ASSOCIAÇÃO DE POLITÉCNICOS DO NORTE **(APNOR)**
INSTITUTO POLITÉCNICO DE BRAGANÇA

Impact of corporate diversification on company performance and risk

Nataliia Overchenko

Final Dissertation submitted to *Instituto Politécnico de Bragança*

To obtain the Master Degree in Management, Specialisation in Business Management

Supervisors:

Paula Odete Fernandes
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***Bragança*, July, 2019.**

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Abstract

The strategy is the main direction of the company. In the development of the economy, an important role is played by corporate diversification strategies. The study of the essence of the concept of diversification of production shows that its methods are rigidly dependent on the scope of business and enterprise management. Diversification requires a degree of flexibility in the approaches to its implementation, therefore, at the beginning of planning activities, none of them should be excluded.

This research focuses on the impact of corporate diversification on company performance and risk. To complete this purpose, the research question will be answered: how does corporate diversification affect enterprise indicators?

The company is one of the four largest Russian oil producers. The total installed capacity of Gazprom's electricity generating assets in Russia is about 16% of the total installed capacity of the Russian power grid. Gazprom ranks first in the world in the production of heat energy. Research is based on the open annual financial statements of PJSC Gazprom. To assess the differences, find the relationship between variables and respond to the hypotheses of the study, various statistical analyses were applied.

The result evidence from Russian company showed that unrelated diversification is positively related to firm's performance. However, related product diversification is negatively related to firm's performance. In addition, the relationship between geographical diversification and the efficiency of the company is positive, moreover, the hypothesis of product diversification and reducing the risk of the company is confirmed. However, the hypothesis that geographical diversification contributes to reducing the risk of the firm has not been corroborated.

Keywords: Corporate diversification, Company performance, Risks, PJSC Gazprom, Internationalization.

Resumo

A estratégia é a principal orientação da empresa. No desenvolvimento da economia, um papel importante é desempenhado pela diversificação de estratégias empresarial. O conceito de diversificação da produção mostra que os seus métodos são rigidamente dependentes da gestão empresarial e do negócio. A diversificação requer um grau de flexibilidade nas abordagens para sua implementação, porém, no início do planeamento das atividades, nenhuma delas deve ser excluída.

A presente investigação foca-se no impacto da diversificação empresarial no desempenho e risco da empresa. Para completar este objetivo existe a necessidade de responder à seguinte questão de investigação: como a diversificação empresarial afeta os indicadores da empresa?

A empresa é uma das quatro maiores produtoras de petróleo da Rússia. A capacidade instalada total dos ativos de produção de eletricidade da Gazprom na Rússia ronda os 16% da capacidade instalada total da rede elétrica russa. A Gazprom posiciona-se no primeiro lugar no mundo no que toca à produção de energia para aquecimento. A presente investigação e para a realização da parte empírica teve por base as demonstrações financeiras anuais disponibilizadas pela PJSC Gazprom.

As evidências dos resultados da empresa russa mostraram que a diversificação não relacionada encontra-se positivamente correlacionada com o desempenho da empresa. Todavia, a diversificação de produtos relacionados encontra-se negativamente relacionada com o desempenho da empresa. Adicionalmente, a relação entre a diversificação geográfica e o desempenho da empresa é positiva, mas não há correlação entre a diversificação geográfica e a redução do risco da empresa. Além disso, a hipótese sobre diversificação de produtos e redução do risco da empresa não é corroborada.

Palavras-chave: Diversificação Corporativa, Desempenho da Empresa, Riscos, PJSC Gazprom, Internacionalização.

Реферат

Стратегия является основным направлением деятельности компании. В развитии экономики важную роль играют стратегии корпоративной диверсификации. Изучение сущности концепции диверсификации производства показывает, что ее методы жестко зависят от сферы бизнеса и управления предприятием. Диверсификация требует определенной гибкости в подходах к ее реализации, поэтому в начале планирования деятельности ни один из них не следует исключать.

Это исследование фокусируется на влиянии корпоративной диверсификации на результаты и риски компании. Для достижения этой цели на вопрос исследования будет дан ответ: как корпоративная диверсификация влияет на показатели предприятия?

Компания входит в четверку крупнейших российских производителей нефти. Общая установленная мощность генерирующих активов Газпрома в России составляет около 16% от общей установленной мощности российской электрической сети. Газпром занимает первое место в мире по производству тепловой энергии. Исследование основано на открытой годовой финансовой отчетности ПАО «Газпром». Чтобы оценить различия, найти взаимосвязь между переменными и ответить на гипотезs исследования, были применены различные статистические анализы.

Полученные в результате исследования данные на примере российской компании показали, что несвязанная диверсификация положительно связана с результатами деятельности компании. Тем не менее, связанная с этим диверсификация продукции отрицательно связана с работой фирмы. Кроме того, взаимосвязь между географической диверсификацией и эффективностью фирмы является положительной, более того, гипотеза о диверсификации продукции и снижении риска фирмы подтверждается. Однако гипотеза о том, что географическая диверсификация способствует снижению риска фирмы не подтвердилась.

Ключевые слова: Корпоративная диверсификация, Результаты деятельности компании, Риски, ПАО Газпром, Интернационализация.

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Acronyms

DI – Degree of internationalization

H – Hypothesis

Lev - Leverage

LNG - Liquefied natural gas

M&A - Mergers and acquisitions

PE - Price-to-earnings ratio

PJSC - Public joint stock company

R&D – Research and development

REI – Related entropy index

ROA - Return on assets

ROE - Return on equity

SIC – Standart industrial classification

UEI – Unrelated entropy index

μd - True mean difference

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Introduction

Often in the literature about strategic management, investment and finance can be found the concept of "diversification". In fact, many of us in our daily life intuitively apply a diversification strategy, not really delving into the economic essence of this term. For example, many people prefer to keep their savings not only in national but also in foreign currency, while entrepreneurs decode to open a new business in the new industry having increased their turn-overs.

Innovative orientation of the industrial enterprise requires new theoretical approaches to the processes of diversification of economic activity. The genesis of methodological approaches in this area shows that the portfolio approach has given way to the resource approach, that is, the priority of finding a source of competitive advantage has fundamentally changed. If earlier the causes and sources of diversification were sought in the external competitive environment, then in modern conditions the key competences that an industrial enterprise has become a source of competitive advantage.

Business diversification, regarded as an independent strategic alternative, contributes to ensuring the market maneuverability of an industrial company, and in this sense, the theory and practice of strategic management consider it as one of the key corporate strategies.

The strategy for the development of diversification processes involves the consistent implementation of long-term activities of economic entities at various levels. At the macro level, this strategy involves the diversification of the activities of the economic systems of the regions, districts and the country as a whole. At the micro level, diversification of an enterprise is a form of corporate strategy implementation, the main commercial goal of which is to increase profits by using competitive advantages with various incentives.

It is believed that diversification leads to a better use of material and non-material resources of the enterprise. On the one hand, it reduces the risk of the enterprise's dependence on any single product or market, but on the other hand, it increases it, since there is a risk inherent in diversification.

The diversification strategy is the distribution of risks through the expansion of activities, the development of new areas and areas of application of knowledge, resources and financial resources. The main goal of this strategy is to reduce the risks that arise when all efforts or money are concentrated in one area.

The subject of the research is based on impact of corporate diversification on the performance and risks of the company. The purpose of the study is to analyse the impact of corporate diversification on the company's performance and risks.

Achieving this goal required the formulation and solution of the following tasks:

- explore the concept and types of diversification;

- to study the theoretical aspects of international diversification;

- to study the methods of risk diversification;

- determine the dynamics and development potential of the diversification strategy for companies.

The following general scientific research methods were used: analysis and synthesis of theoretical specialized materials, scientific articles, research and statistical data.

This work is divided into three parts. The first section is dedicated to understanding the concept of corporate diversification, factors and risks that can affect it. At the beginning it was described concept and types of diversification. Moreover, were presented ways, reasons, programs and such kind of diversification as transnational one. Second section covers the methodology of research. The survey related to the impact of corporate diversification on performance and risks of the company. There was also presented main objectives of the study and research hypotheses. Besides, was reflected necessary info about PJSC Gazprom. In the third part analysis and results of the survey was presented. The last section will be dedicated to the presentation of the main findings and discussion.

1. Theoretical aspects of diversification

1.1. Concept and types of diversification

One of the approaches used by the companies to remain competitive in business, is diversification. In the most general sense there is a diversification of a product where the company gains income from several industrial sources; and geographical diversification where the company gains the income from several geographical locations. Diversification of production is an expansion of release of new goods with the purpose to reduce the enterprise risks caused by a changeable business environment (Darhovskyi, 2017).

For example, the enterprise makes textile products — clothes. Development of release of footwear or accessories will be production diversification. It in turn can be connected or untied. In the first case the firm produces similar goods (as in our example — clothes and footwear), in the second — a product from other branch of economy (clothes and steel products) (Zhukov, 2016).

The decision on release of new types of products is made by the top management of the company. For what does it become? Always there is a risk that the product will get out of fashion (if it is mass consumer goods) or will morally become outdated because of an innovative novelty of the competitor. In case in a product line of the enterprise there is no saving hole", it can face serious financial problems as development of release of new goods of all is very expensive on time (Astahov, 2016).

Diversification of suppliers is a distribution of purchases among several firms suppliers with the purpose to reduce risk of nondelivered of goods, marriage of products, etc. (Freund, Trahan, & Vasudevan, 2017).

If the plant buys raw materials and accessories only from one supplier, it is very dependent on the business partner. If there is force majeure at the supplier, then it can lead to a production stop. Partially this problem is solved by increase in warehouse stocks, but it is not always expedient and favourable. Therefore, it is always necessary to have substitute suppliers — at least on paper.

Diversification of a portfolio (securities) is a purchase of various securities on the financial characteristics and the nature for the purpose of avoidance of risks of losses of money (Ilysheva, 2017).

For example, you decided to invest the money in actions. Purchase of shares only of one company can be very touchy business since their prices change all the time and not always in that party where it is necessary for you. To lower risk degree, you can diversify the portfolio, that is take shares of several companies (Berger, & Ofek, 2018).

The strategy of diversification is universal and applicable in the most various areas:

- distribution channels;
- ways of promotion of goods;
- methods of monetization of Internet resources.

Thus, diversification by simple words is an entering of a variety into fields of activity to reduce risks of losses.

As definition of strategy of diversification can serve: expansion of interests within new fields of activity and the new markets which differ from the main grocery lines of the organization. There are several drivers and the reasons because of which the company chooses as strategy diversification, all of them with are connected with advantages from:

- Higher market power,
- Use of existing capacities and resources in other dimensions,
- Better allotment of assets through internal capital markets,
- Greater debt capacity,
- Decreased performance variation by virtue of a portfolio of imperfectly correlated set of business.

Also distinguish the connected and untied diversification. In turn, the connected diversification can be vertical or horizontal (Figure 1). The main criterion of definition of type of diversification – the principle of merge. At functional merge the enterprises connected in the course of production unite. At investment merge association happens without production community of the enterprises.

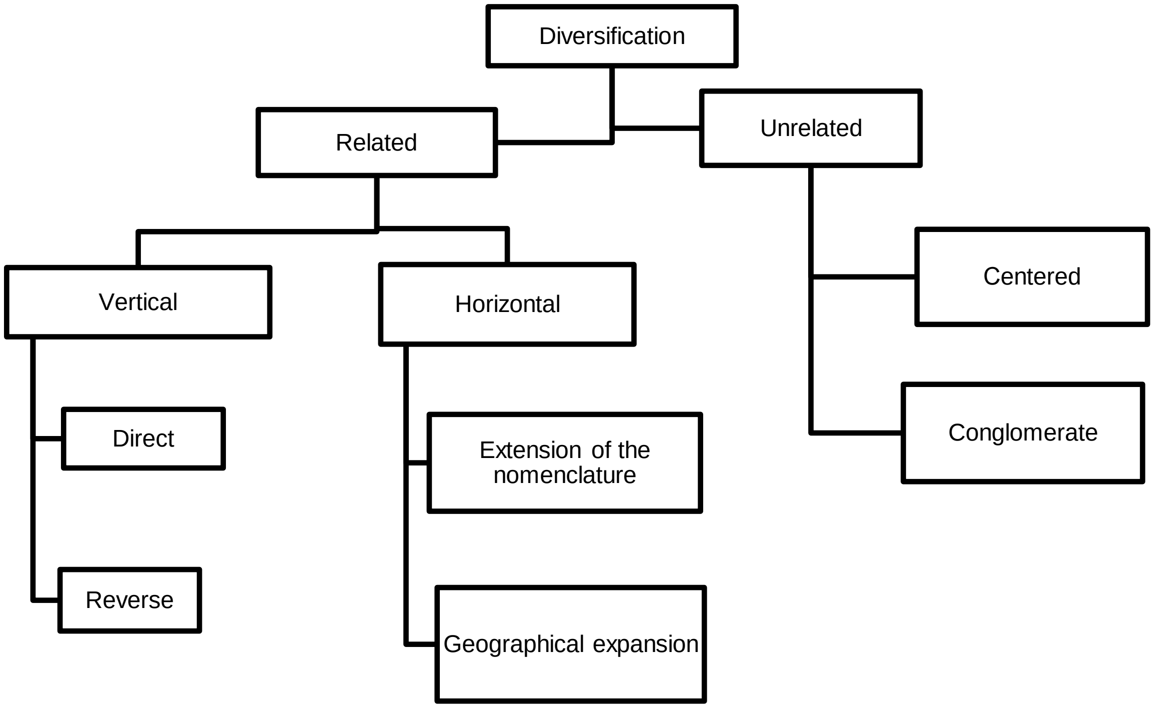

Figure 1. Types of diversification.

Source: Author's own elaboration.

The connected vertical diversification, or vertical integration, is a process of acquisition or inclusion in the structure of the enterprise of the new productions entering a technological chain of release of the main product on the stairs to or after production process.

The strategy of integration is justified when the enterprise can increase the profitability, controlling strategically important links in a chain of logistics, production and sales of products.

At the same time various types of vertical integration are possible:

- full integration of production activity;
- partial integration, in this case a part of necessary accessories is bought from other enterprises;
- quasi-integration, creation of strategic alliances of the enterprises interested in integration without transition of the property rights.

Depending on orientation of integration and position of the enterprise in a production chain, allocate two forms of the connected diversification: integration "forward", or direct integration; integration "back", or reverse integration (Detmer, & Schragenheim, 2017).

The strategy of the reverse integration is used to protect strategically important source of supply or to get the access to new technology important for basic activity.

At the return integration the enterprise attaches functions which were performed earlier by suppliers, i.e. gets (establishes) control over sources of raw materials and production of components.

Direct integration consists in acquisition or strengthening of control over the structures which are between the enterprise and the end user, namely the system of distribution and sale of goods. This type of strategy is used when the enterprise cannot find intermediaries with qualitative level of service of clients or seeks to know the consumers better (Evdokimova, 2017).

The connected horizontal diversification, or horizontal integration, is merging of the enterprises working and competing in one sphere of activity.

Main goal of horizontal integration – strengthening of positions of firm in the industry by absorption of certain competitors or establishment of control over them.

Potential of suppliers can become an important factor in the market because of that influence which they can render on profit indicators. Strong suppliers can reduce profit in the industry consuming their product by price increase which cannot be shifted to shoulders of own buyers (consumers of products). They can also reduce the profit of buyers, worsening quality of products as the profit of suppliers at the expense of the profit of buyers increases. Competitive influence from suppliers mainly depends on that how important these expenses in the price of products of the buyer are. When deliveries of a certain group of suppliers begin to occupy an essential share in the total costs, there is a situation, dangerous to the buyer: suppliers get a great opportunity to bargain and influence the firms working in the considered industry (Cardinal, Miller & Palich, 2017).

At the same time, it is more difficult for suppliers to achieve the objectives if one of industries which they supply is their main consumer. In this case the welfare of suppliers directly depends on welfare of consumers that forces the first to feel need to protect the industry by means of reasonable prices, improvement of quality of products.

Thus, in the conditions of steady and strong dependence on suppliers in respect of receiving profit the consumer can consider expedient process of the return integration when, diversifying the activity on suppliers, it protects itself(himself) from their negative impact and provides stable functioning of the production (Errunza, & Senbet, 1981).

Consumers can also have an impact on the enterprises working in the considered industry. At the same time the competitive strength of consumers can fluctuate from considerable too weak. The buyers and the more quantity of products which they get, the more their opportunity to influence the course of negotiations are larger. Quite often large buyers manage to get discounts and other favourable conditions for themselves. At any time, buyers can satisfy the inquiries, having addressed several sellers, but not to be guided by any one brand of goods as they have a possibility of additional negotiations.

Thus, it is possible to claim that buyers become more influential competitive force with growth of their opportunity to influence the prices, quality, level of service and other conditions of sales. For this reason, sometimes useful is an integration "forward" (Fauver, Houston, & Naranjo, 2014).

Motivation in this case is ensuring control over the output channels. For the firm producing consumer goods, the speech can go about control over sale through franchise network, exclusive contracts or creation of own retail network. In the industrial markets the main goal consists in control over development of the subsequent links of an industrial chain which are supplied with firm (Cardinal, Miller, & Palich, 2017).

That is why some basic industries are actively involved in the development of firms engaged in the further transformation of their products. In some cases, the integration of "forward" is carried out simply in order to better know the consumers of their products. In this case, the firm creates a subsidiary structure whose task is to understand the problems of the clients in order to more fully meet their needs.

Horizontal integration allows you to achieve savings in scale of production, to expand the range of goods and services and, thus, to obtain additional competitive advantages. Geographical expansion of markets is often the main cause of horizontal diversification. In this case, companies that produce the same products but act in different regional markets are combined.

Unbound diversification. This type of diversification covers areas of activity that do not have a direct connection with the main activity of the enterprise. Diversification is justified if the possibilities for growth of the enterprise within the production chain are limited, the positions of competitors are very strong, and the market for basic products is in a recession stage. With unrelated diversification, there may be no common markets, resources, technologies, and the effect is achieved through the exchange or division of assets/areas of activity.

There are centred and conglomerate diversification (Evdokimova, 2017):

- The strategy of centred diversification is based on the search and use of additional opportunities for the production of new products in an existing business. The existing production remains at the centre of the business, and the new one arises from the opportunities that are found in the established market, the technology used and are based on the strengths of the enterprise;

- The strategy of conglomerate diversification is to expand the enterprise through the production of technologically unrelated to already produced new products that are sold in new markets. The purpose of this diversification is to update its product portfolio.

The choice of a diversification strategy is made taking into account the internal capabilities of the enterprise and the needs of the market.

The corporate strategy of diversification in the related industries represents in essence the strategy of concentric diversification. At implementation of this strategy the enterprise is beyond an industrial chain in which it worked, and looks for the new types of activity supplementing existing in the plan technological or commercial. The purpose in this case — to achieve effect of synergy and to expand the potential market of firm (Protiti, 2018).

The most widespread ways of diversification to the related industries is the following (Figure 2).

Figure 2. Ways of diversification.

Source: Author's own elaboration.

Let is note what in this case can and has to there be a speech about direct economy at production scales due to decrease in costs of production as publicity expenses and promotion of goods and also its distribution through dealer network decrease.

In addition to it the essential moment is transfer of experience on these fields of activity of the enterprise. Moreover, the commodity brand and reputation of the company can be transferred from production of one goods to another. A classic example is the BIC company where from production of disposable ball pens passed to production at the same time and disposable safety razors and lighters (Bodner, Tang, & Weintrop, 2017).

Thus, the corporate strategy of diversification in the related industries as forms of concentric diversification are based on strategic compliance and can be shown in the field of the production technology, joint requirements to skill of personnel, uniform sources of material resources and suppliers, potential for coproduction of details and components, similar production methods and an administrative know-how, in use of identical methods and approaches to marketing and sales of products, the organization of distribution network, potential of joint after-sales service and also sharing of a trademark and reputation of firm. Use of similar strategic compliances is important as allows to carry out system economy at scales of production and represents the moment in gaining competitive advantages before rivals on specific market segments (Ilysheva, 2017).

Such strategy is based that growth of the enterprise due to merger of other firms increases stability of actions. At the same time search concentrates around the companies which offer an opportunity for receiving fast financial return at the expense of the special situation. Usually the following method belongs to such companies (Figure 3) (Errunza, & Senbet, 1981).

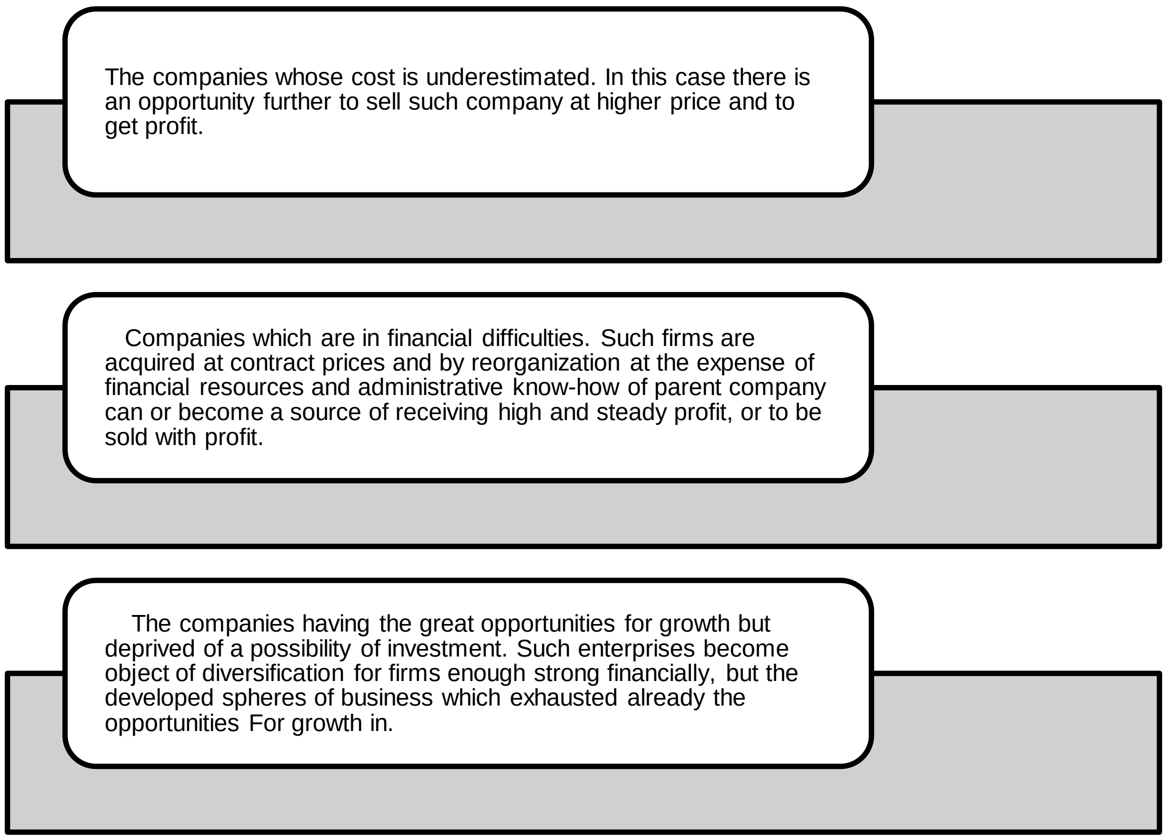

Figure 3. Companies

Source: Author's own elaboration.

The considered type of corporate strategy of diversification of Production has a number of advantages before vertical integration and diversification into the related industries. It is, first, the commercial risk is disseminated through a set of various industries that does the enterprise less dependent on problems which can arise in any one field of activity.

Secondly, financial resources can be in due time enclosed or in that field of activity which will provide high and steady profit, or on expansion of production in the perspective industries (Ivanitskaya, 2016).

Thirdly, the internal rate of return of the enterprise is stabilized as does not depend directly on recurrence of development of specific industry and life cycle of concrete goods.

1.2. Transnational diversification

Transnational diversification as a form of corporate strategy of diversification of production appeared in the 70th years as the response to increase in the competition and globalization of commodity markets and services. It significantly differs from traditional forms of diversification, Ansoff even calls it not diversification, but internationalization (Endovitskyi, 2017); and has the specific features connected not only with penetration into other industries of various countries, but also just with geographical expansion (Errunza, & Senbet, 1981).

Geographical diversification and its benefits and costs is quite a well-studied topic in the academic literature. In general, academician divide internationalization by two types: multinational companies and foreign direct investments. Theory of multinational companies involves arguments on shared resources and experience exchange between divisions in different countries (Wernerfelt, 1984), global arbitrage opportunities (Kogut, 1989) and synergies in business process and systems optimization (Fayerweather, 1978). School of foreign direct investment puts that internationalizing companies are able to reduce risk by diversifying their businesses in different locations (Lessard, 1976), and improve performance via economies of scale and resource sharing (Rieck, Cheah, Lau, & Lee 2004).

Moreover, various authors have argued that international diversification enhances shareholder value by exploiting firm-specific assets, by increasing operating flexibility and by satisfying investors' preferences for holding globally diversified portfolios.

According to Morck, Stangeland and Yeung (1998), geographical diversification is especially beneficial for companies which possess a significant information-based asset base (it can be connected with R&D and advertising). This type of assets shows evidence of improving returns of scope and scale although it can be at times challenging at times to sell. Internationalization solves this problem.

Another benefit of geographical diversification is that it enables the company to leverage market conditions, thus adding value through operational flexibility. An international company can choose if it wants to move manufacturing to a location with cheaper costs, or to move distribution to a place with bigger buying potential; plus, the difference is the tax system can be leveraged too.

Finally, another advantage of geographical diversification is based on invertor preferences. Theoretically, investors favour companies which are diversified internationally and are more likely to pay a premium for such firms, due to lower cost to have a diversified portfolio, rather than for diversifying as a separate investor.

Similar to product diversification, while internationalization strategy has its advantages, there are also numerous potential costs in place. One of the drawbacks is the same as with product diversification: due to internationalization the divisions that are less profitable can potentially be cross-subsidized inefficiently. Also, there is again information asymmetry in place with concerning divisions and head office (Harris, Kriebel, & Raviv, 1982).

The transnationality diversification occurs through creation of own productions (the plant of Philipp Maurice in the Leningrad Region), creation of joint ventures (Vienna beer factory in St. Petersburg) or just strategic alliances (the Renault — AZLK project in Moscow) (Erina, 2017).

Owing to even big insurance risk investment of the capitals into the Russian economy of multinational corporation is not considered as priority policy therefore also their influence on the Russian economy is yet not so big. However, at change of a social and economic situation in our country the situation in a short space of time can change radically as multinational corporations possess big financial resources.

The corporate strategy of restoration places emphasis on revival of subsidiaries, but not on disposal of them. It is most acceptable if the strategic analysis shows that the reasons of deterioration have short-term character (Denis, Denis, & Yost, 2017).

The corporate strategy of economy assumes reduction of scale of diversification and reduction of number of the enterprises. Usually it is applied when the top management comes to conclusion that corporation too to diversify and it is necessary to concentrate the activity on smaller number of the most attractive fields of activity.

At last, the corporate strategy of restructuring of a portfolio and activity assumes revision of structure and a priority in fields of activity of the enterprise in general. It includes measures for acquisition of the new enterprises and disposal of some old. The reasons of restructuring of a portfolio of business activity can be the most various, the main among them are (Figure 4) (Endovitskyi, 2017).

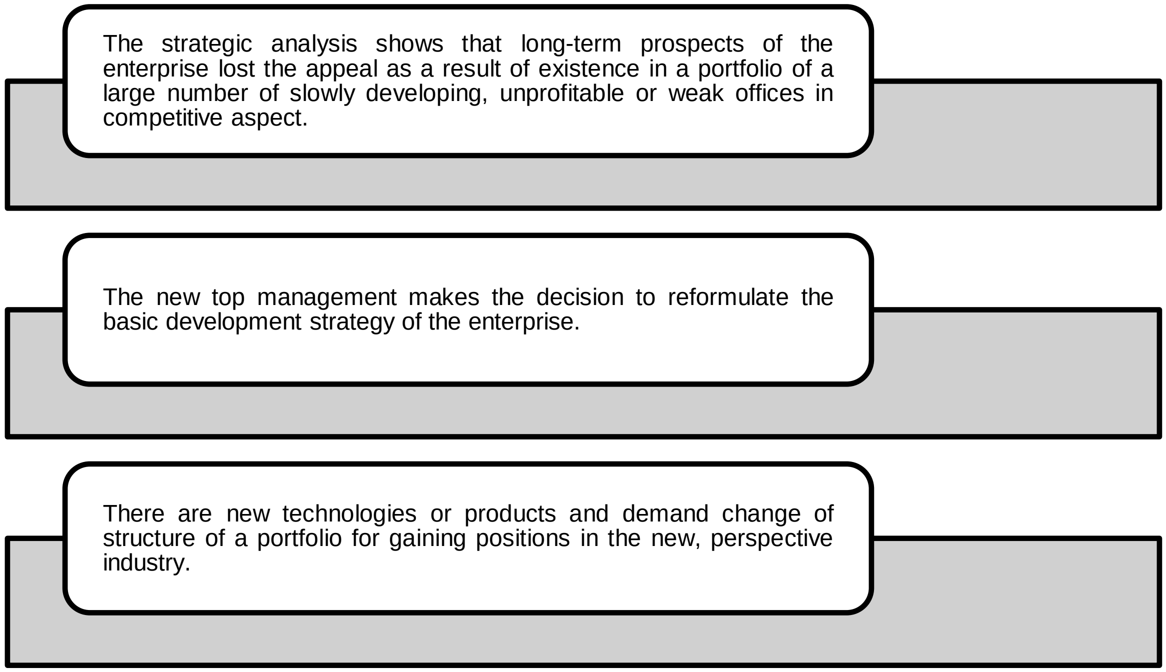

Figure 4. Reasons of restructuring.

Source: Author's own elaboration.

In the conditions of bankruptcy threat the corporate strategy of diversification takes the form of sale and elimination of separate productions. It is possible to get rid of subsidiary in two ways. First, the top management can make the decision just to leave this business as in financial, so the administrative plan, at the same time having kept a part of actions (Zhukov, 2016).

Secondly, the top management can sell directly the enterprise entirely, but at the same time find the buyer for whom this acquisition answers its strategic objectives. The last will allow to receive the greatest possible quantity of money for the sold production.

Anyway at a stage of threat of bankruptcy for shareholders and the top management early elimination is more acceptable, than the procedure of bankruptcy (Kanev, 2016).

1.3. Methods and forms of diversification of risks

Nowadays it is possible to allocate two main types of risks – market and specific. As for specific risks, only those companies which make issue of securities are subject to them.

In turn market risks – residual. They remain after full removal specific. If the investor made everything correctly and paid due attention to diversification, then only market risks remain the only danger (Endovitskyi, 2017).

It is possible to give also other classification of risks if to reflect in more global scale (Buneeva, 2016);

- economic. Here the main danger is in economy of the state. If at the state level there is a stability, then the companies normally develop. As a result, risks are minimum. At emergence of crisis (for example as in 2008) from problems even the most reliable and stable organization is not insured;

- state. Here it is about risks which are in most cases connected with nationalization of this or that property, changes in the legislative sphere and so on. But the probability of influence of such risks on the investment portfolio is minimum;

- risks of the industry. Nobody knows what will be demand for these or those goods in a month or in a year and whether there will be it in general. Society changes, priorities change. Therefore, the popularity of this or that company (respectively, and stock price) can sharply change;

- risks of a segment. In this case it is more about serious crisis – exchange, real estate market crisis and so on;

- risks of the company. Nobody is insured from individual risks of this or that company. Here anything including incompetence of heads can influence growth of popularity.

In the most general view of the program for carrying out diversification can include one of following methods.

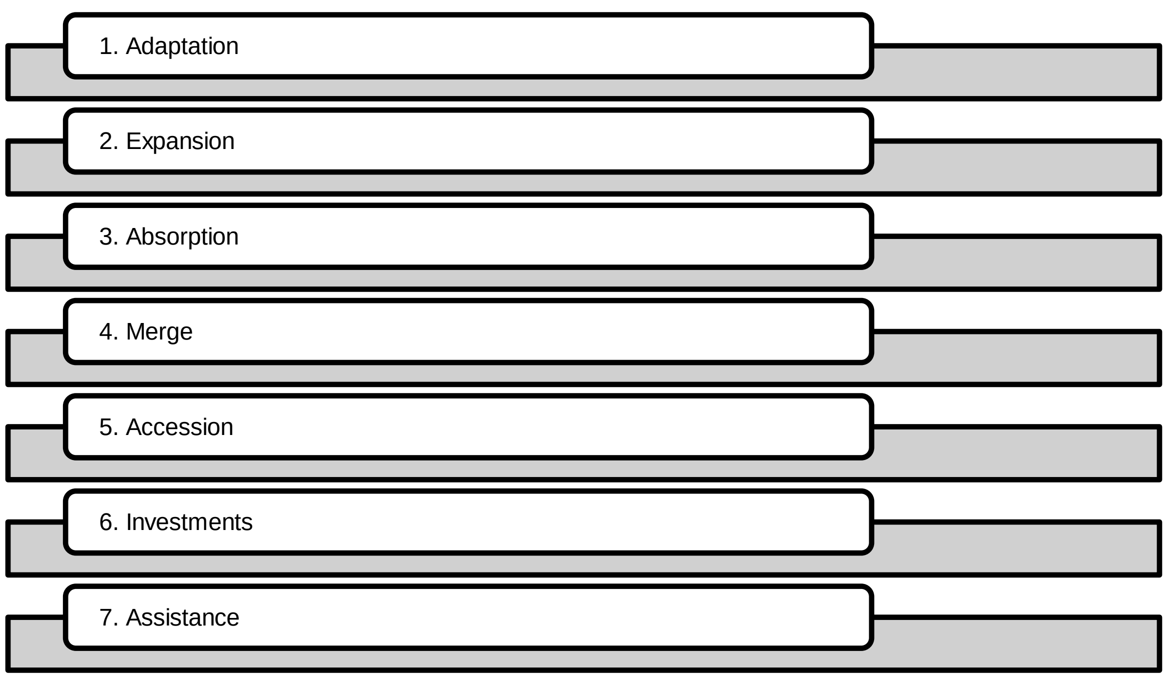

Figure 5. Programs for carrying out diversification.

Source: Author's own elaboration.

As various aspects are inherent in each situation of carrying out diversification, combinations of the listed above methods are possible. Creation of the new company is more attractive option in the following cases (in a combination) (Erina, 2017).

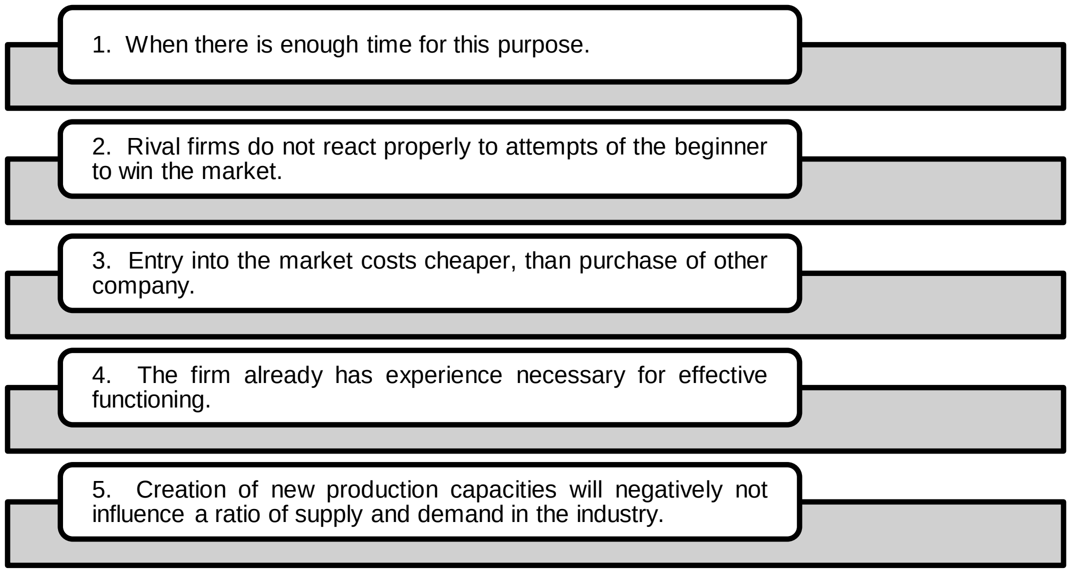

Figure 6. Efficiency cases.

Source: Author's own elaboration.

One of the main criteria during creation of the new enterprise or absorption which is already existing for realization of corporate strategy of diversification are the expenses which are required for investment. At the same time, it is necessary to calculate accurately the amount of profit which will be got by the enterprise from this form of diversification, to correlate it to the expenses connected with purchase and maintenance of competitiveness of new production (Astahov, 2016). High price of acquisition or building of production "from scratch" can give situations at which obtaining required profit level for parent company will become problematic. The building of joint ventures as the method of diversification is expedient in three cases (Blank, 2016).

First, the joint venture represents the most effective capital investments in venture business when the result of activity cannot be predicted with rather high precision therefore implementation of this project is alone risky and inefficient.

Secondly, creation of joint venture is convenient when merging of two and more enterprises creates new production structure with more considerable competitive advantages as each partner contributes in common cause the share of specific knowledge and resources which another does not have that creates new synergetic effect.

Thirdly, joint ventures with foreign partners most often are the most effective way to overcome import quotas, customs tariffs and to accurately correspond to the national legislation (Zhdanchikov, 2016). Such enterprises — a compromise in the plan of attraction of foreign investments as, on the one hand, allow to develop national economy on modern technological and organizational and administrative base, and on the other hand, provide access of a pass to the multinational companies the new market, i.e. allow to carry out them geographical expansion.

Joint ventures in essence represent the highest form of realization of strategic alliances with all that it implies from this pluses and minuses. Partners in joint business have to resolve a difficult question of how to distribute efforts among themselves and who has rights of adoption of strategic decisions (control). The conflicts between foreign and national partners can arise on the following questions (Errunza, & Senbet, 1981):

• How many products it is necessary to export?

• Whether production has to conform to standards of the foreign company or national state standard specifications?

• Who and how has to control cash flow and distribution did arrive?

The solution of the matters in many respects depends on state policy in the field of attraction private (and for example, foreign) investments. Owing to the specified reasons creation of joint ventures can be referred to indirect methods of diversification of production.

The general view in the finance and strategy literature and theories that corporate diversification is associated a lower corporate risk profile. Although it is a usual perception, there is lack of relevant evidence in the existing body of research that shows the clear relationship between corporate diversification and corporate risk (Anderson, Fedenia, Hirschey, & Skiba, 2011). In this sub-section we review the polarizing views on the relationship and possible reasons on why diversification might reduce and increase corporate risk.

The majority of papers follow the popular opinion that there is risk reduction associated with higher diversification. One of the arguments for why that happens is related to the real options view of diversification discussed above: when diversifying, companies execute their growth options. In other words, by diversifying, firms transform these growth opportunities into assets and by that reduce the risk, as the options consist of future economic conditions, which is risky (Carlson, Fisher, & Giammarino, 2006).

Another argument, as proposed by Amihud and Lev (1981), consists of the assumption that by diversification activities decision makers in companies follow the incentives to reduce risk, so they choose to pursue investment projects that help to lower the variations in company’s revenues. Also, there is another argument why diversification reduces the risk, and it is based on the similarity between corporate diversification and portfolio diversification. According to Anderson, Fedenia, Hirschey and

Skiba (2011), it is possible to conclude that corporate diversification reduces company's risk since corporate and portfolio diversification are analogous since both hinge on investments in different segments or sectors. The dominant focus in portfolio diversification is on risk management, and it is possible to related the concept to corporate diversification as well, according to the author.

On the other hand, although it is the most popular, the opinion that corporate diversification is associated strictly with reduction of company risk is not the only view. There are several factors concerning why corporate diversification impacts corporate risk positively.

Consistent with the first argument of negative diversification and risk relationship above, the first argument here also concerns real options. According to Zhang, Yuan and Chen (2002), it is possible that growth options actually possess smaller amount of risk comparing to actual assets.

The reason being, that companies that have more growth options tend to have lower adjustment expenses and therefore tend to keep their investments; which therefore leads to the conclusion that the counter-cyclical price for these expensive and risky assets cause reversibility in place, more difficult to reduce than the growth option is therefore a high risk, especially during the economic downturns with high price of risk. The bottom line is that diversification increases risk of the company when assets have a higher risk profile than these growth options.

The next argument concerns decision maker preference that tends to determine the risk profile. As Hermalin and Katz (2003) state, when making decisions on whether to diversify or not, it is usually shareholders rather than manager who decide. Since shareholders tend to be less risk-averse than managers, as managers prefer to secure their salaries and bonuses with safer business decisions, shareholders are more likely to pursue riskier solutions. Therefore, when decisions on diversification are done by shareholders, it is more likely for the risk profile of the company to increase. It is important to note that this argument is based on the opinion that managers tend to be more risk averse than shareholders. However, it is not a unanimous case. According to Agrawal and Mandelker (1987), when managers have shares or options of the company, they tend to be more willing to pursue risky decisions. Generally, there are two main outcomes of risky diversification decisions that affect the responsible people: value of the company grows, or human capital of decision makers deteriorates. If decision makers in managers have shares in the company, the first outcome might win and be more important – therefore risk-increasing choices are more likely.

The final argument is based on the similarity between corporate and portfolio diversification. It is important to note that risk reduction is the main reason for portfolio diversification, but is not necessarily the main reason and factor for corporate diversification. There are other reasons for corporate diversification that do not reduce risk and can even lead to risk growth, such as well- functioning internal capital markets, economies of scale and managerial benefits (Denis, Denis, & Sarin1997).

Although the issue of corporate diversification and risk relationship is not as frequently studied in literature as the issue of corporate diversification and performance relationship, it is still an issue worth of research and it is being studied in the current literature. For example, Anderson, Fedenia, Hirschey and Skiba (2011) provide evidence that diversified firms do not tend to have lower risk, although some of them indeed have lower risk profiles. They studied the effects through the analysis of diversifying acquisitions. Comment and Jarrell (1995) find that there is indeed negative relationship between corporate diversification and systematic risk, using evidence from public companies both diversified and focused, between 1978 and 1988. Same finding goes by Chan and Steiner (2000), where diversification negatively impacts total and market risk. On the other hand, Thomas (2002) appears to find out that diversified and focused firms have similar risk profiles. Still, the majority of researchers seems to find that diversification impacts corporate risk negatively.

Companies bear not only market risk, but also an internal financial one, which can be measured in financial leverage. According to Low and Chen (2004), companies with more diversification tend to have higher leverage; and in general studies show that diversified companies tend to exhibit higher leverage ratios.

As for internationalization, existing literature shows for the most part that geographical diversification increases risk profiles. Fatemi (1984) finds that firms that diversify internationally have lower risk that focused domestic companies, same evidence is reported by Borde, Chambliss and Madura (1994); both of these studies use companies from the US as a base and expanding internationally, primarily in Europe. Madura and Rose (1989) find a diminishing negative effect in increased proportion of foreign sales, Goldberg and Herflin (1995) report similar results. On the other hand, some other studies, such as Doukas and Kan (2006), report increased risk for firms with higher degree of internationalization. Rather interesting evidence is provided by Kwok and Reeb (2000), who analyse international companies from 32 countries and find that companies from emerging markets experience lower risk profiles and vice versa.

As in our study we analyse companies for an emerging market – Russia, and since the majority of previous findings show that there is negative relationship between geographical diversification and risk.

The question of diversification and risk relationship does not get sufficient consideration in the research, and due to not enough evidence the opinion on diversification effect on risk is not unanimous and is still ambiguous.

2. Research Methodology

After literature review related to corporate diversification, in this part the review of instruments used in analysis is presented. This section is divided into four parts. In the first part will be presented the contextualization of the company under analysis. Second part is dedicated to the main goal and objective of the study and research hypothesis that have been made. In the third part, there will be presented data collection and will be shown final sample. In four part will be described the techniques for the treatment and analysis of the data.

2.1. Contextualization of the problem

Research is based on the open annual financial statements of PJSC Gazprom. Public Joint Stock Company Gazprom is a large Russian company founded in 1989, which carries on the business of extraction, production, transport, and sale of natural gas. The company is majority owned by the Government of Russia, via the Federal Agency for State Property Management and Rosneftegaz. The remaining shares are listed on public stock markets of Moscow, London and Frankfurt. Gazprom is in the process of moving from Moscow to Saint Petersburg, where it is constructing Europe's tallest building for its new headquarters. Gazprom is the world’s largest oil producer, with producing oil through the largest natural gas field in the world, the Shtokman field.

Gazprom was created in 1989 when the Soviet Ministry of Gas Industry was converted to a corporation, retaining its Russia-based assets. Gazprom is involved in the Russian Government's diplomatic efforts, setting of gas prices, and access to pipelines.

The share of Gazprom in the world's gas reserves is 17%, in Russian - 72%. Gazprom accounts for 12% of world and 68% of Russian gas production. It ranks seventeenth in the list of the largest energy companies according to S&P Global Platts (2018).

The company owns the world's largest gas transmission system, the length of which is 172.1 thousand km.

Gazprom is Russia's largest producer and exporter of LNG. The company is developing the ongoing Sakhalin-2 project, as well as implementing new projects in this area.

On the domestic market, Gazprom sells over half of the gas sold. In addition, the company supplies gas to more than 30 countries of the near and far abroad. Until the end of 2013, Gazprom had a monopoly on the export of any gas from Russia. After December 2013, he was left with a monopoly on the export of pipeline gas.

The company is one of the four largest Russian oil producers. The total installed capacity of Gazprom’s electricity generating assets in Russia is about 16% of the total installed capacity of the Russian power grid. Gazprom ranks first in the world in the production of heat energy.

Gazprom's production fields are located around the Gulf of Ob in Western Siberia. Plans have also been made to mine the Yamal Peninsula. Gazprom's gas transport system includes 158,200 kilometres of gas trunk lines. Projects include Nord Stream and South Stream. In 2011, Gazprom produced about 513.2 billion cubic metres (18.12 trillion cubic feet) of natural gas, more than seventeen percent of global gas production. Gazprom also produced about 32.3 million tons of crude oil and nearly 12.1 million tons of gas condensate.

The company has subsidiaries in industrial sectors including finance, media and aviation, and majority stakes in other companies.

Gazprom is a global energy company focused on geological exploration, production, transportation, storage, processing and sales of gas, gas condensate and oil, sales of gas as a vehicle fuel, as well as generation and marketing of heat and electric power.

Gazprom views its mission as ensuring a reliable, efficient and balanced supply of natural gas, other energy resources and their derivatives to consumers.

2.2. Objective of study and researches hypotheses

This study examines the influence of corporate diversification on company performance and risks. Evaluation of financial indicators helps other companies improve their management in order to improve their results and gain new markets.

Based on theoretical review conducted in this section it was outlined five researches hypotheses (H) which will be checked in the empirical part of this study:

- H_1: Related product diversification is positively related to firm’s performance;
- H_2: Unrelated product diversification is negatively related to firm’s performance;

- H_3: The relationship between geographical diversification and firm's performance is positive;
- H_4: Product diversification is associated with reduction of firm's risk;
- H_5: Geographical diversification is associated with reduction of firm's risk.

2.3. Sample description

The main objective of a research it to reveal the impact of corporate diversification on indicators and risks of the company. The modelling method with a small amount of data will be carrying out in order to do analysis regarding the association between the variables and testing the truthfulness of the hypothesis. As an example was taken PJSC Gazprom. Gazprom's strategic goal is to establish itself as a leader among global energy companies by diversifying sales markets, ensuring reliable supplies, improving operating efficiency and fulfilling its scientific and technical potential. Data were taken from the official website of the company as every year Gazprom publishes all financial statements, in particular were used balance sheets and income statements for the further calculations. All indicators were considered in dynamics for 5 years, from 2013 to 2017.

2.4. Data Analysis

2.4.1. Models development

The following carcasses of models will be used in the study with adjustments based on conducted tests of fit for the estimators described above (Palich, Cardinal, & Miller, 2000):

Models for accounting-based performance:

$$ROA_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [1]$$

$$ROA_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

$$ROE_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [2]$$

$$ROE_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

Models for market-based performance:

$$Tobin'sQ_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [3]$$

$$Tobin'sQ_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

$$PE_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [4]$$

$$PE_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

Models for accounting-based performance:

$$Leverage_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [5]$$

$$Leverage_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

Models for market-based performance:

$$Beta_{t,I} = \alpha_0 + \alpha_1 Entropy_{total} + \alpha_2 Internationlization + \alpha_3 Size + \alpha_4 Growth + \alpha_5 Profitability + \varepsilon_{t,I} \quad [6]$$

$$Beta_{t,I} = \alpha_0 + \alpha_1 Entropy_{related} + \alpha_2 Entropy_{unrelated} + \alpha_3 Internationlization + \alpha_4 Size + \alpha_5 Growth + \alpha_6 Profitability + \varepsilon_{t,i}$$

2.4.2. Statistical Tests

The paired sample *t*-test, sometimes called the dependent sample *t*-test, is a statistical procedure used to determine whether the mean difference between two sets of observations is zero. In a paired sample *t*-test, each subject or entity is measured twice, resulting in *pairs* of observations. Common applications of the paired sample *t*-test include case-control studies or repeated-measures designs.

Like many statistical procedures, the paired sample *t*-test has two competing hypotheses, the null hypothesis and the alternative hypothesis. The null hypothesis assumes that the true mean difference between the paired samples is zero. Under this model, all observable differences are explained by random variation. Conversely, the alternative hypothesis assumes that the true mean difference between the paired samples is not equal to zero. The alternative hypothesis can take one of several forms depending on the expected outcome. If the direction of the difference does not matter, a two-tailed hypothesis is used. Otherwise, an upper-tailed or lower-tailed hypothesis can be used to increase the power of the test. The null hypothesis remains the same for each type of alternative hypothesis. The paired sample *t*-test hypotheses are formally defined below (Grjibovski, Ivanov & Gorbatova, 2016):

- The null hypothesis (H_0) assumes that the true mean difference (μd) is equal to zero.
- The two-tailed alternative hypothesis (H_1) assumes that μd is not equal to zero.
- The upper-tailed alternative hypothesis (H_1) assumes that μd is greater than zero.
- The lower-tailed alternative hypothesis (H_1) assumes that μd is less than zero.

2.4.3. Variables

In this section will be described the variables used in this study.

Table 1. Classification of variables used in the research.

Type	Measure of	Based on	Variable	Name
Independent	Diversification	Product	Related entropy index	Related Entropy
			Unrelated entropy index	Unrelated Entropy
		Geographical	Degree of internationalization	Internationalization
Dependent	Performance	Accounting	ROA	ROA
			ROE	ROE
		Market	Tobin's Q	Tob Q
			PE	PE
	Risk	Accounting	Leverage	Lev
		Market	Beta	Beta

Calculation of variables:

For product diversification it will be used the Entropy indices. For the Entropy indices we use three different measures: total entropy, related entropy and unrelated entropy, which measure total diversification, related diversification and unrelated diversification, respectively.

The Entropy measure is computed as follows:

$$\textit{Total Entropy index} = \sum_{i=1}^{n} w_i \ln(1/w_i), \qquad [1]$$

where w_i is weight of segment *i* revenue. This measure considers the weighted average importance of each segment or industry a firm is active in (Palepu, 1985).

A significant advantage of the entropy measure over other continuous measures is that its total diversification can be decomposed into related and unrelated diversification. Henceforth, Total diversification = Related diversification + Unrelated diversification (Palepu, 1985). Related diversification is defined as:

$$\textit{Related Entropy index} = \sum_{j=1}^{n} w_j \ln(1/w_j), \qquad [2]$$

where w_j is weight of segment *j* revenues; these *j* segments include revenues from all operations within the main 2-digit SIC industry group of the company (Palepu, 1985). Unrelated diversification is defined as:

$$\textit{Unrelated Entropy index} = \sum_{m=1}^{n} w_m \ln(1/w_m), \qquad [3]$$

where w_m is weight of segment *m* revenues; these *m* segments include revenues from all operations in different 2-digit SIC segments comparing to the main SIC industry of the company (Palepu, 1985).

As for the measure of geographical diversification, we use the degree of internationalization, which is defined as (Palepu, 1985):

$$\text{Degree of internationalization} = \frac{Foreign\ sales}{Total\ sales} \quad [4]$$

It is the most frequently used measure of internationalization, even though it does not allow for a separation between sales by foreign subsidiaries and sales attributed to exports from the parent company. We also use it in our study due to data availability reasons.

To better analyse the impact of diversification on the performance, in this study we use two accounting measures and two market-based measures, making it four performance variables in total. For the accounting-based measures we use ROA and ROE, which are calculated as follows (Palich, Cardinal, & Miller, 2000):

$$ROA = \frac{Net\ income}{TotaL\ assets} \quad [5]$$

$$ROE = \frac{Net\ income}{TotaL\ equity} \quad [6]$$

As for market-based variables, we use Tobin's Q and Price to earnings ratio which are calculated as follows (Palich, Cardinal, & Miller, 2000):

$$Tobin's\ Q = \frac{Total\ market\ value}{Total\ assets} \quad [7]$$

$$PE = \frac{Price\ per\ share}{Earnings\ per\ share} \quad [8]$$

To better analyse the impact of diversification on the risk, in this study we use both accounting-based and market-based measures of risk. The accounting measure we use is leverage ratio, which is calculated as (Palich, Cardinal, & Miller, 2000):

$$Leverage = \frac{Total\ debt}{Total\ equity} \quad [9]$$

As for market-based risk, we use the systematic risk measure of beta, which is calculated as follows (Palich, Cardinal, & Miller, 2000):

$$\beta_I = \frac{Cov(R_i,R_m)}{Var(R_m)}, \quad [10]$$

where R_i represents stock returns, and R_m stands for market returns.

Besides will be used several control variables in order to more clearly determine the firm position. Therefore, this study controls for firm size, growth and profitability, the measures which have shown to affect performance in prior research (Palich, Cardinal, & Miller, 2000).

Firm size is measured by taking a natural logarithm of firm's revenues:

$$\textit{Size} = \ln(Revenue) \qquad [11]$$

For the growth control measure we use yearly percentage change in revenues:

$$\textit{Growth} = \frac{Rev_n - Rev_{n-1}}{Rev_{n-1}} \qquad [12]$$

As finally for the profitability control measure will be used the operating margin:

$$\textit{Operating margin} = \frac{Operating\ income}{Total\ revenue} \qquad [13]$$

3. Research findings

3.1. Descriptive statistics

In order to provide the reader with a comprehensive overview of the data, in this section we provide descriptive statistics of the variables used in this study; the summary statistics is presented in Table 2 below.

Table 2. Summary statistics.

Variable	Mean	Std. Dev.	Min	Max
ROA	0,727	0,008	0,067	0,082
ROE	0,124	0,011	0,112	0,134
Tobin's Q	0,753	0,022	0,728	0,770
PE	1,479	0,142	1,341	1,625
Leverage (Lev.)	0,805	0,217	0,567	0,991
Beta	0,869	0,086	0,794	0,963
Size	10,042	0,076	9,958	10,105
Growth	0,163	0,125	0,074	0,251
Operating margin	0,156	0,017	0,141	0,175
Related Entropy index (REI)	0,426	0,061	0,371	0,492
Unrelated Entropy index (UEI)	0,070	0,017	0,055	0,088
Degree of internationalization (DI)	0,206	0,030	0,181	0,240

Based on the summary statistics company in the sample on average have Return on Assets of 7,3%, Return on Equity of 12,4%. It is only normal that ROA is significantly smaller that ROE, that shows that company in a good state. It also means that company have debt more or less equal to equity. This is proved by the average Leverage variable of 0,8. Move on to the Tobin’s Q that on average is 0,75, meaning that cost to replace firm’s assets is greater than firm’s stock, which in turn means that a stock is undervalued. As for PE ratios, on average it is 14.79, which means that on average investors in these companies are ready to pay 14 times more for $1 of earnings. What about Beta, its average is 0.87 – meaning that stocks in the sample are theoretically 13% less volatile than the market.

In terms of diversification measures, average related diversification is 0.43 and average unrelated diversification is 0.07, it can be concluded that there is much more related diversification going on in the sample than unrelated diversification. As for geographical diversification (or internationalization, how it is defined in this study), on average it is 0.2, meaning that company more used to be domestic rather than international.

The correlation coefficients between performance, risk and diversification variables employed in the regression model are reported in Table 3.

Table 3. Correlation matrix.

	ROA	ROE	Tob Q	PE	Lev.	Beta	Size	Growth	REI	UEI	DI
ROA	1	-	-	-	-	-	-	-	-	-	-
ROE	0,849	1	-	-	-	-	-	-	-	-	-
Tobin's Q	0,736	0,983	1	-	-	-	-	-	-	-	-
PE	0,940	0,978	0,923	1		-	-	-	-	-	-
Leverage	0,820	0,999*	0,991	0,966	1		-	-	-	-	-
Beta	0,980	0,938	0,857	0,989	0,918	1	-	-	-	-	-
Size	0,796	0,996	0,996	0,955	0,999*	0,901	1	-	-	-	-
Growth	1,00**	1,00**	1,00**	1,00**	1,00**	1,00**	1,00**	1	-	-	-
REI	0,968	0,954	0,882	0,996	0,937	0,999*	0,922	1,00**	1	-	-
UEI	0,970	0,952	0,878	0,995	0,934	0,999*	0,919	1,00**	1,00**	1	-
DI	0,987	0,923	0,835	0,983	0,901	0,999*	0,882	1,00**	0,996	0,996	1

Note: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed). Lev., Leverage; REI, Related Entropy index; UEI, Unrelated Entropy index; DI, Degree of internationalization.

The results show that related diversification is positively correlated to both accounting based and market based performance measures and positively correlated to both risk measures. As for unrelated diversification, we see that it repeats the pattern for all performance measures. Finally, geographic diversification repeats the same pattern as both diversifications: it is positively correlated with all measures.

3.2. Model findings

In order to understand which of the tests must be carried out to corroborate or not corroborate hypotheses listed above Students T test was used. In the pivot table (Table 4) we see that Sig. (2-tailed) is less than 0,05, for further research of the hypotheses and their corroboration or not corroboration was decided to conduct paired sample T-test.

Table 4. Student's T-test.

	t	Df	Sig. (2-tailed)	95% Confidence Interval of the Difference	
				Lower	**Upper**
ROA	15,454	2	0,004	0,05243	0,09290
ROE	19,287	2	0,003	0,09634	0,15166
Tobin's Q	58,509	2	<0.001	0,69793	0,80873
PE	18,011	2	0,003	1,12543	1,83191
Leverage	6,433	2	0,023	0,26661	1,34339
Beta	17,455	2	0,003	0,65454	1,08280
Size	229,297	2	<0.001	9,85389	10,23077
Growth	1,836	1	0,317	-0,962	1,28700
Related Entropy index	12,074	2	0,007	0,27441	0,57826
Unrelated Entropy index	7,259	2	0,018	0,2851	0,11149
Degree of internationalization	11,768	2	0,007	0,13089	0,28178

The diversification - ROA analysis gives us the following results. Increased diversification leads to increased return on assets: it concerns unrelated diversification, what about related diversification there is no significant connection. For one-tenth of a unit increase in the total diversification index, ROA is expected to increase by 0.066 percentage points, holding other variables constant. No significant relationship between related diversification, internationalization and ROA is found, so we make no inferences here.

During the diversification-ROE analysis was obtained obtain the following results. There is no significant relationship between related, unrelated diversification and ROE is found, so we make no inferences here. But there is a connection between internationalization and ROE. Increased geographical diversification leads to increased return on equity: for one-tenth of a unit increase in the total diversification index, ROE is expected to increase by 0.002 percentage points, holding other variables constant.

During the diversification -Tobin's Q and diversification - Beta analysis was obtained obtain the following results. There are not significant for any of the analyses regarding diversification and beta: related diversification index, unrelated diversification index and degree of internationalization.

The diversification-ROA analysis gives us the following results. Higher related diversification comparing to company's own average exerts positive influence on leverage: for one-tenth of a unit increase in the related diversification index, leverage is expected to increase by 0.055, holding other variables constant. Higher unrelated diversification comparing to company's own average also exerts positive influence on leverage: if the unrelated diversification index increases by one-tenth of a unit, a company will see a 0.002 increase in its leverage, holding other variables constant. Finally, there is not significant regarding internationalization and leverage.

Summary of diversification influence on performance and risk measures is provided in Table 5 below.

Table 5. Summary of influence of two dependent samples (Paired sample T-test).

	ROA	ROE	Tobin's Q	PE	Leverage	Beta
Related diversification index	0,007	0,009	0,006	0,002	0,055	-
Unrelated diversification index	0,659	0,006	<0,001	0,003	0,024	-
Degree of Internationalization	0,009	0,020	<0,001	0,003	-	0,002

Note: (-) indicates that no significant evidence is found.

The summary of the hypotheses check results in presented in Table 5 below. Can be concluded the following: related diversification has more influence on the Leverage and there is no significant evidence concerning other indicators. Unrelated diversification has positive relationship with ROA and leverage; and we did not get any significant evidence concerning another indexes, besides there is no correlation with beta. Finally, internationalization exerts positive influence on ROE; and no evidence of significant relationship with ROA, Tobin's Q, PE, Leverage and Beta.

The summary of our hypotheses check results in presented in Table 6 below. H_1, H_2 and H_5 were not corroborated, due to received results and slightly or in general the absent correlation. Moreover, H_3, and H_4 hypotheses were corroborated.

Table 6. Summary of hypothesis checks.

H	Description	Result
H_1	Related product diversification is positively related to firm's performance	Not corroborated
H_2	Unrelated product diversification is negatively related to firm's performance	Not corroborated
H_3	The relationship between geographical diversification and firm's performance is positive	Corroborated
H_4	Product diversification is associated with reduction of firm's risk	Corroborated
H_5	Geographical diversification is associated with reduction of firm's risk	Not corroborated

Moving on to the explanation of the results, it is necessary to see how it compares to previous research findings.

Usually in order to diversify into different product or industry, a company needs to make capital investments, which tend to be rather big. In other words, a diversified company has a much more asset-heavy profile compared to an undiversified corporation. However, the returns the company gets do not necessarily match the old undiversified profile, therefore a diversified firm tends to have a lower return on assets than an undiversified firm, although its absolute return amount might very well be bigger. This is contradictory to our hypothesis 1 which states that related diversification is positively related to firm performance. Usually it would be expected that related diversification allows a firm with capabilities around a particular input to leverage that capability in more than one sector where the same thing is relevant to performance, thus improving financial performance of the firm. In general, if we try to explain why there is negative relationship between related diversification and accounting-based performance, there can be various reasons: for one, value loss might occur due to a "new toy" (even though related) effect and rent dissipation by a company. Also, as argued by Berger and Ofek (1995), overinvestment and cross-subsidization can contribute towards the value loss of diversification. As a matter of fact, this value loss can be decreased by the tax benefits of diversification. Overall, there can be numerous explanation for the phenomena, and this could potentially be an interesting topic for future research.

Moreover, here are outliers that despite the higher equity have higher return on equity due to much higher returns comparing to other firms and it shows on the Table 4 (hypothesis 2), this is not a common case, but it turned out with evidence of Russian PJSK Gazprom. Henceforth, in the light of the conclusions it is importance to notice that investors seem to relate superior performance effects to unrelated diversification which is in turn beneficial for the value of the firm. However, often it should be noted that these expectations are speculative in nature and, therefore, should not mean that the current performance is equal to the expected performance. However, for PJSC Gazprom unrelated diversification is an excellent method, based on financial indicators.

Now, having discussed the results for product diversification and performance relationships, we move to geographical diversification evidence. We see that increased internationalization has positive effect on accounting based measure of performance, ROE. And it seems that for the company in the sample going international is beneficial and it is able to increase the returns without a dramatic increase in assets. This shows that there is demand for Russian companies' products abroad, and that these products are of high enough quality to be sold to foreign consumers.

Moreover, there is a concept found that geographical diversification and accounting-based performance have positive relationship which follows a U-shaped curve, meaning that in the initial stage of internationalization the performance declines and in deeper stages of internationalization performance improves. We do not have such detailed evidence in this study, however in general our findings coincide. Accordingly, internationalization is another opportunity to implement a diversification strategy for PJSC Gazprom.

As there is no significant relation between geographical diversification and firm risks (hypothesis 5) we can make a conclusion that in more internationalized companies total assets tend to grow faster than the market value, if there is any growth at all.

Risk management is one of the most difficult areas of management, as it is located at the junction of various branches of knowledge and requires practical skills in strategic, financial, investment management, knowledge of insurance activities, etc. Hypothesis 4 was confirmed since the main principle of diversification is based on the sharing of risks in order to prevent their concentration. Therefore, the product diversification of PJSC Gazprom should also be considered as one of the possible options for risk reduction.

Choice of industry of the diversification:

- Preliminary assessment of the company and business environment; the most important thing to do is a thorough assessment of the environment and the company, the nature of its business, its management effectiveness, its strengths and weaknesses. It is also necessary to study market trends, competition, new developments in the industry.
- Industry choice and ideas for diversification; Ideally, business choice for diversification is preceded by a serious macroeconomic and industry analysis to identify areas of the economy with expected rapid growth and industries suitable for investment.
- Evaluation of new business (industry) and planning processes; Preparing for diversification is no different from starting a new business.
- Planning and portfolio management. Very often, after setting up the initial product portfolio, it remains unchanged for many years, despite the end of the life cycle for some products and market changes. This reduces the competitive advantage of the company, and it has only two alternatives - to meet the new needs of the market and, therefore, to update its portfolio or fail.

3.3. Managerial implications

Results lead to a few managerial implications for both decision makers in companies and investors. Theoretical survey and empirical analysis suggest that managers should be aware that diversification can cause not only positive but also negative effects. In order to be able to predict potential outcomes of diversification managers should be aware of factors that create and destroy value when enterprise start diversifying across products or industries. Other situation is that company could start to diversify only if it has well-establish position, and even though a firm need to check whether industry potential is high enough or not. On the other hand, when diversification is carried into the segments where there are existing resources and capabilities, the potential of positive value created is higher. Therefore, even when a firm is not diversified yet, but potentially thinks of doing so in the future, managers should keep in mind the importance of developing suitable conditions in a way that can potentially bring value across other segments in future.

As it was written, diversification is not a safe route and managers should keep in mind that. Diversification targets should be picked really carefully, because of the results will be highly dependent on a number of factors. Lubatkin and Chatterjee (1994) put it the following way: the companies should “diversify in such a manner that all of its eggs are in similar baskets - not in the same basket or in different baskets.” Managers need to make sure that their companies have all the necessary skills, capabilities and resources to operate across all these “similar baskets”. If it is not working like that, then the companies are better stop operating across different baskets all along. And it was confirmed with a hypothesis which was checked that product diversification leads to a reduction of the firm’s risk.

In general, current business landscape becomes more focused of having core capabilities. It seems that for a large number of companies that have expertise only in their core sectors, it is better to focus and achieve better and more stable results in this sphere, unless they are confident that they have the sufficient possibilities and resources that can be leveraged in different sectors and industries.

Moreover, there is important point for companies concerns geographical diversification. There is demand for Russian companies’ products abroad, because these products with high quality could to be sold to foreign consumers, therefore managers should pay more attention to export possibilities. This is especially relevant during the current economic situation, where domestic currency in Russia became rather cheap.

Conclusions, Limitations and Future Research Lines

This research work was devoted to studying corporate diversification and how it affects companies and their businesses. The research goal of the paper was to determine the relationship between corporate diversification and company performance and risk, using evidence from Russia company as an example. All stated objectives of the research were achieved.

As a first step of the study, was investigated the theoretical framework of diversification. Furthermore, were discussed types, ways, reasons, companies, programs and efficiency cases of the diversification. Was also reviewed the existing literature on diversification performance relationship and diversification risk relationship, which allowed us to make preliminary conclusions and define the hypotheses to be tested. As a second part of the study, it was conducted empirical analysis which allowed us to determine the impact of diversification on risk and performance.

Was find negative relationship between related diversification and enterprise performance, and the reasons could include: “new toy” effect, rent dissipation, overinvestment and cross-subsidization. As a matter of fact, this value loss can be decreased by the tax benefits of diversification. Overall, there can be numerous explanation for the phenomena, and this could potentially be an interesting topic for future research. However, in terms of evidence from PJSC Gazprom was found positive relationship between unrelated diversification and financial indicators. Possible reasons include: ability to back up and justify the capital investment required for diversification, political connections in an emerging market, and investor expectations, who see corporate diversification as a productive management activity.

In addition, was found that relationship between geographical diversification and firm’s performance is positive. As for the case with ROE, it seems that for the companies in the sample going international is beneficial and they are able to increase the returns without a dramatic increase in assets. This shows that there is demand for Russian companies’ products abroad, and that these products are of high enough quality to be sold to foreign consumers. Nevertheless, it doesn’t guarantee reduction of firm’s risk, making a conclusion that in more internationalized companies total assets tend to grow faster than the market value, if there is any growth at all and it’s better to use product diversification.

To sum up, the result evidence from Russian company showed that unrelated diversification is positively related to firm’s performance. However, related product diversification is negatively related to firm’s performance. In addition, the relationship between geographical diversification and the efficiency of the company is positive, moreover, the hypothesis of product diversification and reducing the risk of the company was confirmed. However, the hypothesis that geographical diversification contributes to reducing the risk of the firm has not been corroborated.

Based on the findings, it was developed a set of managerial implications. Managers should be aware that diversification can cause both positive and negative effects and should keep in mind the importance of developing capabilities and resources in a way that can potentially bring value across new segments in future. Resource and capability management is crucial; if it is not managed properly for diversification, then it is better to not diversify at all. Moreover, there is important point for companies concerns geographical diversification. Also, it seems that there is demand for Russian companies' products abroad, therefore managers should pay more attention to export possibilities. This is especially relevant during the current economic situation. However, managers have to take into consideration the fact that the reduction of risks not guaranteed as was investigated above.

In order to conduct a thorough analysis, it used references; and the contribution of this study is the coherent investigation of diversification relationship with performance and risk. However, there is clearly a scope for future research: besides of including more markets and industries to the analysis and then comparing the results, what could be valuable is to compare results of diversification via different modes such as M&A. Also, analysing how companies could quantify the initial capabilities and resources, and comparing them with regards to diversification could also be a promising topic to study.

There are several limitations associated with this study; these limitations, in turn, create suggestions for further research. First limitation is the general nature of the research. In this study were analysed as an example Russian company PJSC Gazprom. Due to different particularities of market conditions in different countries (developing and emerging), and due to different particularities of different industries, a more specific approach would be beneficial. Future research could conduct the similar analysis across various markets and industries and then compare the results; this would allow to make industry and market specific conclusions and implications.

Another limitation of this study is a rather limited amount of performance, risk and control variables. Future research could test more dependent variables not included in this study, and a bigger number of control variables as well. Examples of potential performance measures could include Return on capital employed, Operating profit and others; examples of potential risk measures to include could be credit ratings or different types of operating risk. Including more of dependent variables would enable to track diversification impact on different parts of corporate performance and risk and give more comprehensive results. Including more control variables, in turn, would allow to improve the results of the empirical analysis by better controlling for more aspect of company operations.

In a broad sense, as a process, companies can conduct diversification using different strategies and activities for it. An interesting topic for future research would be to compare and contrast how each attempt of diversification with various methods differ from each other in terms of their impact of company performance and risk. The results would be beneficial for managers responsible for diversification decisions in companies and for all persons making decisions, as it would allow them to better understand potential costs and benefits associated with each diversification mode.

Finally, in this study were discussed how important are enough capabilities and resources of the company before it starts to diversify. In this regard, a very interesting topic for future research would be research how companies could quantify the sufficient conditions for the future diversification and compare different approaches. These quantified assessments could be in a form of scorecards or more complex models, and would be tremendously useful in helping predict diversification results. All in all, if the company decides to diversify, it brings itself a tremendous amount of uncertainty, and any possibilities to reduce it would be extremely helpful.

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