed, in globalized economies purely domestic M&A deal is not possible. Furthermore, analysis of M&A deals in this research via lenses of “cross-border / domestic” is not needed, since there is viewed ecosystem building in Russia primarily. It can be firmly stated that there are both cross-border and domestic deals across the sample, but they are not the subject of interest in this research.

In addition, some articles are devoted to the analysis of post-M&A performance according to the deal participants’ attitude to the merger. Cosh and Guest analyzed 64 hostile takeovers and 139 friendly takeovers (2001) and find out that hostile acquisitions positively effect on profitability and share returns, while friendly acquisitions do not improve profitability and negatively effect on share returns in long-term. Such results are partly supported by research of Alan Gregory (1997), who analyzed returns after 452 M&A deals and revealed that hostile acquirers typically have higher abnormal returns that friendly acquirers. Kennedy and Limmack (1996) analyzed 345 friendly and hostile acquisitions and revealed that both types lead to low positive result on abnormal returns in short term, but negative effect in long-term.

There is another popular direction of M&A studies, beyond mentioned classification. Different authors examine phenomenon of serial acquirers and how such strategy effects on their financial performance. The results are ambiguous. For instance, Rovit and Lemire (2003) prove that strategy of serial M&A deals creates positive value. Oppositely, Fuller et al. (2002) state that returns to firms that acquire public targets statistically are significantly negative. Billett and Qian (2008) support such idea, stating that CEO of frequent acquirers can have self-attribution bias, and then M&A can negatively effect on performance of such companies.

# **M&A as a part of ecosystem creation**

To start with, there can be firmly stated that important part of an article is research about ecosystems. As building ecosystems is one of different methods to diversify business, different authors reviewed how and why such organizations are built.

There can be applied different definitions of what exactly ecosystem is. According to some authors, ecosystems usually have some common features. Mirva Peltoniemi reviewing different authors summarized that these features usually include building large number of organizations into one network, interconnection and interdependency of these organizations and dynamic evolution of them as parts of one ecosystem (Peltoniemi, 2006). However, there must be set apart two research ideas – to study whole economics in some country or industry as ecosystem or an ecosystem built around one company. As an example of first idea, in earlier studies, the concept of a business ecosystem was considered by some authors as an economic parallel to biological systems. For example, Bruce Hannon (1997) stated that biological ecosystem and economics as ecosystem are both complex dynamic systems that consist of similar processes, such as production, storage, exchange and others. Another early article as an example of second idea about ecosystems in business is wrote by James F. Moore, who similarly to Hannon built parallel of business ecosystem to biological environment (Moore, 1993). He stated that biological ecosystem includes interacting organisms and environment, while business ecosystem includes individuals, organizations, customers, competitors and many other interdependent participants (Moore, 1996). To state benefits of such network for business, Moore stated that in ecosystems customers can be loyal for a particular ecosystem for long-term, getting benefits from existing services and expecting more in future.

To clarify, in this research ecosystems are viewed as a diversification of company’s businesses, aimed to cover different needs of customers. Similarly, chairman of the management board of Sberban, Herman Gref stated that Sberbank now builts an ecosystem, that will allow customers to satisfy their need via usage of many Sberbank services (Lenta.ru, 2020).

There are some scientific papers, that examine ecosystems on the example of particular companies. To specify, there are reviewed articles about ecosystems in banking, telecom and online service providers. For instance, Jingn and Xiong-Jian conducted a case study about China Mobile telecom company (Jingn and Xiong-Jian, 2011). They reviewed its ecosystem strategy, basing on ecosystem strategy classification by Marco Iansiti and Roy Levien. These authors determined five common strategic roles in a business ecosystem, basing on levels of uncertainty and complexity (Iansiti and Levien, 2004).

To continue, there are some scientists, who examine how ecosystems are built around mobile payment platforms and how such platforms are integrated into ecosystems. For instance, Liu et al (2015) examined how financial payments evolved into technology ecosystems and how consumer payments channel changed with this process.

Some authors analyzed how ecosystems are built by mobile operators. For example, in 2006 Joe Peppard and Anna Rylander analyzed such ecosystems via Network Value Analysis and came to conclusion that for this moment mobile operators were not ready to build ecosystems (Peppard & Rylander, 2006). They claimed that mobile operators can not offer all kinds of content and service that customers usually demand. However, in some ecosystem creation processes there can occur problems. In 2015 there was published an article, when group of scientists reviewed occurring problems of joint projects of banks and telecom operators (Reuver et al. 2015). They interviewed representatives from three banks, three telecom operators, and some other specific participants to find out possible strategic objectives and conflicts. According to their results, there can be issues, such as question about whose services will be provided on joint platform. Jocevski et al. (2020) also examined changes of business model of company via lenses of Canvas BM. They classified needed activities for changes into 3 groups that include work on relationship with retailers, creating strategic partnerships and integration with mobile systems.

These ideas lead to a point that now ecosystems become digital. And since in many countries mobile phones are widely used, for most companies it is beneficial to attract them via mobile apps. For instance, accordingly to the study of Eleonora Pantano (2014), traditional offline commerce companies move to digital ecosystems. She claims that retail-oriented firms start using mobile technologies to improve sales. Then, there is another term, that is close to digital ecosystem in this view – service system. As determined by Spohrer et al (2007), service system is “a value coproduction configuration of people, technology, other internal and external service systems and shared information”

These authors primarily review aspects of business ecosystem building paying low attention to M&A as one of the methods to support this process. Oppositely, Wassenhoven et al analyzed how M&A contributed to the emerging ecosystem (2020). To continue, Gautier and Lamesch analyzed how five giants GAFAM (Google, Amazon, Facebook, Apple and Microsoft) acquired 175 firms developing ecosystem of services. (Gautier & Lamesch, 2020). They analyzed deals classifying them via 6 different user groups and find out that most of acquired products are shut down after M&A. As authors claimed, this happens because GAFAM acquire firms’ assets and integrate it into own ecosystem. Other group of researchers analyzed M&A activity of Amazon, Apple, Google and Microsoft in a period 2005-2011 and claimed ecosystem synergy as one of M&A motives for this firms (Hong et al., 2012). They also claim that there is no certain causal relationship between number of M&A deals and revenue growth. Another author, Scott Sins compared M&A of two ecosystem giants – Amazon and Walmart (Sins, 2018). He described chronology of companies deals and provided simple analysis of stock price relationship with M&A events.

One of the most important paper in the field of this article is wrote by Yang et al (2018). This group of scientists studied how M&A activities of Google and Apple influenced their shareholder value. Specifically, they descriptively analyzed 163 deals in the period from 2008 to 2015. They classified deals for 2 groups: main business acquisitions and others. First group was also divided into 2: platform and non-platform. Accordingly, platform deals in this classification mean M&A activities aimed to build service ecosystem. Non-platform deals include activities of acquiring companies that are in the same functional group as core business of viewed acquirers but are not bought to be integrated in ecosystem. Then, they analyzed how deals influenced on shareholders value of both companies via CAR methodology. Among a lot of other researchers, Yang et al not only analyzed M&A effect on acquirer, but also checked how this activity influence on rival. According to their results, there was revealed that deals of “Main Business” category make a positive impact on acquirer shareholder value and negative on rival. However, deals of “Others” category positively influence rival company, making insignificant influence on acquirer. It should be also mentioned that according to this study, M&A deals of “Platform” subcategory make insignificant effect for the acquirer, but negatively influence on rival shareholder value. To continue, “Non-platform” subcategory deals positively influence acquirer shareholder value and provide insignificant effect on rival.

# **Digital ecosystems in Russia.**

There can be stated that digital ecosystem creation processes gain popularity among Russian scientists. For instance, there are many articles, that review 5 major Russian ecosystem creators, that are also reviewed there. Precisely, there are a lot of articles on topic, written and published in the 2019-2020 period.

Ekaterina Stolyarova (2020) reviewed key elements of digital ecosystem creation. She also identified key success factors for creating and operating digital ecosystems in business. Among them, she listed:

* The right selection of services for the digital ecosystem
* Support for the innovation of the technology platform
* Availability of a full-fledged technology platform
* A clear plan for the creation and development of the ecosystem
* High speed of creating a technology platform
* Creative approaches usage
* Availability of competencies within the company

According to this, she reviewed ecosystems of Sber, MTS, Yandex, Alibaba, Amazon and Tencent. Primarily, she analyzed their service availability.

Another important article was presented by Bykanova, Gordya and Ten (2020), who analyzed how Russian banks changed to digital ecosystems. Precisely, they analyzed ecosystem creation in Sber, VTB, Tinkoff and Alfa-bank. They provided analysis of different services and platforms. Then, they analyzed product lines of ecosystems of Sber, Tinkoff, Yandex, MTS and Mail.ru group. They divided ecosystem services into 15 major directions and created a table of services. In conclusion, they mentioned that ecosystems will evolve more and more and that field of digital ecosystems in Russia must be studied more.

To add, many authors concentrated on financial sphere as a primarily ecosystem creators. For instance, Malyavkina and Savina analyzed digital transformations of Sber, VTB, Gazprombank and Rosselkhozbank. They state that banks are transforming into ecosystems and try to provide customers with almost any service and support them throughout their entire life cycle. As they analyze financial organizations, they emphasize role of original banking services as a basis for the development of digital ecosystems. Furthermore, transformation if financial organizations is related to the expansion of product (service) lines beyond the traditional scope of the bank, and customers get additional services that are synergistic with original banking products and services. To support and visualize these ideas, they created a model of modern digital ecosystem in financial companies.



Pic 1 Model of modern digital ecosystem in financial companies

To conclude, this model is general and common for the digital ecosystem, based on banks in Russia. In addition, there are suggested 3 models of digital ecosystem creations of banks. Bubnova (2020) suggested several models, such as:

* Synchronization of the banking infrastructure with the life of the client,
* Marketplace creation
* Merger of banks,
* Merger of banks and other financial structures.

Another classification was provided by Vakhrushev, Kalsin & Niederstrat (2020), who identified 3 similar models. According to their article, there are:

* Building an ecosystem together with partner companies.
* Creating own services as elements of the ecosystem.
* Marketplace creation

Some authors concentrated not on the whole Russian digital ecosystems market, but precisely on some companies-creators. For instance, Ivanin and Sergeeva (2020) analyzed how Sber ecosystems is building. As they stated, there is bank’s own technology platform in the center of ecosystem, and “it allows to use open interfaces, cloud technologies and analysis to provide real-time service to bank customers”. Then they confirm the idea that is mentioned in previous parts of this article – ecosystem of Sber, as many other contemporary platforms, is aimed on satisfaction as many as possible needs of customers.

## **Sberbank**

Sberbank is Russia's largest bank, that has been diversifying its business and building an ecosystem since 2017 through acquisitions of non-bank companies and partnerships with the largest IT corporations in Russia (Delykin E., 2020.). Herman Gref said that the digital ecosystem of Sberbank will be finally formed by 2024 (TASS. 24.05.2019). Herman Gref, President of Sberbank (Forbes, November 2019):

*"We want to be an ecosystem that provides a set of the most important services for our customers. I don't think we will be the only ecosystem: a person will have a choice, and the most advanced customers will use several ecosystems."* (Tofanyk E. & Yskov N.,2019).

In his interview, he was further asked about how Sber build ecosystem. Is there a strategy for these purchases? Herman Gref replied: *"Oh, really! If we would buy everything in a row, we would be making not 2-3 transactions per year, but 5-6 per month. In total, over the past seven years, we have bought 11 companies on the market! We are very particular about our investments. Only about a third of our digital businesses are companies that we have bought stakes in. We created most of them from scratch." (*Tofanyk E. & Yskov N., 2019.). Ecosystem creation steadily turn Sber into not a bank, but a multi-service technology company. Then, is it possible that Sberbank will ever trade with the multipliers of technology companies? “*I can't predict it, but of course I don't hide the fact that we are striving for it.” (*Tofanyk E. & Yskov N., 2019.),

In order to go in details, there is presented the full description of the Sberbank ecosystem. The Sber ecosystem at the time of this article article includes (Sberbank’s ecosystem official website.):

* Food
* Health
* Goods retail
* Entertainment
* Transport
* Real Estate
* Career
* Education
* Finances
* Technologies
* Media
* Business services

The following is a more detailed list of ecosystem’s elements with the indications on the relevant transactions for diversification. It is important to note that the transactions related to the development of the company's core business are not indicated here, because they are not related to development of the ecosystem.

Delivery Club. It has been operating since 2009 as an independent marketplace. In November 2016 Mail.ru Group acquired Delivery Club for $ 100 million (Mail.ru Group. 03.11.2016). In 2019 (19 Dec 2019), Delivery Club became part of the O2O platform (online-to-offline) on the food and transport markets, which is being created by Mail.ru Group and Sberbank. Sberbank will contribute 38.5 billion rubles to the capital of the joint venture o2o (Online-to-Offline) (Interfax. 19.11.2019), (Habibrakhimov A., 2019) ,(Adindex. 19.11.2019.).

Sberbank food (Sberfood). Sberbank and the developer of digital solutions for restaurants, FoodPlex (part of Sberbank’s ecosystem), have launched the SberFood app.

Sbermarket. It was originally created as an Instamart startup in 2013. 01.04.2020 Sber bought out the majority share for 45,000,000 USD. However, the purchase was not made directly, but through the FortRoss Ventures Fund (SBT Venture Fund). To avoid a conflict of interest when the service enters the ecosystem, it was decided to convert Khasis ' share (38.6%) in Instamart into a share in the SBT Venture Fund II with Sberbank investments. (Vedomosti. 30.11.2020).

Samokat. Founded in 2018. In May 2020, Sber and Mail.Ru group O2O acquired 75.6% of the service. (Bakhur V., 2020), (Kommersant.ru. 21.05.2020.)

LocalKitchen (“Kuhnya na rajone”). Joint venture of Mail.ru Group and Sberbank in the field of transport and food "O2O Holding" increases its share in the service of express delivery of ready-made food "LocalKitchen" to 84.7% (SberPress. 02.10.2020).

Level Kitchen. Level Kitchen is a brand of Performance Food. 19 Dec 2019 together with the joint venture and deals of Delivery Club and Citymobil the company became part of the o2o Sber and Mail.ru joint venture.

Citymobil. Citymobil is an aggregator for ordering a taxi. Together with Level Kitchen and Delivery Club, it became part of Sber and Mail.Ru Group (Habibrakhimov A., 2019), (Olenkova A., 2019.).

My food. Like Level Kitchen and Performance Food, it was part of the property Mail.ru Group, then became part of the joint venture (Romanova T., 2019).

In general, we can say that within the framework of this article, the takeover of these 3 companies was 1 event, since it is unknown for certain what the transaction amount was for each of these absorbed companies. It is only known that in order to absorb these startups, Sber contributed 38.5 to the O2O joint venture (Interfax. 19.11.2019), (Habibrakhimov A., 2019).

SberHealth. Initially, it was a startup by DocDoc. On May 25, 2017, it closed a deal to absorb 79.6% of this largest service for making appointments to doctors in commercial clinics in Russia (Sajin S., 2017), (InvestFuture. 06.06.2017). The amount of the transaction is not disclosed: experts interviewed by Kommersant estimate DocDoc at 1-2 billion rubles (Frolov A., 2017).

Sber Pharmacy. On October 22, 2020, Sber and R-Pharm corporation bought 90% of the online pharmacy startup Eapteka.ru, founded back in 2011 (Vedomosti. 22.10.2020).

SberPrime, SberMobile – part of Sber’s ecosystem. However, they are not "bought startups" like many in this list above. SberPrime – subscriptions to various services of the ecosystem. (Bobrova T., 2020).

Sberbank Mobile is a virtual telecom operator from Sber. This service was developed thanks to the cooperation of Sberbank and Bercut - a supplier of solutions for telecommunication providers and services. However, this cooperation did not take place within the framework of a some joint venture or any type M&A deal – it was just a collaboration within the project (Vc.ru. 25.11.2020).

SberLogistics. Initially, it was a startup called Shiptor. On July 30, 2019, Sberbank acquired the startup Shiptor. At the time of its inclusion in the ecosystem, Shiptor had its own IT systems, a courier service, and a fulfillment center (Interfax. 30.07.2019).

Okko. On October 29, 2020, Sber became the sole shareholder of the Rambler Group, which owns the online cinema Okko. He bought 45% of the shares from Alexander Mamut. Earlier, Sber became a shareholder of Rambler Group in 2019, buying 46.5% of the holding's shares for 11 billion rubles. In July 2020, Sber increased its stake in Rambler Group to 55%. Finally, on the specified date, Sber bought the remaining 45% under the terms of two tranches – in the first 3 billion and, at the moment, it is not known how much for the second (Tadtaev, G. et al., 2020).

SberZvuk. Music streaming service Zvooq.ru It was created back in 2010, and on September 23, 2020, it was purchased by Sber. The amount of the transaction was not disclosed, but it is known that Sber became the full owner (Korolev I. 2020). Even earlier, on August 6, 2019, there was information about the possibility of such a takeover deal (Bryzgalova E. 2019).

Afisha. The service is fully integrated into the Sber ecosystem along with the rest of the Rambler Group assets after the transaction on October 29, 2020 (Delykhin E., 2019).

SberAuto. The service was launched by the company as an internal startup. Accordingly, as with some of the services mentioned above, this part of the ecosystem was launched without M&A (Mubarakshina G., 2020).

Setelem. Setelem Bank specializes in retail loans, including car loans. Sberbank became a shareholder of this credit institution in 2012, when it acquired a 70% stake in Setelem Bank from BNP Paribas Personal Finance. On October 15, 2020, Sberbank announced that it has entered into an agreement with BNP Paribas Personal Finance to buy out 20.8% of the shares of Setelem Bank from a subsidiary of BNP Paribas Personal Finance-Level 20 S. A. S. As a result, Sberbank will become the sole owner of Setel Bank (Interfax. 15.10.2020).

MTPL Online. On 20.08.2020, Sberbank launched an online sale of MTPL policies through its marketplace on Sberbank Online website and in the app. Like some of the ecosystem services, this one wasn't launched through M&A (Peshkova I. 2020).

YouDrive. The carsharing service entered the Sber ecosystem through a joint venture with Mail.Ru Group (Ischenko N., 2019). The service itself was previously purchased Mail.Ru Group (Frolov A., 2019).

2GIS. Sberbank will receive 72% of the 2GIS service, one of the most expensive companies on the Runet, as part of the transaction, it was estimated at 14.3 billion rubles. Another 3% will be at the joint venture of bank and Mail.ru Group (Skrynnikova, A. & Chernyshova, E., 2020).

DomClick. The service was created by the company for the purpose of developing mortgage lending, and later it was fully integrated into the ecosystem. However, like some other services, it was not launched through M&A (Koval L. & Terchenko E., 2018).

Sovtech. It was established in 2003 as a 100% subsidiary of Sberbank (Sov-tech. SberB2B.)

Rabota.ru. On June 4, 2019, Sber bought 100% of the job search service (Interfax. 04.06.2019). However, the value of the transaction was disclosed later, the amount was 1.195 billion rubles (Interfax. 07.07.2020).

SberClass. The school digital platform was launched as a service within the ecosystem without conducting an M&A.

SberUniversity. Sberbank Corporate University was established in March 2012. (Sberbank University official website, Sberbank Corporate University).

Financial Services Group. The group includes several services directly related to the company's banking activities. Including “Investments”, “Deposits”, “Loans”, U-Money, “Outstanding loans”, SberbankOnline, SpasiboSberbank, SberPay. All of these groups, with the exception of one, are subsidiaries launched without M&A. However, U-Money became a part of the ecosystem through a deal. On July 22, 2020, Sberbank became the sole owner of the Yandex payment system “Yandex.Money", having bought from Yandex its share of 25% + 1 RUB. for about 2.4 billion rubles (Iscenko N. Virchenko K. 23.06.2020).

In addition, the Sberbank ecosystem includes a variety of solutions for business. However, most of them are either banking-financial services, or a kind of" back-end " for the services above.

## **Yandex**

Yandex is a Russian company, a provider of various Internet services, primarily known for its eponymous Internet search engine. Unlike the aforementioned Sber, Yandex is diversifying its business over a longer period of time. For some time, Yandex and Sberbank have been working together on joint projects. However, Sberbank has decided to develop its own ecosystem that competes with Yandex services (Balashova, A. & Parfenteva, I., 2020).

The company has a huge number of information services tied to the search engine. In addition to them, the following groups are distinguished in the ecosystem:

- Social networks, search and media

- Individual user services (such as taxis, etc.)

- Advertising services

- Financial Services

The following is a more detailed list of ecosystem elements, indicating the relevant transactions for diversification. In this list, only transactions after 2011 will be considered, since it was from this year that the company held an IPO.

Yandex. Market. As part of the development of this part of the ecosystem, the company has conducted several M&A transactions. In 2014, Yandex considered the MultiShip startup as an asset to buy (Yandex.ru. 29.01.2014). However, later, on January 29, 2014, the company decided to buy out the software and the development team for $ 1 million, rather than conduct a full M&A. Part of Yandex.Delivery is included as an addition to Yandex. Market (Likhachov N., 2014). On September 24, 2014, Yandex purchased the PriceLabs product promotion service. The amount of the transaction was not disclosed, but according to unofficial sources it is more than $ 1 million (Luganskaya, D., 2014). On December 09, 2014, Yandex bought Metabar, a company that develops an “Expert Advisor” service that helps with online purchases (Khantyushev P., 2014). As mentioned above, Sberbank and Yandex previously collaborated, but broke off the collaboration due to a conflict of ecosystems. So, Sberbank bought out Yandex.Money. On July 23, 2020, Yandex closed a deal to buy out 45% of Yandex. Market from Sberbank for 42 billion rubles (Interfax. 23.07.2020).

Yandex.Taxi. In 2010, the company launched a taxi service. Then, as part of the development, the company conducted several M&A. 29.01.2015 Yandex bought the "Ros.Taxi" — a cloud platform for accepting orders, coordinating the work of drivers and reporting for 1 billion rubles. (Cnews.ru, 29.01.2015). On February 7, 2018, Yandex and Uber closed a deal to merge their services. At the time of closing of the transaction, Uber and Yandex invested $225 million and $100 million in the new company, respectively, taking into account these investments, the cash on the company's balance sheet is $400 million. Under the terms of the deal, about 59.3% of the joint venture is owned by Yandex, 36.9% - by Uber, and another 3.8% - by employees (Interfax 07.02 2018). On February 2, 2021 Yandex.Taxi buys call centers and a business on the order of cargo transportation of the group of companies "Vezet" for $ 178 million (Yandex.ru, 02.02.2021).

Yandex.Maps. Even before 2010, the company bought various services related to geolocation (Kretsu, C. 2019). On September 18, 2019, the company bought the online restaurant booking service Bookform (Bobrova, T., 2019)..

Yandex.Food. The service appeared in 2018. However, there were some prerequisites for this, the company prepared such a service in advance. On December 25, 2017, Yandex bought the startup Foodfox for 595 million rubles (Frolov, A., 2017). Yandex bought a share in the service for the delivery of food sets and products "Food Party" in the amount of 83.3% (Dombrova, E., 2018). According to assumptions, the transaction amount was 836 million rubles (Deloshop.Ru)

Other services. Yandex bought TheQuestion, a Q&A information service, for 384 million rubles. (Boleckaya, K., 2019), (Mubarakshina, G., 2020). June 16, 2014 Yandex announces the purchase of one of the most popular Russian automobile portals Auto.ru - after closing the transaction, 100% of the shares Auto.ru they will go to Yandex. The transaction amount is 175 million US dollars (Yandex.ru, 16.06.2014). Yandex bought the aggregator of retail discounts information “Edadil”. In July 2015, Yandex bought 10% of the service, and the deal to increase the share from 10% to 100% took place on October 2, 2018. The transaction amount was 233 million rubles (TASS, 22.04.2019). On October 15, 2013, Yandex bought 100% of Kinopoisk LLC for $80 million (2.58 billion rubles). Kinopoisk – Internet service about cinema and (since 2018) online cinema. (Golicyna, A., 2013).

## **Mail.Ru Group.**

Mail.ru Group. The company was founded in 1998 and was primarily known for its e-mail system "mail.ru". As part of its strategy, the company forms an ecosystem, developing in the following areas: (Mail.Ru Group official website):

\* Communications

\* Education

\* Cybersports

\* Fintech

• Information services

\* Food

• Mobility

• Search

• Classifieds

• E-commerce

• Music

• Games

The following is a more detailed list of ecosystem elements, indicating the relevant transactions for diversification. In this list, only transactions after 2010 will be considered, since from this year the company held an IPO.

Vkontakte. On the 16th of September, 2014, company Mail.Ru Group announced the purchase of 48.01% of the social network VKontakte for $ 1.47 billion. Previously Mail.Ru Group owned 52% of VKontakte. Thus, after the end of the transaction, the social network will completely come under the control of the holding. (Koncarenko, P., 2014).

Geekbrains. December 28, 2020 Mail.ru The Group increased its share in the GeekBrains educational service from 51% to 100% (Lipanova, L., 2020). Previously, 25 Aug 2016, Mail.Ru The Group bought control of GeekBrains, a service for training programming specialists (Frolov, A., 2016).

Skillbox. The startup in the field of education was bought by the holding in several stages. At the beginning of 2019, the Internet holding company became the owner of a 3.6% stake in Skillbox, then it was increased to 10.3%. Mail.ru The Group acquired another 50% in Skillbox, thus becoming the owner of a 60.3% stake. According to the annual report Mail.ru Group, the amount of this transaction amounted to 1.6 billion rubles (Bobrova, T., 2019). On October 13, 2020, the holding increased its share in the Skillbox service to 70% (Hvostik, E., Shestoperov, D.). The company also has several joint projects in education that are not related to M&A. In particular, Technopolis, Technoatom, Technosphere and Technopark are projects with leading Russian universities.

On the 3rd of May, 2017 Mail.Ru Group buys Am.ru - one of the largest Russian sites of ads for the sale of cars. The transaction amount will be $ 10 million (Mail.Ru Group official website).

Joint venture with Sber. As already described in the part about the Sber ecosystem, Mail.ru Group was involved in a deal to merge some parts of the ecosystem. So, in the ecosystem strategy Mail.ru specified Delivery Club and Citymobil. Delivery Club has been operating since 2009 as an independent marketplace. 03 November 2016 Mail.ru Group acquired Delivery Club for $ 100 million. On December 19, 2019, Delivery Club became part of the O2O platform (online-to-offline) in the food and transport markets, which is being created by Mail.ru Group and Sberbank. (Habibrakhimov A., 2019).

Citymobil, an aggregator for ordering a taxi, it is also marked in the ecosystem. The company was founded in 2007 and was a typical taxi service. On December 19, 2019, along with other details of the joint venture, Citymobil became part of the Sber and Mail.Ru Group joint venture (Habibrakhimov A., 2019).

ESforce. On January 22, 2018, the holding company bought 100% of one of the largest cybersports organizations in the world for $ 100 million (Mail.Ru Group official website).. July 19, 2019 Mail.ru Group has agreed to transfer 51% in cybersports holding Esforce to the manufacturer of racing computer games Modern Pick. The deal will be cashless, but in return Mail.ru The Group will get a share of about 16% in Modern Pick itself (Bryzgalova, E, 2019).

Boom. A streaming music service that replaced Music.Vkontakte. This service developed as a project within the company, without mergers and acquisitions.

Media projects. The company has a separate area of information services within the ecosystem. However, they developed within the company, without mergers and acquisitions.

A large joint venture in the field of fintech worth special mention. October 08, 2019 Alibaba, Mail.ru Group, Megafon and the Russian Direct Investment Fund (RDIF) have announced the completion of an investment in the creation of a joint company in the field of e-commerce - AliExpress Russia. Mail.ru Group will deposit assets in the form of "Money.Mail.ru " and VK Pay, becoming the largest shareholder in this joint venture with a 40% stake (Ishchenko, N., 2019).

My.Games. December 1, 2009 Mail.ru Group announced the purchase of Astrum Online Entertainment, a gaming holding company, and in March 2010 rebranded its gaming assets under the name "Games Mail.ru"(Forbes.ru, 01.12.2009). Then, through this company Mail.Ru Group buys game developer Deus Craft on October 08, 2020. After the deal closes, the international gaming brand MY GAMES will own a 51.16% stake in Deus Craft. The deal includes an upfront payment of $ 14.1 million and a deferred payment of up to $ 35 million, due in April 2021 (Mail.Ru Group official website).

Also, previously, the company's ecosystem included a map service Maps.me. On 13th of November, 2014, Mail.Ru Group bought it for 542 million rubles (Luganskaya, D., Yuzbekova, I., 2014). However, on November 02, 2020, the company sold this asset for 1.557 billion rubles (Skrynnikova, A., 2020).

## **MTS.**

MTS, also known as “Mobilnye TeleSystemy” is believed to be another important player in digital ecosystem creation in Russia.

Primarily, beyond the main telecom stream, MTS has MTS bank. Since fintech is one of the significant streams in any ecosystems, MTS develops it. In addition, MTS develops its stream of cable TV, surrounding its’ customers with such daily service.

An important stream is OZON – marketplace, which was partly acquired by MTS in 2014. This allowed company to provide its customers with many good via cross-service of telecom and marketplace with cashback service.

However, MTS also rely not only on M&A for ecosystems, but on internal product and service launching. Still, it must be included in our analysis

## **Tinkoff.**

Tinkoff Bank – one of most well-known bank in Russia with positioning of “most convenient bank service, mostly concentrating on it’s digital platform rather than of real offices for service. Now it also develops an ecosystem, primarily concentrating on its’ platform of “superapps”.

Except its’ wide range of financial products, there also some lifestyle services and marketplace. Lifestyle services include travel, entertainment, sports and other product streams.

Like mentioned MTS, Tinkoff also develops its’ ecosystem via internal product launching and not only via M&A. Still, we are interested in such examination.

## **Other players**.

Besides mentioned players, there are several other market participants. There are also other players, who tries to build ecosystem. They were not highly directly included in the process of Russian digital ecosystems market development, but now they become more and more powerful in this direction. Another important point is that some of their services are built internally without M&A. Still, there are some M&A activities that were done by them and which must be studied. To mention, there is also Megafon – telecom company that owns Mail.Ru Group. In addition, there are also 1 bank and 2 telecom companies, which stated their interest in ecosystem creation, but didn’t participate a lot. Precisely, VTB, Tele2 and Vimpelcom (commonly known as Beeline) are those players that are expected to player significant roles in Russian digital ecosystem market with the time.

# **Effect of M&A on performance.**

Typically, researches on the topic include 2 main types of performance measures: event-study approaches and accounting-based approaches (Grigorieva & Petrunina, 2015). Das and Kapil (2012) reviewed 730 papers devoted to performance of M&A during 1990-2010 and classified measures into 3 types. These types include accounting measures, market measures and other measures. Last category consists of other “objective” and “subjective” measures. There is presented brief description of each category.

## **Accounting measures.**

To start with, such measures include many typical metrics for analysis of financial statements of companies. For instance, growth and return variables are often used for an analysis of M&A effect on financial performance of company. There are listed some examples of accounting-based metrics, that are used to evaluate post M&A performance.

Return on assets. Net income/total assets is usually used as indicator of profitability and often used in researches on topic. Many authors used this indicator, such as Zollo and Singh (2004), Harrison et al. (1991), Krishnan et al. (1997) and many ohers. For instance, Maurizio Zollo and Harbir (2004) Singh tested performance after M&A on the sample of 228 acquisitions in American banking sector of economy. Their findings showed that performance (measured primarily by ROA) can be improved by knowledge codification and higher integration of firms after the deal. Krishnan et al (1997) studied how differences in functional backgrounds of management teams effect post-acquisition performance, using ROA as one of measures.

Return on equity. This indicator is used by such authors as Busija, O’Neill and Zeithaml (1997).

Sales growth. This indicator reflects change in sales over the period, as it can be expected after M&A deal – for example, horizontal. When company acquires market share of target, this indicator is supposed to go up. Such measure is used by such scientists as Uhlenbruck and Castro (2000).

Operating cash flow. This measure as an indicator for M&A effect on company performance was largely used by Healy, Palepu and Ruback, (1992). They examined operating performance after M&A on the sample of 50 mergers between U.S. public industrial firms. According to their results, there are some improvements in other financial performance measures, but operating cash flow doesn’t improves a lot.

However, there are some limitations of usage such measures. For instance, Bild et al. (2002) states that accounting-based measures do not display real effect of M&A on acquirer financial performance. In some cases, acquisition can be not an NPV positive investment, since it can bring other benefits – such as possible strategic improvement. Another issue with accounting metrics usage is connected with the point that periodically published data cannot be used for prediction of future financial performance. As stated by Richard et al. (2009), in intensively changing environments accounting-based measures do not clearly reflect performance of the company. This is crucial point for that research, since ecosystem creation processes in Russia are highly intensive. As descripted in “M&A and ecosystems creation in Russia” part, there are too many deals for a last years to be clearly viewed via accounting-based metrics lenses. In this case they can be viewed as serial acquisitions program, which also has some limitations. Another problem is connected with industrial specialization of viewed companies. Although their some services in their ecosystems are very similar and the whole idea of ecosystem is shared, the nature of the companies is pretty different. Among main players there is commercial bank and two online-services providers – Sberbank, Yandex and Mail.Ru Group. Other key players include telecom operator and also bank – MTS and Tinkoff. Then there is not possible to apply the same accounting measures for all of them, since results will be highly biased. There is an option to use different set of measures for each company type, but it is also crucial limitation of research in this case.

## **Market measures.**

Another popular measures often used in event studies are based on market reaction to M&A activity of the company. Usually, it analyzes changes in stock returns before and after some period of deal announcement. Typically, these measures are divided into 2 groups – measures of long-term and short-term performance. There are listed some typical metrics.

Acquirer’s long-term market return. This indicator is measured with usage of buy-and-hold abnormal returns (BHAR) approach. BHAR are commonly analyzed for the period 1-5 years from the date of announcement with usage of benchmark return of matched sample of firms. This methodology was largely developed by Brad M. Barber, John D. Lyon (Barber and Lyon, 1996, 1997) and Chih-Ling Tsai (Barber et al, 1999). These scientists were one of the pioneers and developed methodology, largely used by many researches. There are mentioned some possible biases of such methodology usage, but they can be eliminated to the minimum. For instance, Gur-Gershgoren, Hughson and Zender (2008) provided analysis of long-run performance and eliminated 3 major biases with usage of multiple control firms per event firm with as a way to create multiple correlated BHARs for each event firm.

 Acquirer’s short-term market performance. This indicator is measured with usage of cumulative abnormal return (CAR) approach. CAR methodology is commonly analyzed for the period of several days before and after the event. For instance, Ray and Gubbi (2009) used an examined completed cross-border acquisitions by publicly traded Indian firms via CAR approach. These authors analyzed CAR -7 to +7 days around the announcement date. Thus, different “frames” for period around event is used. McWillians and Siegel (1997) state that such period called “event window” must be enough to be specific for the event and exclude other effects, and simultaneously long enough to analyze whole effect.

However, there are also some limitation and risks in usage of these measures. Firstly, those authors who used accounting-based measures stated that market-related measure in insufficient and that such approaches do not 100% clearly show effect of deal on financial performance. Second point is that those scientists who largely developed methodologies of short-term and long-term analysis also mention some possible biases. For instance, Barber and Lyon (1997) and Lyon, Barber, and Tsai (1999) mentioned problems of the new listing, rebalancing and skewness biases. New listing and rebalancing biases usually do not occur in in M&A studies and can be partially eliminated by proper construction of the reference portfolio. The skewness bias is connected with the problem of comparison between long-run return of individual asset and long-run return of reference portfolio. Due to diversification, reference portfolio return is not skewed, but an individual asset is.

## **Other measures**

### **Other quantitative measures.**

This group includes measures, that consists of both accounting and market returns variables. In some cases there can be included some other operational indicators. They are considered to be more precise in some articles, since usage of them often eliminate risks and biases of separate usage of accounting or market-based measures. For instance, Tobin’s q is often used. This measure is a ratio, which represents division of market value of a company by the replacement value of its assets. If this indicator is high (>1), then it is considered that replacement cost of company’s assets is cheaper than its’ stock. Lang and Stulz (1993) stated that companies that are diversified firms have lower q's than specialized firms with equivalent portfolios.

### **Subjective measures.**

 In order to eliminate biases of certain metrics, some authors used mixed methodology that combine different metrics, including subjective assessment of post-merger performance.. For instance, Vassilis M. Papadakis and Ioannis C. Thanos (2010) explored the comparability of certain metrics, such as accounting-based measures, cumulative abnormal returns, subjective assessments by managers, divestment data and assessments by experts. They provided empirical testing of these factors, basing on a sample of 50 acquisitions. Their study revealed that accounting-based measures such as return on assets positively correlates with subjective assessment of a post-M&A performance by a company managers. That idea is stated in the results of the analysis, but this is necessary to mention that probably assessment by management was mainly based on accounting indicators. Another important finding was that these 2 mentioned factors do not correlate with such indicator as cumulative abnormal returns. Overall, Papadakis and Thanos state that basing on these results, there must be conducted new researches to provide measurement of company post M&A performance. They suggest usage of more criteria for analysis, such as divestment data, employees’ opinion about the deal and subjective assessments made by expert informants. To add, earlier, Richard Schoenberg (2006) investigated comparability of 4 mentioned factors. As he explored, there is a high correlation between assessment by 2 groups – managers and experts. However, he mentions that this can happen due to the fact, that assessment by experts often bases on the assessment by managers. Furthermore, he states that there is no correlation between divestment data and mentioned assessments.

Obviously, such measure can be biased a lot. For instance, as stated, subjective assessment by managers can be influenced by their own KPI and accounting measures. At the same time, expert evaluation can be biased since they base their assessment on managers evaluation.

# **M&A influence on performance through lenses of industrial specifics**.

As stated, there are viewed several companies which built similar ecosystems but are different in their nature. With an aim to properly analyze outcomes of their M&A activity, there is a need to mention industrial specifics and view articles on topic.

### **Banks.**

There are a lot of scientific work on the topic, reviewing banks performance after M&A. For instance, Halkos and Tzeremes (2013) used a boostrapped Data Envelopment Analysis in order to pre-calculate and pre-evaluate operation efficiency improvements in a short-run after potential M&A. Their results revealed improvement of short-run operation efficiency after M&A. Other authors found out that target banks usually are more efficient, then acquiring ones. They state that combined entity has some efficiency improvements, but the targets usually benefit more from such event (Dua and Sim, 2016). Beitel, Schiereck and Wahrenburg (2004) analyzed M&A activity of European banks and stated that market related measures positively react on focused transactions, rather than on diversification deals. Maria Carmen Huian analyzed financial performance of Romanian banks as target companies after M&A deals. Analysis of the author is based on ROE, ROA and NIM and revealed that target banks do not improve their ROE and ROA, but improve their NIM. Elena Beccali and Franz Pascal (2009) identified that M&A activities usually are associated with slight decreases in ROE, profit efficiency and cash flow returns.

### **Online service providers**

Two of three leaders in Russian ecosystem creation processes, Yandex and Mail.Ru Group are IT companies that are concentrate on providing online services for mass market. The field of M&A between similar companies is not so largely discovered, but some authors make important contribution to it. For instance, mentioned group of scientists Yang, Nama and Kim analyzed M&A deals of Google and Apple – two world leaders of platform services creation. Their findings revealed that deals aimed to diversify their platform services partially support their market performance. Other group of scientists, including Hong, Bhattacharyya and Geis examined possible synergies from M&A activities among Amazon, Apple, Google and Microsoft. According to their results, there is no evidence of certain causal relationship between number of M&A deals and revenue growth.

### **Telecom**

There are many scientific papers, which corresponds to the specific details of mergers and acquisitions in Telecommunications in general. For example, Barney Warf explored this market and published his review, describing patterns, number and size of mergers and acquisitions in telecom (2003). In 2002 Park et al conducted a research in this scope, which resulted into idea that M&A in many cases can lead to a negative impact on acquiring company performance. This idea was supported by Sung and Gort (2006), whose research results also showed that M&A in telecom can lead to absence of significant shareholder wealth effects. Ryua et al (2018) stated that M&A un telecom lead to a significant market returns in short-term, but long-term performance does not correspond such a positive trend. Akdoğu (2009) examined not only financial performance of telecom acquirers after the deals, but also their rivals. Accordingly to this research, there is an evidence that companies experience negative returns after M&A activities of their competitors, since they decrease in market power and there is an expectation that such companies also can become targets in future.

# **Conclusion and research gap.**

According to the literature review, there is certain research gap. Currently there is observed M&A activity among 5 Russian giants with an aim to build digital ecosystems, but the field is understudied. There is certain research methodology that allows to cover this gap and to review current effect of M&A deals on the performance of the company. However, there are some limitations, that are connected to the possible biases of research. Since initial industries of the companies are different, methodology is limited in order to be suitable for all observed companies. In addition, there can be stated that overall Russian M&A market is understudied and must be analyzed more.

# **Hypothesizes statement.**

Covering mentioned research gap, there were stated research goal and research statement.

**Research goal**: to investigate what is the effect of M&A deals on companies' financial performance in Russian digital ecosystems.

Precisely, financial performance is understood here as a performance on financial market. Such choice is described and justified in methodology part. The term “financial performance” hereinafter refers to the performance of stocks – abnormal returns. Definitely, there are also some other indicators of financial performance, but this research is limited to performance of stocks.

**Research question** is corresponding to the research goal and can be stated as: what is the effect of M&A deals on companies' financial performance in Russian digital ecosystems?

With an aim to answer this question, there were stated such research hypothesizes:

1. *M&A deals have an effect on long-term financial performance of the acquirers (ecosystem creators).*

Since results in prior studies are ambiguous, there must be stated such hypothesize and analyzed via t-test with the null hypothesize that abnormal returns are equal to 0. If they are not, then there is certain effect. Then, it must be studied more, which was done in linear regression analysis.

1. *M&A deals have an effect on short-term financial performance of the acquirers (ecosystem creators).*

Similarly to first hypothesize, there must be tested short-term performance.

1. *M&A deals have an effect on financial performance of the acquirers’ rivals.*

Similar to previous hypothesizes, there must be analyzed abnormal returns of acquirer’s rivals. According to some studies, mentioned in literature review, such relatedness can be observed. As we state that in a Russian market of digital ecosystem there are certain players, we can call them competitors to each other. Although they have different initial industry affiliation, we state that they now are almost direct competitors due to their current state of product line and brand positioning.

1. *M&A deals affiliation with ecosystem creation is positively related with financial performance of the acquirers.*

The dummy variable “ecosystem or not” must be included in the analysis of acquirer abnormal return. We can state that there is a probability that elevated interest about ecosystems now can be observed on financial markets also.

These hypothesizes are either based on different other researches or on core idea of the research – to study the financial performance of M&A in digital ecosystems. However, there are also stated some other objectives, that must be reached.

**Objectives of the research:**

* To review approaches of post-M&A performance evaluation, review current state of Russian digital ecosystem creation processes and choose suitable methodology to determine how M&A effect performance of acquirers who build ecosystems.
* To explore relationship between M&A effect on performance and different factors of the deal, including general deal metadata and some proposed dummy-variables
	+ To investigate such relatedness with short-term financial performance
	+ To investigate such relatedness with long-term financial performance
* To explore such relationship not only for the acquirers, but also for their rivals in the sphere of digital ecosystem creation.
* To analyze relatedness of M&A deals affiliation with ecosystem creation and long-term and short-term performance of the acquirers’ rivals. The dummy variable “ecosystem or not” must be included in the analysis of the acquirer’s rivals abnormal returns.
* To analyze relatedness of performance of the of acquirer and the acquirer’s method of acquisition (directly and not through subsidiary). The dummy variable “directly or through subsidiary” must be included in the analysis of the acquirers’ abnormal returns.
* To analyze relatedness of performance of the M&A deals of Russian digital ecosystem creators depends on initial industry affiliation of the acquirer. The dummy variable “initial industry affiliation” must be included in the analysis of the acquirers’ abnormal returns.
* To analyze relatedness of performance of the acquirer and performance after previous deal.

# **CHAPTER 2. EMPIRICAL STUDY.**

As it was partly mentioned above, this article presents study on the topic of effect of M&A deals on financial performance on digital ecosystems. The methodology is used in accordance with literature review, there are taken several metrics that are possible to use. Precisely, there is done event study with common instruments, such as CAR and BHAR. The research is concentrated on the market reaction on M&A activity.

## **2.1. Methodology.**

To start with, there must be stated an answer to the question “what is performance of the company?” As many times mentioned in previous parts of research, the performance of the company connected to the M&A deals will be measured primarily as a market reaction on such event. So, if stock prices go up – then the market reacts positively. And oppositely, if prices go down – we can observe bad performance. However, there can not be just taken a change of price, since there are some other market conditions and aspects. Then, abnormal return approaches are used. To start with, there is provided a formula of change of returns:

$R\_{t}=\frac{P\_{t}-P\_{t-1}}{P\_{t-1}}$

In this formula:

* Rt stands for change of return in certain day. This is a basis for both CAR and BHAR
* Pt stands for price of share in this day
* Pt-1 stands for price of share in previous day.

Further, there is a formula for abnormal returns:

ARt = Rt – E(Rt)

In this formula:

* ARt stands for abnormal returns in certain day
* E(Rt) stands for expected returns in certain day. It is also used as a benchmark. Usually, there are used stock exchange indexes (MOEX in this research) as a value of expected returns.

Then, we shall define what are CAR and BHAR metrics.

$$CAR=\sum\_{t=1}^{t}AR\_{t}$$

Thus, CAR can be defined as a sum of AR during some period. This period is called “event window”. As it is stated in literature review, event windows can differ, but most common is 3 days (day before, day of event and day after).

And this is BHAR formula:

$$BHAR= \prod\_{t=1}^{t}\left[1+R\_{t}\right]- \prod\_{t=1}^{t}\left[1+benchmark(R\_{t})\right] $$

Thus, BHAR is a difference between strategy of “buy and holding” the stocks minus same strategy for an expected returns during some period. This period as stated in literature review differs from half of a year up to 7 years. Unfortunately, in this research there is no huge number of deals in sample and these deals happened not so far from the day of the research conduction, so we are limited in the long-term analysis.

As mentioned, there were listed several common metrics in literature review. There is a table that represents which of them are used, which can be used in a further analysis and which of them can not be used due to industrial specifics or inability to gather certain data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Are used | Can be used in further analysis | Too industry specific | Not used due to inability of data gathering |
| Event-study variables | AR | + |  |  |  |
| Deal value/Market value of company | + |  |  |  |
| Price-to-book value | + |  |  |  |
| Accounting-based variables | ROE | + |  |  |  |
| Total Assets | + |  |  |  |
| NIM |  | + |  |  |
| ROA |  | + |  |  |
| EV/Ebitda |  | + |  |  |
| Liquidity |  |  | + |  |
| Macroeconomic variables | Market type (bull/bear) |  |  | + |  |
| USD/RUR change | + |  |  |  |
| Oil prices  |  |  | + |  |
| Subjective assesment variables | Manager's subjective assesment |  |  |  | + |
| Expert subjective assesment |  |  |  | + |
| Other variables (suggested by the author) | Rivals AR | + |  |  |  |
| Directly or through subsidiary | + |  |  |  |
| Ecosystem or not | + |  |  |  |
| Industry affiliation | + |  |  |  |
| Previous experience | + |  |  |  |

*Table1 Metrics for analysis.*

As it can be seen, there were taken a lot of variables, that are common for many authors, cited in literature review. However, some variables can not be used. For instance:

* Liquidity can not be used since it is to specific for different industries. Banks, for instance, are too specific in their liquidity calculation.
* Market type. In some researches there are used “market type / market expectation / developed or emerging market” variables. These indicators are not used in this research, since we only observe one market with several periods.
* Oil prices. This variable is commonly used as a macroeconomic variable for Russian M&A market. Usually there are used Urals indexes, but companies in our sample are believed to have little connection with such commodity. Instead there is used exchange rate change of USD/RUR.
* Any types of subjective assessment are not possible to use in this research. Firstly, because it is too long to gather such data. Secondly, because there will be a bias in the evaluation of deal made in 2013 and deal made in 2018 by one manager/expert in company.

Instead there are some proposed variables, such as:

* Rivals AR. Their CAR and BHAR metrics are used as dependent variable in some models.
* Directly or through subsidiary. This is dummy variable that is used because sometimes company acquired not via the main holding, but through some subsidiary company.
* Ecosystem or not. This is dummy variable that is used to analyze main concept of this research – difference between deals for ecosystems and not.
* Industry affiliation. As stated, there are 3 industries of initial affiliation.
* Previous experience. There are used similar metrics to dependent variable (CAR and BHAR), but for the last deal.

Concluding all of this, there are similar models with such variables:

Then, there are used variables:

1. SizeOfDealt – relative size of the deal, deal value / company market value
2. RelativeSizeToDeals – percentage which the deal value have among other deal values in certain period (year).
3. CompanySize – logarithm of total assets of acquirer.
4. PriceToBook – ratio in the day of announcement
5. ROE – ROE in the last financial report.
6. PrevExp – previous experience, abnormal returns from the previous M&A activity of the company..
7. ECO – dummy variable whether deal is for ecosystem creation or not.
8. DtS – dummy variable whether deal is done Directly or through Subsidiary.
9. IIA – dummy variable Initial Industry Affiliation (1/2/3).
10. MacroVar – USD/RUR exchange rate change.

More wide explanation of variables and process of data gathering is in further parts of the article.

Model 1.

$$AR1= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 2.

$$CAR3= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 3.

$$CAR5= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 4

$$CAR7= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 5

$$BHARquartyear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 6.

$$BHARhalfyear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 7.

$$BHARyear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 8.

$$ARca1= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+ const$$

Model 9.

$$CARca3= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 10.

$$CARca5= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 11.

$$CARca7= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 12.

$$BHARcaquartyear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 13.

$$BHARcahalfyear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

Model 14.

$$BHARcayear= SizeOfDeal\_{t}+RelativeSizeToDeals\_{t}+ CompanySize\_{t}+ PriceToBook\_{t}+ROE\_{t }+ PrevExp\_{t}+ECO\_{t}+DtS\_{t}+ IIA\_{t}+MacroVar\_{t}+const$$

## **2.2. Variable description.**

In accordance to the literature review, there were chosen several variables for further analysis. To start with, as mentioned, there are used models of CAR and BHAR in order to analyze the market reaction to the M&A event. It can be firmly stated, that in case of positive abnormal returns market reaction is positive and market expectations are also positive. So there can be stated that financial performance (market-based view) is good from this event. Oppositely, negative abnormal returns show negative expectations. In order to analyze it all, this metrics are used as a dependent variable. So in a list of dependent variables there are.

Short-term reaction:

1. AR 1 day (abnormal returns in the day of the deal)
2. CAR 3 days (-1;+1)
3. CAR 5 days (-2;+2)
4. CAR 7 days (-3;+3)

Long-term reaction:

1. BHAR quarter of the year
2. BHAR half of the year
3. BHAR 1 year

In order to precisely provide needed analysis, there are done regression analytics for each dependent variable.

As it can be observed from the literature review, usually BHAR metrics are used on the basis of 1 year and more. However, the problem is that digital ecosystem market is young enough and develops rapidly, so some processes are faster than in conservative industries. Furthermore, there are a lot of deals during 2018 and 2019 years, so in the case of analysis of the large long-term (e.g.3-5 years) there will be no possibility to make any conclusions. For instance, as it was mentioned, CEO of Sber was one of the first to use term “ecosystem”, so the strategy was mainly used after 2017. Concluding it, there is stated that usage of such “short-term metrics for long-term analysis” is possible.

However, the list of dependent variables is not limited by mentioned above. According to the literature review, there is possibility to analyze the effect of M&A activity not only of market reaction on acquirers’ stocks, but also on acquirers’ rivals’ stocks. For instance, there can be stated that in some cases when Yandex acquires some company, abnormal returns of it’s rivals (other 4 companies from the sample) are negative. In order to review such phenomenon, there are used similar metrics, but for rivals. So there are such dependent variables.

Short-term reaction:

1. AR 1 day (abnormal returns in the day of the deal) competitors’ average.
2. CAR 3 days competitors’ average.
3. CAR 5 days competitors’ average.
4. CAR 7 days competitors’ average.

Long-term reaction:

1. BHAR quarter of the year competitors’ average.
2. BHAR half of the year competitors’ average.
3. BHAR 1 year competitors’ average.

It is hard to state, whether market will react positively or negatively on rivals’ stocks when 1 company acquires something. From the one point of view, there is an idea that when stocks of one company go up, stocks of its rivals go done due to competition. However, such M&A event arouse interest among the whole “digital ecosystems” industry. Then, there is a need to analyze it.

Then, there must be listed independent variables, that are believed to make an effect on the performance of company’s financial indicators. There are taken from the literature review and among them there are financial indicators, macroeconomic indicators and some dummy variables. The list is:

Deal-related financial metrics:

1. The size of the deal. It is used in a relative metrics, calculated as: deal value / market capitalization of an acquirer on the day of the event.
2. Relative size of the deal to other deals of company. It is calculated as: deal value / total value of deals during the year.
3. Size of the company. There are used total assets as an indicator. However, since all companies are giants, it is used not in absolute values, but as logarithm.
4. Price-to-book ratio. It is used as a ratio in the day of the event.
5. ROE last year. There can be stated that probably some expectations are based on the metrics from the previous company performance.
6. Similar metric for previous deal. For instance, there can be done analysis of relatedness of cumulative abnormal returns in 5 days event window of the deal of Yandex with the same metrics, but for the previous deal. There can be stated that with some probability expectations of market are based on previous outcome from similar event.

Dummy-variables:

1. 1 – deal for ecosystem creation. 0 – deal not for ecosystem creation. In accordance to literature review, there are several criteria, that define whether the certain M&A activity is related to the strategy of creation of ecosystem. Precisely, if M&A activity will allow to expand current services, the deal is considered to be “for ecosystem”. For instance, when Sber acquires some mining company or some regional bank – it is either asset diversification or horizontal M&A for taking market share, and not “deal for ecosystem”. Oppositely, when Sber acquires some food-delivery service – it is considered as a deal for ecosystem. In order to make such decision of “ecosystem or not” there is written a chapter with discussion about ecosystems of companies in the sample. As mentioned in literature review, sometimes authors use the lenses of “acquire-target relatedness”, but is not possible to use it in this analysis, since some acquired companies are just IT-startups and have the same “OKVED” (Russian analogue for SIC). And such companies can be both acquired for ecosystem creation and not.
2. 1 - Acquired directly or 0 - through subsidiary. This is important, since sometimes companies made acquisitions through their subsidiaries. For instance, with a strategy of ecosystem creation Yandex acquired some food-delivery service startups not directly, but through its’ subsidiary “Yandex.Taxi”. Also, some deals are done through joint ventures. For instance, Sber and Mail.ru Group used joint venture “O2O holding” as a platform for collaboration in the creation of ecosystems.
3. Industry (Online services 1, banks 2, telecom 3). As mentioned, there are 3 different initial industries of companies. They all are moving to become an IT companies that develop digital ecosystems, but their initial industrial affiliation is believed to be strong enough. Then, such variable must be included in the analysis.

Macroeconomic variables:

1. USD/RUR exchange rate change on the day of announcement. There is an idea that some shocks of currency rates can also have an effect on the performance of M&A.

## **2.3. Data collection.**

During the process of conducting this research, there were primarily used 2 main sources for data. Then, there were used Zephyr for gathering data about M&A activities and Refinitiv Eikon for collecting data about company financial indicators. The period was chosen as from 2011 to take deals during 10 years.

Firstly, let’s review usage of Zephyr. In order to find all needed deals, there were done attempts to find not only deals of holding, but also deals of subsidiaries. This is important, since sometimes companies didn’t acquire startups directly, but via their subsidiaries. For instance, Yandex partially used M&A activities via Yandex.Taxi and not main company Yandex NV. Then, for all 5 companies in the sample there were done similar checking so all needed subsidiaries were included.

Then, there can be stated that a sample is big enough (675 deals in sum). However, then there was done filtering in order to exclude deals with unknown value, to exclude deals which are not completed. Then, after first steps of analysis there were excluded deals before 2013 and after 2020. The period was chosen as from 2013, since 2012 was the year when not all of observed companies were listed. In the end, there are left only 88 deals, which are included in the final sample.

Then, there was done some manual additional search. The problem is that Zephyr not always show deals due to technical issues – for instance, due to another format of date in the source. After long manual checking there were found 30 deals more and current sample has 118 deals.

Secondly, there were used Refinitive EIKON. There was used datastream of such data for each company in sample:

1. Stock prices change (daily)
2. Market value (daily)
3. Price-to-book ratio (daily)
4. ROE (annually)
5. Total assets (annually)

This metrics choice is described in the “variables description” chapter.

## **2.4. Descriptive statistics**

To start with, there are 118 deals in the sample. As mentioned, they are done by 5 companies:

* Yandex
* Sber (Sberbank)
* Mail.ru Group
* MTS (Mobile Telesystems)
* Tinkoff (TCS – Tinkoff Credit Services)

Firstly, there is some descriptive statistics of numbers and values of deals.

|  |  |  |
| --- | --- | --- |
|  | Number of deals | Average value of deals, USD |
| Yandex | 26 | $ 505 253 776 |
| Mail | 30 |  $ 182 849 826  |
| Sber | 36 |  $ 570 446 923 |
| MTS | 23 | $ 109 009 344  |
| Tinkoff | 3 |  $ 54 128 149  |
| Average | 24 | $ 359 827 457  |

Table1 Numbers and values of deals

So, there are 3 initial industries – online services providers, banks and telecom. And there is such distribution of sample:

Pic 1. Distribution of deals according to initial industries.

Then, there is some descriptive statistics of deal values. There are reviewed how much companies spent on the M&A activities through years.



Table 2 Spending on M&A during 2013-2016



Table 3 Spending on M&A during 2017-2020

Then, there is some summarized descriptive statistics.



Table 4 Variable description.

According to this table, there can be stated that almost all dependent variables’ means are positive. This leads us to the point that, probably, M&A deals affect positively on financial performance of the companies that create digital ecosystems. However, we should proceed with further analysis to make such statement. Also, we can make such observation that on average company had big enough price-to-book value, since mean is 4,06. ROE for last year is also huge and is equal to 21,88. This can be explained by the point that all reviewed companies are aimed to be IT platforms, which usually have big enough values for such variables. To add, in this table is not included variable “Previous Experience”, since it is almost same as other CAR and BHAR metrics. The only difference is that unlike them this variable does not include the very first deal of the company, so there is not 118, but 113 observations and data descriptive statistics is slightly different then.

## **2.5. Variables testing.**

In order to check significance of dependent variables, there were done t-test for each hypothesizes. Then, it was aggregated into these tables.

Firstly, there is a table for dependent variables, related to the acquirer primarily.



Table 5, dependent variables description first part

Then, there is a table about average values for similar variables of acquirer’s rivals.



Table 6, dependent variables description third part

According to this, there can be stated that only 2 of 14 models are significant and can be taken for further analysis. These models are CAR(day) and CAR(-1;+2) for the acquirer. Such significance can be explained by the idea that there is observed highly arisen interest around ecosystems or this companies at least. However, it is strictly short-term and even became distorted during some days. So probably there arises hype in the market, because during last years these companies are pretty well-known and observed by many individuals. Then, after the first wave of hype, this trend decreases and market do not react in such clear way.

In addition, there must be stated that BHAR for half of the year and BHAR for the year of the acquirer’s rivals have also pretty low p-value, and if they were lower we could accept them. However, as we take 10% of significance we can not do so. Still, it is interesting to note such possibility that M&A of certain company has a long-term effect on it’s rivals’ stocks performance.

## **2.6. Regression analysis.**

To start with, there it was supposed to do regression analysis on each of 14 models. However, we have only 2 of them with needed level of significance. Then, there are presented regression models of these 2 dependent variables.

Model 1.



Table 7, Regression analysis for AR 1 day (the event day)

According to this model, we can state that there are several important variables, significant on the 10% level. For instance, deal value shows high significance in the first day and has p value of 0,029. The variable “deal market” means deal value divided by market value of the company and represents relative size of the deal. So there is negative connection and we can state that in the day of the deal close price go up higher as relative deal value is low. Probably it is connected to the point that investors are afraid that if company pays to much for M&A it will not have money for dividends in that period.

Then, we can also observe that price-to-book value has pretty big role there, since it has 0,045 p value. This also has negative connection, but the coefficient is too low and even close to zero.

Previous experience shows also pretty high level of significance, which can be interpreted as the idea that market relies on past evidence of company market performance after similar M&A activity.

Continuing, we can observe that there are variables, that are not in the level of 10% significance, but also are pretty close to it. For instance, dummy variable “for ecosystem or not” shows p value of 0,112. Similarly, logarithm of total assets has p value of 0,181 – too big, but still close at some point.

However, Adjusted R-squared is low, so validity of the model itself is also not at a good level and extrapolation of this results to future performance is questionable. Still, this is common issue for many researches in fields of finances.

Model 2.



Table 8, Regression analysis for CAR 3 days (-1;+1)

According to the table, we can also see that relative deal value, price-to-book ratio and a previous experience have a strong impact on abnormal returns.

To add, dummy variable “ecosystem or not” is now at the point of “having significance on 90% level” with p-value of 0,092, unlike AR1day model. This is not small for 95% significance level, but still enough and then we can state that the hype arises within a couple of days.

However, logarithm of total assets there became insignificant on such event window and has p value equal to 0,271.

Overall, there is a need to review hypothesizes after such analysis.

1. *M&A deals have an effect on long-term performance of the acquirers (ecosystem creators).*

Now, we reject this hypothesize, since the testing of the dependent variables that are used to display long-term performance show insignificance. Mean of the values for all metrics of BHAR on different periods are indistinguishable from zero, so there is no such relatedness.

1. *M&A deals have an effect on short-term performance of the acquirers (ecosystem creators).*

Yes, we accept this hypothesize, since the testing of some dependent variables that are used to display short-term performance show significance. Mean of the values for AR on the day of the event and CAR (-1;+1) are distinguishable from zero, so there is such relatedness.

1. *M&A deals have an effect on performance of the acquirers’ rivals.*

No, we reject this hypothesize. Since all metrics of average abnormal returns (Both CAR and BHAR) show insignificance and their mean values are indistinguishable from zero, we can not accept such hypothesize. It is interesting to note that there for the long-term performance (BHAR) p-value of the models are low, but not low enough.

1. *M&A deals affiliation with ecosystem creation is positively related with performance of the acquirers*

Yes, we accept such hypothesize. Since there is p-value of 0,092 of “ecosystem or not” dummy variable in the CAR(-1; +1) model, we can state that on the 90% level of significance we accept such idea.

To add, there can be stated that such variables as size of the deal to size of the company, price-to-book ratio and previous experience are also related with performance of the acquirer. At the same time, all other proposed variables are not.

# **CONCLUSION**

Continuing the line of many other scientific papers in fields of M&A performance evaluation, this article contributes to the research gap. This article supports main idea that can be viewed in literature review: the connection of M&A activity and financial performance of the acquirer is debatable and depends on several important points. Geographical, industrial and many other aspects must be taken into account for such analysis, and still result could be controversial.

In this research it was revealed that M&A activity of Russian companies that create ecosystems has some connection with their financial performance on the stock market, but very limited. This connection lies in the short-term results, primarily viewed as a rapidly rising and then falling hype around Russian digital ecosystems. Still, there can be stated that:

1. M&A activity is related with abnormal returns in first day of the deal (the day of announcement) and in the event window of the day before and day after (-1;+1). This relatedness also is supported by:
2. Factor that the deal is done for ecosystem. At least, this variable show low enough p-value on event window of 3 days to state such point.
3. Relative deal value. The more deal has value relatively to the acquirer market value, the worse AR are.
4. Price-to-book value. The more this ratio is, the worse AR are.
5. Previous performance of the acquirer. Market expects that if there were high AR of certain acquirer during the M&A activity, than there will be high AR again and vice versa.

## **3.1. Practical implications.**

According to the results, this research is beneficial both for academic and business spheres.

### **3.1.1. Academical implications.**

To start with, there are several academic implications, that can be listed.

1. General research of Russian M&A. As it was mentioned, the field is still understudied, so with new researches this research gap becomes filled. Although there is observed only small part of the market, still there is made an input in saturation of such academic field.
2. Research of ecosystem-creation M&A activities. There are some scientific papers devoted to the analysis of creation multi-service digital platforms and ecosystems worldwide – for instance, mentioned in literature review analysis of M&A activities in GAFAM group. There are also some observative papers of ecosystems in Russia, primarily aimed on description of such companies and their product-line features. This research also fills such understudied area.
3. Research of telecom, banks and online service providers M&A activities. There are many scientific papers that observe how M&A activities effect on company performance in such fields. However, this research unites these industries into one on the basis of ecosystems and there are used and proposed specific metrics, suitable for all of mentioned fields.
4. Research of the rivals’ performance. This idea was taken from the literature review and developed into methodology part. Huge number of scientific papers in devoted to the analysis of acquirers’ performance after the deal, but this research also provides analysis of acquirers’ rivals’ performance.

But this research does not only fill certain research gaps, it also establishes basis for further scientific papers. In the “limitations and further directions of research” there are mentioned several ways how the field of M&A effect on financial performance of Russian digital ecosystems can be discovered with the time.

**3.1.2. Business implications.**

To start with, implications of this research can be useful for:

1. Financial managers in observed 5 companies. They now can have more based expectations on what will be with the stocks of the company, so their planning will be better. To add, this could help them for the defense of investment presentations. When the Board of Directors will review project of acquisition of some startup, they will have better understanding how the shareholder value will be changed. However, this change is short-term, so Boards should not be too enthusiastic or panicking if the financial indicators will change a lot during the first days of the deal.
2. Investors. Individual or in financial organizations. As any player on stock exchange, these people will be able to react better on news about M&A activity in observed company. Probably, with time this will be suitable for other ecosystem developing companies too. So according to results of this research, individual investors will have higher understanding what to do with the shares of the acquirer for the short term, relying on mentioned factors. Unfortunately, BHAR of competitors showed not enough low p-value, but these investors still should take into account that it there is some connection between M&A activity of certain companies and performance of stocks of their rivals.

## **3.2. Limitations and further directions of research.**

This research revealed several important problems, that can be solved in further researches. Since the research showed low validity of many models, there can be stated that current state of M&A in ecosystem creation (or at least sample) is not sufficient to state that performance of deals is highly dependent on used variables. In order to solve this. in further researches can be implemented several approaches, listed above.

Time-scaling. In the sample there are analyzed deals, that start from the 2013. These time frames are stated due to the point that 2013 was exactly the year when all observed companies were listed. Thus, it became possible to analyze abnormal returns from events of M&A activity. To add, upper border was set as first half of 2020. This was done in order to make analysis of BHAR possible. And that leads to point, that there are some new deals, which were not taken into account. And with the time there will be more deals done in order to build ecosystem. Sber, Yandex, Mail.Ru Group, MTS and Tinkoff will continue building ecosystems and with high level of probability we can state that they will do it with usage of M&A. Then, after some time - several years, precisely, there it will be possible to have larger sample. Now, there is 119 deals in it, but there are already some deals in the second half of 2020 and some deals in 2021, so there will be more and more. It can be suggested to conduct similar research in 2023 - with a larger sample the validity of the model will be higher. Furthermore, the hype around ecosystems started primarily in 2016-2017. Definitely, companies in the list of observation were building multi-service platforms - for instance, Yandex launched its' taxi service even before 2013. However, 2017 was the year when players started their aggressive strategy, and it was exactly the year when CEO of Sber used the word "ecosystem". It led to the mentioned arisen interest around key players, so starting from these years and during next several years validity of model must be higher. Concluding, we can state that conduction of similar research in 2024 will be beneficial, since sample will be more statistically correct. On the other point, now market of telecom, banks and online services is more consolidated that in 2013, so probably most of M&A will be related to ecosystem creation. Then, this becomes impossible to use this dummy variable. Still, researchers can analyze the sample of only M&A deals for ecosystem and get interesting results.

Higher number of companies. Currently, there are 5 companies in the sample and 119 deals. However, it was mentioned that there are also some other companies, that are building ecosystems. Usually, this list can also include VTB, Tele2, Beeline, Rostelecom and some other players. These companies do not have such developed ecosystems as companies in sample do and they typically launched new services without M&A, but they can be observed also. However, this should be done also after some time, so these players will also do some mergers and acquisitions and the sample will be more saturated.

Including not only M&A events. As it was several times mentioned, sometimes company develop new services via some other ways but M&A. For instance, they can have internal startup accelerator, innovation laboratories, service development teams, etc. Still, it is expected that announcement of entering some new market with new service can also have an effect on company financial performance on the stock market. Then, there can be gathered data about such events and included in the sample.

Usage of other variables. This point is tricky, since there was done analysis of commonly used metrics among other scientific researches, and most used metrics have sufficient scientific ground. Furthermore, there are used some proposed metrics, which make model more saturated. Still, the analysis showed that not all metrics are working as it was expected and some hypothesizes were rejected. Continuing this idea, there can be stated that with usage of mentioned above methods to increase the number of deals in sample, there can be also done some increase in number of variables or just some reasonable change. For instance, there could be implemented some rarely used specific metrics. However, researchers should take into account points, mentioned in this research. For instance, new metrics should be not too industry-specific.

Implementing another research methodology. In further years authors can use new approaches analyzing how M&A activity for ecosystem creation makes impact on financial performance. Author of this research used classical event-based methodology, adding analysis of rivals’ performance and implementing new metrics. Using this ground, scientists can use accounting-based approaches and analyze how M&A events make impact on financial indicators of company. However, this also could be tricky, since industrial specialization of companies provides limitation in usage of some specific accounting metrics. To add, the sample could be still too small for such analysis. On the other hand, there could be used other approaches in further researches. For instance, authors can use methods of subjective evaluation analysis. They can interview financial managers in observed companies and industry experts. Then, they can compare such evaluation to market reaction.

Introducing new benchmark. Since companies have some initial industrial specialization, there could be calculated specific benchmark for further usage in the CAR and BHAR models. For instance, there could be used average abnormal returns of all companies in spheres of banks, telecom and online-service providers which are based in Russia and which are listed.

Rivals’ performance analysis. This idea was used, but there can be also provided an analysis of how M&A deals of ecosystem creators effect on performance of those industry players, who doesn’t create any ecosystem. For instance, several banks in Russia are interested in becoming digital multi-services platforms with and high level of cross-service coverage. However, there are some conservative banks, which do not accept such trend, but also do M&A’s. Then, there could be analyzed their performance after the deal and the effect of their deals on their rivals.

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