Oil and Gas Companies' Business Internationalization between Globalization and Slowbalization: An Analytical Approach for Risk Mitigation

Anis BENABED*
Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, anis_anisse@yahoo.fr*

Abstract. *This paper presents an original analytical approach about the oil and gas business internationalization and the risks they may face within the recoil of globalization and its move to a new phase "slowbalization" or "de-globalization", the research focuses on a descriptive analysis by referring to a related literature and suggesting a matrix in the section of findings to mitigate the risks that oil and gas companies may face within or before engaging in the internationalization process. the research method relied on a quantitative qualitative approach to illustrate the findings and describe them analytically in frameworks and models so that companies and business holders may follow them to have knowledge about risks, their types, consequences and levels and how they may mitigate them especially if they deal with internationalization process in the oil and gas industry and business. The matrix was created by the author of this full paper and research to classify the level of risks followed by mathematical calculation according to a created formula. Oil and Gas companies try to leave market tights and survive in times of risks and crises since they are considered major energy resources for the global economy, some businesses are returning home and decoupling within the global economic decoupling after the losses they started to face during the geopolitical conflicts losing trust in some markets, economies and other foreign locations, even for the new ones. Slowbalization has imposed new rules globally to business growth and prosperity globally between advanced economies or between them and developing economies. In conclusion, the risks that oil and gas companies encounter before engaging in the internationalization process are the consequences of the recoil of globalization that is embodied in slowbalization that is why resilience and risk mitigation are needed.*

Keywords Oil and Gas companies, Business internationalization, Globalization, Slowbalization, De-globalization, risks, mitigation.

Introduction

Oil and Gas have been for ages a major important source of energy, companies that deal with business and operations try to provide the energy market with what is necessary daily locally and globally but they face risks and unsteady periods. Oil and Gas Companies that operate with an internationalization process face constant instability in prices and negotiations due various factors, restrictions and constraints. As globalization has witnessed a recoil and slowdowns in its process and dimensions with a move towards de-globalization and slowbalization (Benabed, 2024c), some businesses are returning home and decoupling within the global economic decoupling after the losses they started to face during the geopolitical conflicts losing trust in some markets, economies and other foreign locations, even for the new ones. Slowbalization has imposed new rules globally to business growth and prosperity globally between advanced economies or between them and developing economies.

For so many years, various companies have been putting efforts in developing research and investigations as they are essential and key points for economic and business growth (Sharma and

DOI: 10.2478/picbe-2025-0148

Chanda, 2017). Mavrotas and Makryvelios (2021) argue that new technologies are important to be concerned especially for a variety of organizations with high impact projects (Mavrotas and Makryvelios, 2017). Even if the world demand for both resources of Oil and Gas still persists because, their industry is a main contributor to electricity generation globally (Perrons, 2014).

Repurchasing deals needs to rely on new perspectives and efficient negotiations that rely on the business internationalization survival options and win-win processes between the main companies and the foreign locations because choosing the right suitable locations is a very important thing within or before the internationalization process. As oil and Gas have been so fat and for ages a main source of energy globally, they have a source of conflicts as well (Benabed, 2023b), they are part of important industries in the energy market and as the world's most important energy sources they play a vital role in the global economy (Mcclay, 2022). The processes and systems for extracting and distributing oil and gas are highly complex, capital-intensive, and require state-of-the-art technology (Mcclay, 2022).

This full paper is a continuous designed research of other previous research in the same field of scientific knowledge, it presents an original analytical approach about the oil and gas business internationalization and the risks they may face within the recoil of globalization and slowbalization or de-globalization that are the new phase of globalization, the research focuses on a descriptive analysis by referring to related literature and suggesting a matrix to mitigate the risks that oil and gas companies may face within or before engaging in the internationalization process, this paper is considered as one of the chapters of the author's doctoral research and thesis.

Literature review

Business internationalization between globalization and slowbalization

Globalization has gradually transformed the world into a single market and undoubtedly accompanied by various waves of industrialization over the centuries. It has led the world and human society from simple energy resources such as coal and wood, through fossil fuels for industry, to sustainable energy and the economy and gradually globalizing the energy market (Benabed and Boeru, 2023). Each step involves energy consumption, so intensive energy use has become a fundamental component of the economy (Benabed and Boeru, 2023). Globalization has become an important dominating phenomenon and reality after the actualization of digitalization (Benabed, 2024b).

Benabed (2024a) identified in his doctoral research that Globalization and internationalization are two separate concepts but they complete each other (Benabed, 2024a), business internationalization is the process of increasing and involving companies in foreign markets and locations abroad (Benabed, 2024a) internationalization appeared in globalization that took off boundaries between markets and economies (Benabed 2024a).

The end of globalization seems almost impossible, as economies and markets depend on it, unless a different international order emerges and changes everything, globalization will not end, it is going towards a new direction that needs resilient strategies to overcome the obstacles and reach sustainability and why not towards sustainable globalization. (Benabed and Moncea, 2024).

Oil and Gas internationalization and business

Companies do a great job in producing or offering services that are not worthy of further development, they rely more on ideas than knowledge but they have to avoid such things in the future (Paap, 2020). Furthermore, the main reasons for the low success rate in business and the internationalization process are commercial risks and technical failures (Maior et al., 2022).

Business opportunities for Oil and natural Gas exporting countries come up from the increasing demand for downstream products such as hydrocarbons and petrochemicals but the global refining capacity remains limited (See BP, 2020, Benabed, 2023b).

Oil and natural gas are important industries in the energy market and, as the world's most important energy sources, play a vital role in the global economy (Mcclay, 2022). The processes and systems for extracting and distributing oil and gas are highly complex, capital-intensive, and require state-of-the-art technology (Mcclay, 2022).

Markets with higher frictions react more slowly to any new information than markets with junior decreased frictions creating information prices between markets. In reaction to new market details, among other things, market frictions are accountable for the discrepancy (Mensi et al., 2016; Benabed, 2023b). Benabed and Bulgaru (2023) argue that the global economy is powered with fossil fuels' energy globally, hence, global risks, such as the widespread of the Covid-19 pandemic impacted its stability and increased geopolitical tensions between economies and markets at the global level, the thing that could be significant for a global economic recession (Benabed and Bulgaru, 2023).

Business risk and business internationalization risks in globalization

Benabed, Miksik, Baldissera and Gruenbichler (2022) identified that internationalization has a positive link with profitability and the development of global economy is carried out within globalization and its business internationalization processes beyond the boundaries (Benabed, Miksik, Baldissera and Gruenbichler, 2022). Business risk can impact a company's earnings and jeopardize its performance. However, companies can identify the nature of the risk to reduce the risk of loss. The most common internal risks a company may face are operational risks that occur within its scope of operations. Internal operational risks can result in financial losses or reduced profits (Benabed, 2023a).

Methodology and research questions

Using critical thinking the results obtained in our research are linked in the full paper's structure to the related literature review, this full paper has focused on the systematization of knowledge starting from reviewing and selecting some related data from prior research by other authors and researchers. The literature review started from the collection of relevant abstracts and full papers, published articles and books that are available in the section of references below that have got helpful hints and prior knowledge about this area of research from different sources and databases; taking into account the impact on the development of this knowledge in this research and with a follow-up and continuation to what was searched before by checking the prior available literature.

The set research questions below helped go further with the research structure:

RQ1: What impact has globalization had on the oil and gas industry and internationalization?
RQ2: How important and relevant are Oil and gas as energy resources?
RQ3: What risks Oil and gas companies may face and how can they mitigate them?
RQ4: Are the risks that companies face within and before the business internationalization processes consequences of slowbalization?

In fact, it has not been easy to find relevant literature or published research about the internationalization of oil and gas companies and the risks they face within the internationalization process that is why this paper has been created, it is highly important for companies to try to anticipate risks before they get engaged in the business internationalization process and the types of risks they may face with the possible consequences and how they may mitigate them. This paper is part of the author's doctoral research and part of his PhD thesis as an original research for companies and businesses that would like to engage in the business internationalization process in the frames of globalization that is witnessing a recoil, its process and dimensions are going on with a slowdown to a slowbalization process, this full paper focuses in its structure on presenting finding and results about the risks that companies and businesses may faces within the internationalization process by taking into consideration the example of oil and gas companies with a relevant related literature to the analysis and structure.

In fact, the literature review is based on a related literature about globalization and its economic dimension, business internationalization, the oil and gas industry and business, business risks, de-globalization and slowbalization, multinational companies (MNCs). The literature review was followed by a descriptive analysis that bases on both quantitative and qualitative approaches by creating models and frameworks to illustrate the finding and describe them analytically.

The author of this full paper and research created the following formula to illustrate the results and classify the types of risks and levels for companies that deal with business and engage in the internationalization process or have to survive in the internationalization process ups and downs (See figure 3 and formula 1).

$$A= B*C\text{----------------} \quad (1)$$

The mentioned formula has three parts A, B and C where (B) refers to the risk probability from 1 to 5 with five risk probabilities that are very low (1), low (2), medium (3), high (4) and very high (5). (C) Refers to risk consequences from minimum (1), minor (2), moderated (4), major (8) and maximum (16). (A) refers to the level of risks mentioned in figure 4 in categories and colors (See figures 3 and 4).

(A)-Risk level
(B)-Risk probability
(C)-Risk consequence

The created frameworks and models helped illustrate the results in different figures from 1 to 8 where figure 1 illustrates the rise of globalization and energy resources appearance and evolution, figure 2 illustrates a model about Oil and Gas Business Internationalization entry modes for Industries and companies' business values, figure 3 illustrates and presents a suggested matrix of risk probability with their possible consequences for dealing Oil and Gas companies with the business internationalization process, figure 4 illustrates the main risks for Oil and Gas companies' business internationalization process, figure 5 illustrates created a model for value creation in business internationalization through a resilience application for risk mitigation, figure 6 illustrates a model for value creation in business internationalization through a resilience application for risk mitigation, figure 7 illustrates and presents the possible risk consequences of the matrix in figure 3 as threats to oil and gas companies' business internationalization.

Finally, figure 8 illustrates the important keys for resilience and risk mitigation during business internationalization that are mentioned in the matrix of figure 3. This full paper as a an original research is a one of the supplementary continuous chapters of its author's doctoral thesis; it presents an analytical approach for companies and businesses about the oil and gas business internationalization and the risks they may face within the recoil of globalization that is consider slowbalization or de-globalization, the research focuses on a descriptive analysis by referring to related literature and suggesting a matrix to mitigate the risks that oil and gas companies may face within or before engaging in the internationalization process.

Results and discussions

The rise of globalization and energy resources appearance and evolution

The first energy that appeared in the 15th century and went on as a single source of energy until the mid19th century used to be the traditional biomass energy with 100% use, according to this research we estimate that it was necessary and a bit used even before the 15th century, just officially it was recognized between the 15th and the mid19th centuries and it continued to be a source of energy and heating after that but its percentage decreased due to the appearance of new other resources such as coal that appeared approximately in the mid19th century.

As illustrated in figure 1, coal in the mid19th century was needed with approximately 70% and traditional biomass energy with 30% (see figure 1). In the early 20th century oil appeared as a new source of energy at the global level with an availability and supply of approximately 10% (see figure 1) whereas Coal remained in the first place as an important source of energy with 60% approximately, the early 20th century witnessed a decrease in traditional biomass importance and use to 10% (see figure 1). All of Coal, oil and biomass energies remained the only three main energy resources until the appearance and rise of natural gas as a new energy resource starting from the late 20th century and hydrogen with renewables (See figure 1).

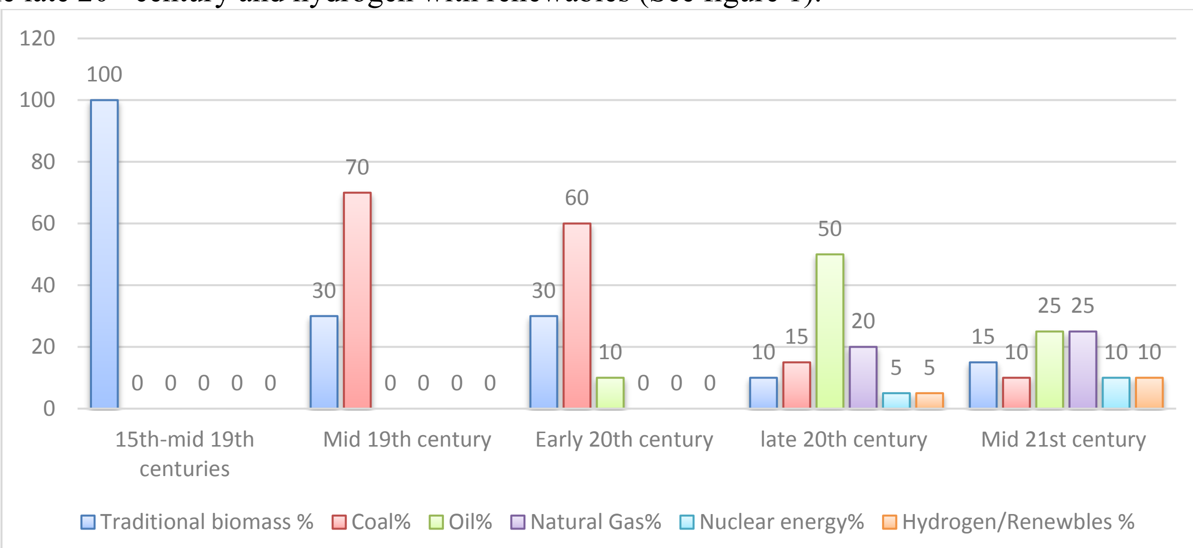

Figure 1. The rise of globalization and energy resources appearance and evolution

Source: Author's creation and own research, 2023.

Oil raised in percentage and supply to 50% but coal decreased to 15% and traditional biomass to 10%, and natural gas with 20% in the late 20th century natural gas, hydrogen and renewable and nuclear energies were considered available with only 5 % each due to the low technologies that deal with their operations and available resources (see figure 1). As illustrated in figure 1, in the mid-21st century all the oil and natural gas used to be the first main energy resources globally with 25% each but the other energy resources such as coal, nuclear energy, hydrogen and renewables have been used and considered with 10%, traditional biomass has been important with 15% due to its importance for chemical use and other opportunities but not often (See figure 1).

The appearance and actualization of globalization in the early 20th century accelerated the appearance and use of other energy resources, globalization so far has been taking into consideration oil and natural gas as two main energy engines from its dimensions in the global economy (See figure 1).

Oil and Gas Business Internationalization entry modes for Industries and companies' business values

According to this research, the model and framework in figure 2 is designed to illustrate the oil and gas business strategy that oil and gas companies may follow as an alternative or main way to select the suitable entry modes for the internationalization process that leads to business values (See figure 2). Companies that would like to enter the internationalization process, they have to check the rules and access to financial institutions for investments in the oil and gas industry that deals with either the oil and gas market or the commodity market for fuels and refined products as an ownership for multinational or transnational companies towards the internationalization process in foreign locations abroad (See figure 2).

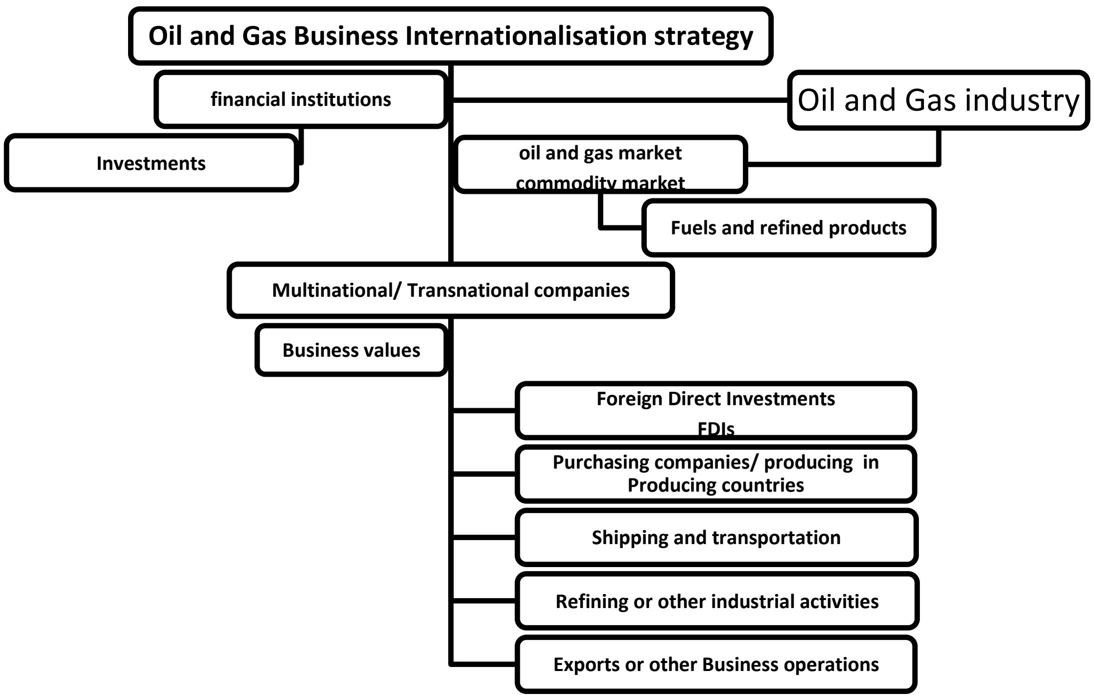

Figure 2. Oil and Gas Business Internationalization entry modes for Industries and companies' values

Source: Author's design and own research, 2023.

Multinational companies or companies in general that would like to engage in the internationalization process may engage in foreign direct investments (FDIs), purchasing companies such as SMEs in foreign locations and making them parts of it, they may produce for/ in foreign producing countries (see figure 2). Multinational companies or companies that would like to internationalize may engage in shipping and transportation for industries and economies between markets, refining or other industrial activities, exports or other business operations that are important for business values and competitive advantage (See figure 2).

Suggested matrix of risk probability with their possible consequences for dealing Oil and Gas companies with the business internationalization process

Figure 3 presents and suggests a created matrix of risk probability for dealing companies with the business internationalization process by indicating the risk probability for/in business internationalization from 1 that refers to very low until 5 that refers to very high and the types of possible consequences from minimum to maximum and from 1 to 16 (See figure 3).

DOI: 10.2478/picbe-2025-0148, pp. 1911-1922, ISSN 2558-9652 |
Proceedings of the 19th International Conference on Business Excellence 2025

		Matrix of risks				
		Consequences				
		minimum	**minor**	**moderated**	**major**	**max**
Risk probability		**1**	**2**	**4**	**8**	**16**
Very high	**5**	5	10	20	40	80
High	**4**	4	8	16	32	64
medium	**3**	3	6	12	24	48
low	**2**	2	4	8	16	32
Very low	**1**	1	2	4	8	16

Figure 3. Suggested matrix of risk probability with their possible consequences for Oil and Gas companies that deal with the business internationalization process

Source: Author's design and own research, 2024.

The author of this full paper and research created the following formula to illustrate the results and classify the types of risks and level for companies that deal with business and engage in the internationalization process or have to survive in the internationalization process ups and downs (See figure 3 and formula 1)

$$A= B*C\text{----------------} \quad (1)$$

The mentioned formula has three parts A, B and C where (B) refers to the risk probability from 1 to 5 with five risk probabilities that are very low (1), low (2), medium (3), high (4) and very high (5). (C) Refers to risk consequences from minimum (1), minor (2), moderated (4), major (8) and maximum (16). (A) refers to the level of risks mentioned in figure 4 in categories and colors (See figures 3 and 4).

(A)-Risk level
(B)-Risk probability
(C)-Risk consequence

Risk category		Risk level	color
From 1 to 4	(1---4)	Acceptable	
From 5 to 12	(5---12)	Tolerable/ regular	
From 16 to 24	(16--24)	High	
From 24 to 80	(24--80)	Very high/ massive	

Figure 4. Risk categories and levels with color indication

Source: Author's design and research, 2024.

Following the formula (1) risk probability (B) is multiplied by risk consequence (C) to get risk level (A) that is classified in figure 4 in categories and colors where the turquoise color represents the category of acceptable risk from 1 to 4, the orange color represents the tolerable/ regular risk from (5 to 12), the yellow color represents the high risk level from 16 to 24 and the red color represents massive or very high risks that are classified from 40 to 80 (See figures 3 and 4).

Companies including multinational Oil and Gas companies within the internationalization process or those companies that would like to join the business internationalization process (See figure 2) in globalization to internationalize their business in foreign locations abroad may face various risks (see figures 3 and 4) that may be predicted or unpredicted, they should check the level of risks and categories following the matrix in figures 3 and 4) to mitigate the risks or avoid them.

Main risks for Oil and Gas companies' business internationalization process

A risk can transform from a threat to a danger, the thing that may hit the company's leadership position, some of the main risks can be geopolitical risks, risks of inefficient negotiations, risks of unsuitable foreign locations, risks of natural disasters, financial risks by dealing with banks, risks of employees, risks of competition, risks of brand imitation, product counterfeit, fraud and risks with contracts and stakeholders, political constraints, unsuccessful foreign direct investments, competition in licensing and franchising by other companies in case of trade wars and competitions in foreign markets and industries, commodity risks, risks of price change. (See figures 3, 4 and 5).

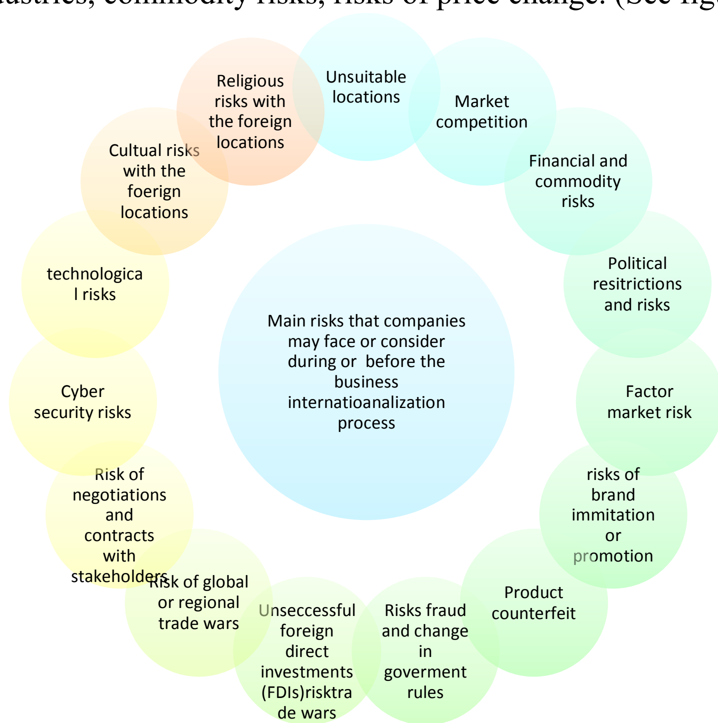

Figure 5. Main risks for Oil and Gas companies' business internationalization process

Source: author's design and research, 2024.

Neglecting the risk level and its category if it is acceptable, tolerable, high, very high can lead to business losses and weakens the company's position abroad in foreign economies, locations and markets no matter the type of their entry mode and business strategy if they follow any of the international, multinational, global or transnational strategies for business internationalization (See figures 2, 3, 4 and 5).

A model for value creation in business internationalization through a resilience application for risk mitigation

Companies before ought to have a strong ownership that might be a product or service or something they may compete with in foreign markets and locations before they engage in the business internationalization process (Dunning, 1988; Benabed, 2024a). According to this full paper and research, companies may follow a model for value creation in business internationalization through a resilience application for risk mitigation such the model designed by the author of this paper that illustrated in figure 6 below (See figure 6).

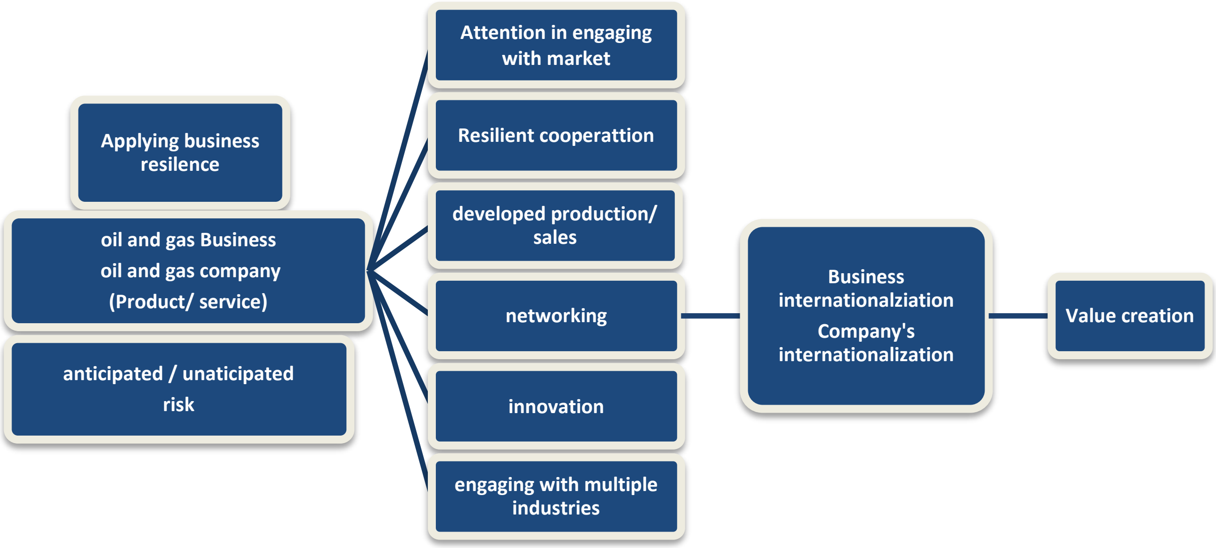

Figure 6. A model for value creation in business internationalization through a resilience application for risk mitigation

Source: author's design and research, 2024.

The location and different risks that may occur within the business internationalization process or before getting involved or choosing any of its entry modes or strategies (see figure 2) such as the risks mentioned in figure 5 and how they are classified in categories with levels (see figures 3 and 4) as risks that may hit the company's business perspectives within the industry like Oil and Gas companies that get engaged in foreign markets, industries or foreign operations such as exports and imports while engaging in the business internationalization process.

Oil and gas companies with their business and industrial entry mode perspectives for the internationalization process as mentioned in figure 2 should consider the fact of anticipated and unanticipated risks that may turn to threats and dangers to their business and leadership position in foreign markets (see figure 5). Multinational oil and gas companies and companies that would engage in the internationalization process should follow a matrix for risks such as the matrix suggested in figure 3 and 4 for risk levels and categories and their consequences (see figures 3, 4 and 5) by applying an having a resilience plan or strategy within and before the business internationalization process (see figure 6).

Multinational Oil and gas companies as an example for this doctoral research should engage with attention in markets with a resilient cooperation and focus well on developing their production quality and services following the demands of foreign markets and locations by getting adapted to their cultural and social economic needs. In fact, respecting the rules, constitution and policies of foreign locations, economies and markets is essential to avoid conflicts (see figure 6), multinational oil and gas companies should boost their networking skills by engaging clients and suppliers in networking possibilities through digital platforms and qualified skilled workers with constant trainings and innovation research if it is possible or needed (see figure 6).

Benabed (2024d) in a prior doctoral research considered that any company that would like to go for the process of multinationalization or internationalization ought to focus on the innovative process and involve the small foreign companies from its foreign location in their business cooperation such as SMEs by merging them or dealing with them especially if they are innovative (Benabed, 2024d) but they have to pay attention to fraud, imitation and product counterfeit. Focusing on efficient contacts is very important for the company's safety and leadership position that inspire clients and customers in markets, centering on innovation and engaging with multiple industries is really necessary for sufficient and efficient negotiations especially when it comes to commodities, sales, prices or shipping operations (see figure 6). Oil and gas companies should have a resilient model for business internationalization perspectives such as the model of figure 6 to reach a suitable competitive advantage and create business values from the internationalization by helping both host and home economies to prosper in order to be helped and get appreciated for their possible long term leadership positions.

Possible risk consequences of the matrix in figure 3 as threats to oil and companies' business internationalization

As mentioned in the created suggested matrix from figure 3 oil and gas companies that engage in the internationalization process may face possible risk consequence and if they ignore them, they may turn to threats to their business and existence, some of the risk consequences according to this research are the production outage, reduction in the available workforce if the company does not provide good conditions to them and have unsteadiness in their locations (See figure 7) the company may even lose executive team members especially if they skilled they may move to other companies and use its experience in other businesses.

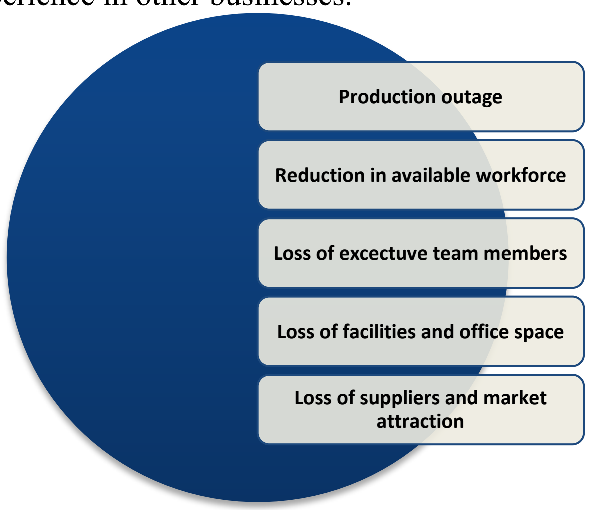

Figure 7. Possible risk consequences as threats to companies' business internationalization

Source: author's design and research, 2024.

There is a possibility of losses in facilities in times of crises, conflicts or wars and even losses in market suppliers, client fidelity and market attraction (see figure 7).

Important keys for resilience and risk mitigation during business internationalization

There are important keys for resilience and involvement in risk mitigation during the business internationalization process, Oil and gas companies especially if they are multinational or they would become multinational need resilience and risk mitigation to protect their ongoing operations, preserve revenues, ensure health and safety, secure data and preserve their services so that they may resist more the challenge of business and the risks the come from foreign locations, markets or even from their home countries (see figure 8).

Figure 8. Important keys for resilience and risk mitigation during business internationalization

Source: author's design and research, 2024.

Conclusion

To sum up, neglecting the risk level and its category if it is acceptable, tolerable, high, very high can lead to business losses and weakens the company's position abroad in foreign economies, locations and markets no matter the type of their entry mode and business strategy if they follow any of the international, multinational, global or transnational strategies for business internationalization. The set research questions have been answered in the papers analysis and structure, hence, globalization has got on the oil and gas industry and internationalization and oil and gas are important energy resources in its process there various risks that Oil and gas companies may face that is why I created the matrix in figures 3 and 4 for their mitigation and anticipation. Besides, the risks that companies face within and before the business internationalization processes are consequences of slowbalization.

The matrix created (see figures 3 and 4) by the author to classify the level of risks followed mathematical calculation according to a created formula, the risks that oil and gas encounter before engaging in the internationalization process or within are consequences of recoil of globalization that is embodied in slowbalization that is why resilience and risk mitigation are needed.

There are important keys for resilience and involvement in risk mitigation during the business internationalization process, Oil and gas companies especially if they are multinational or they would become multinational need resilience and risk mitigation to protect their ongoing operations, preserve revenues, ensure health and safety, secure data and preserve their services so that they may resist more the challenge of business and the risks the come from foreign locations, markets or even from their home countries.

References

Benabed, A. (2023b). Oil and Gas Production, Exports and Imports as Critical Business Internationalization Operations for companies in Globalization: An Analytical Approach. *Ovidius University Annals, Economic Sciences Series*, *23*(2), 2-11.

Benabed, A. (2023e). Artificial Intelligence's Relevance for Energy Optimization, Companies and Business Internationalization. In *Proceedings of the 9th BASIQ International Conference on New Trends in Sustainable Business and Consumption, Constanta, Romania* (pp. 8-10).

Benabed, A. (2024a). Multinational companies for business internationalization through foreign direct investment (FDI) in globalization: trends for values. *Eastern European Journal for Regional Studies (EEJRS)*, *10*(1), 137-155.

Benabed, A. (2024b). International Law as a Means of Globalization, Business Internationalization and Global Economy: A Mechanism with Proclivities. *Perspectives of Law and Public Administration*, *13*(1), 159-166.

Benabed, A. (2024c). The Recoil of Globalization and the Rising Aspects of Slowbalization, De-Globalization, Re-Globalization and Sustainability for Business and Companies. *Ovidius University Annals, Economic Sciences Series*, *24*(1), 22-30.

Benabed, A. (2024d). The Importance of Multinational Companies (MNCS) and Small and Medium Sized Enterprises'(SMES') Internationalization as Business Drivers în Globalization and Slowbalization: Mutual Survival and Growth for Business Values. *Eastern European Journal for Regional Studies (EEJRS)*, *10*(2), 9-33.

Benabed, A., & Boeru, A. C. (2023). Globalization beyond business sustainability, energy and the economy of the future. In *Proceedings of the International Conference on Business Excellence* (Vol. 17, No. 1, pp. 1569-1583). Sciendo.

Benabed, A., & Bulgaru, A. (2023). Global economic recession as a major risk beyond business insights and economies. In *Proceedings of the International Conference on Business Excellence* (Vol. 17, No. 1, pp. 221-225). Sciendo.

Benabed, A., & Grünbichler, R. 2023. Economic Fluctuation and Global Recession: Trends for Economies, Markets and Business in Times of Globalization. Zagreb: University of Zagreb, Faculty of Economics and Business. Retrieved from https://www.proquest.com/conference-papersproceedings/economic-fluctuation-global-recession-trends/docview/2839947566/se-2.

Benabed, A., & Moncea, M. (2024). Slowbalization: Rising Trends for the Global Economy and Business. In *Proceedings of the International Conference on Business Excellence* (Vol. 18, No. 1, pp. 283-294). Sciendo.

BP statistical review of world energy. https://www.bp.com/content/dam/bp/businesssites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-fullreport.pdf 2020.

Chandrasegaran, D., Ghazilla, R. A. R., & Rich, K. (2020). Human factors engineering integration in the offshore O&G industry: A review of current state of practice. *Safety science*, *125*, 104627.

Dunning, J. H. (1988). The theory of international production. *The International Trade Journal*, *3*(1), 21-66.

Maior, C. B., Macêdo, J. B., Lins, I. D., Moura, M. C., Azevedo, R. V., Santana, J. M., ... & Magalhães, M. V. (2022). Bayesian prior distribution based on generic data and experts' opinion: a case study in the O&G industry. *Journal of Petroleum Science and Engineering*, *210*, 109891.

Mavrotas, G., & Makryvelios, E. (2021). Combining multiple criteria analysis, mathematical programming and Monte Carlo simulation to tackle uncertainty in Research and Development project portfolio selection: A case study from Greece. *European Journal of Operational Research*, *291*(2), 794-806.

Mcclay,R. 2022. How the Oil and Gas Industry Works. https://www.investopedia.com/investing/oilgas-industry-overview/ . Available online. Accessed on November 11th, 2024.

Mensi.W., Hammoudeh. S., Nguyen. D.K and Kang. S.H., 2016. Global financial crisis and spillover effects among the US and BRICS stock markets. International Review of Economics and Finance. 42 2016, pp. 257-276.

Paap, J. (2020). Mapping the technological landscape to accelerate innovation. *Forsite*, *14*(3 (eng)), 41-54.

Perrons, R. K. (2014). How innovation and R&D happen in the upstream oil & gas industry: Insights from a global survey. *Journal of Petroleum Science and Engineering*, *124*, 301-312.

Sharma, S. K., & Chanda, U. (2017). Developing a Bayesian belief network model for prediction of R&D project success. *Journal of Management Analytics*, *4*(3), 321-344.

DOI: 10.2478/picbe-2025-0148, pp. 1911-1922, ISSN 2558-9652 |
Proceedings of the 19th International Conference on Business Excellence 2025