# RISK MANAGEMENT CONCEPT AND ITS BIBLIOMETRIC LINKS

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**ABSTRACT*:*** *The risk management is based on a series of laws and standards and represents one of the key components of an organization. Managing risks mean finding strategies, achieving goals and making informed decisions. Performing risk management, the companies can be prepared for uncertainty situation as well as possible, keeping the organization being less vulnerable and giving a measure plan to follow in case of something goes wrong. This paper presents aspects of risk management concept and the relationship between risk management system and internal control system.*

**Keywords:** *risk management, internal control system, process*

**JEL Classification:** *G32, M40, D81*

## 1. INTRODUCTION

Risk is the main source of uncertainty for investors, debtors, corporate managers and other stakeholders. It is important for all these stakeholders to focus on identifying and managing risk before decisions making. The success of their businesses depends on the relevance of their decisions and consequently on their ability to manage and deal with different types of risks.

Risks can have many and varied causes. For example, risk may be associated with the project being financed. Funders such as investors or banks try to assess the risk before they make the decision to invest or lend their money. If they do not have accurate information to assess the risk, they charge a high interest rate or rate of return to factor in some sort of additional premium to cover the "unassessed" risk due to the lack of accurate information. A situation where risk is not properly assessed and managed can distort fund providers' decisions. This can result in preference being given to applicants who submit unusually risky projects, to the detriment of those with reliable projects.

In other words, fund providers doesn't fund the "right" applicants and thus bear a significant risk of failure or insolvency. In this scenario, the interest rate is not an effective tool for selection in the investment or lending process. The increase in the interest or yield rate reflects the difficulty fund providers have in adequately selecting applicants and projects to finance. This increase can lead to a direct increase in the fund provider's income, but at the same time it can also exacerbate the likelihood of non-repayment (Rannou & Barneto, 2021).

Risk may also stem from information asymmetry between fund providers and managers of financing firms. More specifically, the manager's opportunistic behavior after receiving financing approval, known as asset substitution risk, may be the source of this risk.

## 2. RESEARCH METHODOLOGY

This paper contributes to the knowledge of the risk management concept ant it's relationship with internal control, materialized using a software tool for constructing and visualizing bibliometric networks.

The research methods used for the elaboration of this paper are: the literature review, the method of structuring the research, the documentation, data collection, information processing, the chronological study, construction, observation, visualization and analyse the bibliometric networks.

We used these methods by consulting specialized papers, various articles and publications, using international databases and software tool, as well as direct documentation that requires knowledge of the practical reality of a multinational company.

## 3. LITERATURE REVIEW

The meaning of risk depends on the nature of the risk, the goals and objectives to be achieved, the context in which the risk is defined, and whether the risk is favourable or unfavourable, and varies accordingly. However, a general definition of risk considers risk as the deviation from the expected outcome over time (Kallman, 2005).

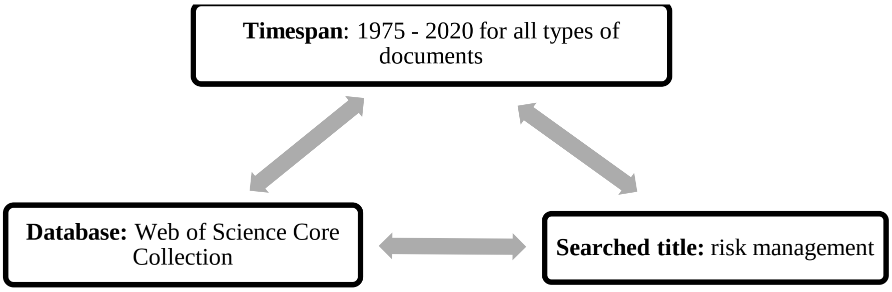
Some researchers might say that risk has consistently been available in organizations and in this way, estimation and the management of risks has consistently been significant. Lately, because of the expanding internationalization of partnerships and the way that financial action is progressively subject to innovation, risk estimation and the executives has become basic in all organizations, paying attention to their area of movement.

The aftereffects of an organization are liable to chances emerging from the administration of its resources and the improvement of its business technique. All financial action, in any event, purchasing government obligation, is likely to chance since, as has as of late been illustrated, there is consistently a danger that the state can't pay its obligations or can't do as such in the time and way concurred at the hour of issue. Regardless of whether the obligations are paid in this time and way, a lot of significant worth can be lost (cash devaluation, out of control inflation, and so forth).

A favourable or positive risk can be viewed as an opportunity, while an unfavourable or negative risk can be viewed as a probability or threat of harm or damage. According to the business dictionary, an adverse risk can be defined as "the likelihood or threat of harm, injury, liability, loss, or other adverse event caused by external or internal vulnerabilities that can be avoided through preventive measures." In simpler terms, a positive risk could be called an "opportunity," while a negative risk could be called a "threat." Examples of an opportunity or positive risk are: a new venture, a favourable acquisition or merger (Hillson, 2001). Negative risks include: Fraud risk, business risk, control risk, liquidity risk, economic risk, political risk, risk of losing customers, and risk of losing qualified employees. Negative risks can be dangerous and costly. However, an integrated approach to managing both threats and opportunities can ensure that undesirable negative impacts are minimised while maximising the opportunities to take advantage of unexpected positive impacts. (Hillson, 2001)

In order to analyze the literature reviw related to risk management in the scientific environment, keywords from the abstracts of articles published on the Web of Science platform were examined using the VOSviewer software tool:

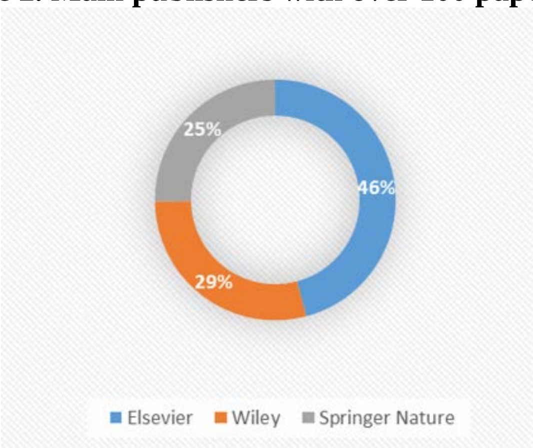
**Figure 1. Search protocol – Web of Science**




*Source: Own processing based on* Web of Science Group (clarivate.com)

Analyzing the following chart, we can observe that 5.100 papers (most of them being written in English) emerged from our search configuration, of which 2.648 reflected articles, overshadowed by 1.751 proceedings, the rest were found in the following categories: Early Access, Book Chapters, Review Articles, etc.

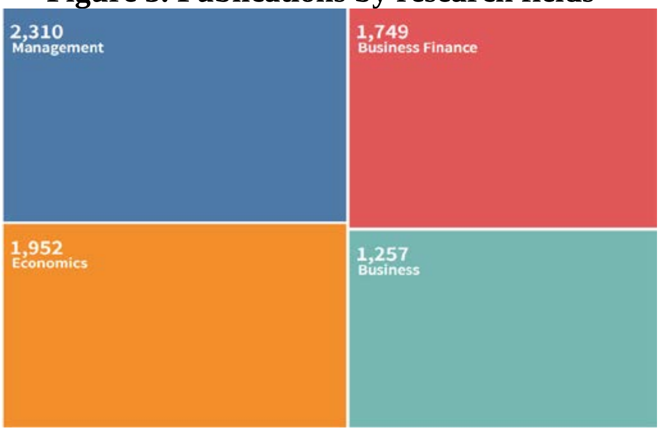
**Figure 2. Main publishers with over 100 papers published**




*Source: Own processing based on Web of Science Group (clarivate.com)*

The examination of 5.100 publications from the Web of Science Core Collection revealed that the major publishers are Elsevier, Wiley and Springer Nature. If we analyze the profile of literature, we can find that there are a lot of studies on financial performance in many research areas, such as: Management, Business Economics, Business and Finance, etc.

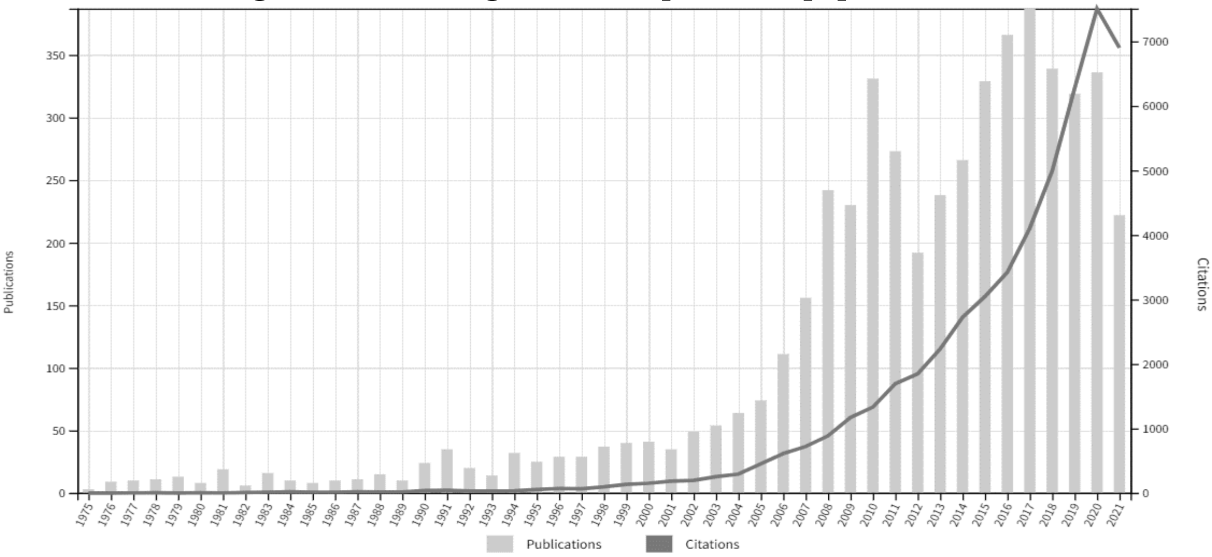
**Figure 3. Publications by research fields**




*Source: Own processing based on* Web of Science Group (clarivate.com)

Analising the following chart, we can observe that the number of publications had an upward trend until 2010 with 331 papers, followed by a significant decrease until 2017.

**Figure 4. Chronological view of published papers and citations**

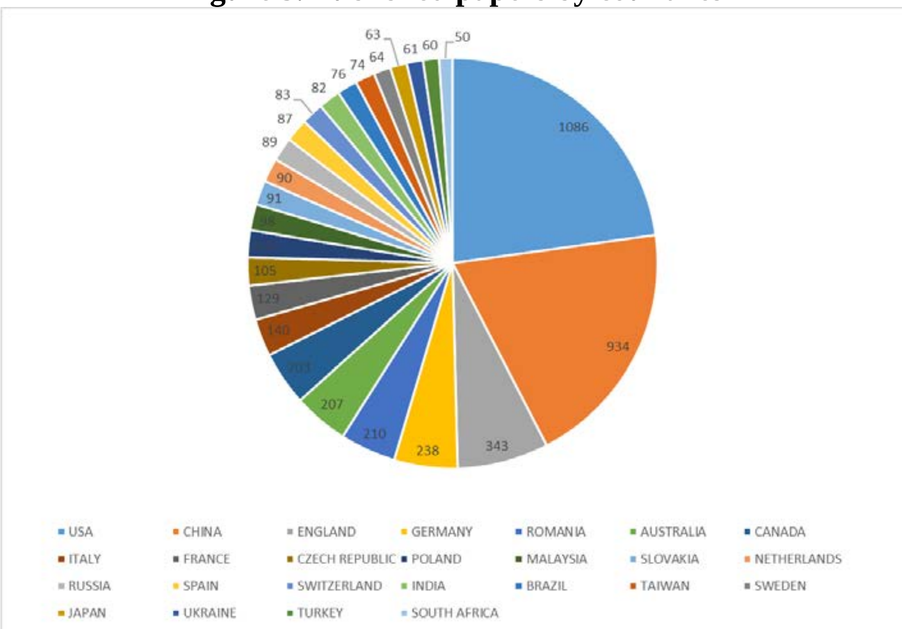



*Source: Own processing based on Web of Science Group (clarivate.com)*

Most studies were conducted in 2006-2021, in 2017 registering a number of 387 published scientific papers, representing the year with the most publications so far. In 2021, this number significantly decreased, reaching 222 publications.

In the following part, we will present the top of the countries or regions that have published over 100 scientific papers for the subject of risk management, being made up of a number of 25 country/region. At the top of the ranking is the USA with an impressive number of publications, amounting to 1.086, followed by China with 934 published papers. Surprisingly, in this ranking, Romania is on the 4th place, with a number of 210 publications so far.

**Figure 5. Published papers by countries**

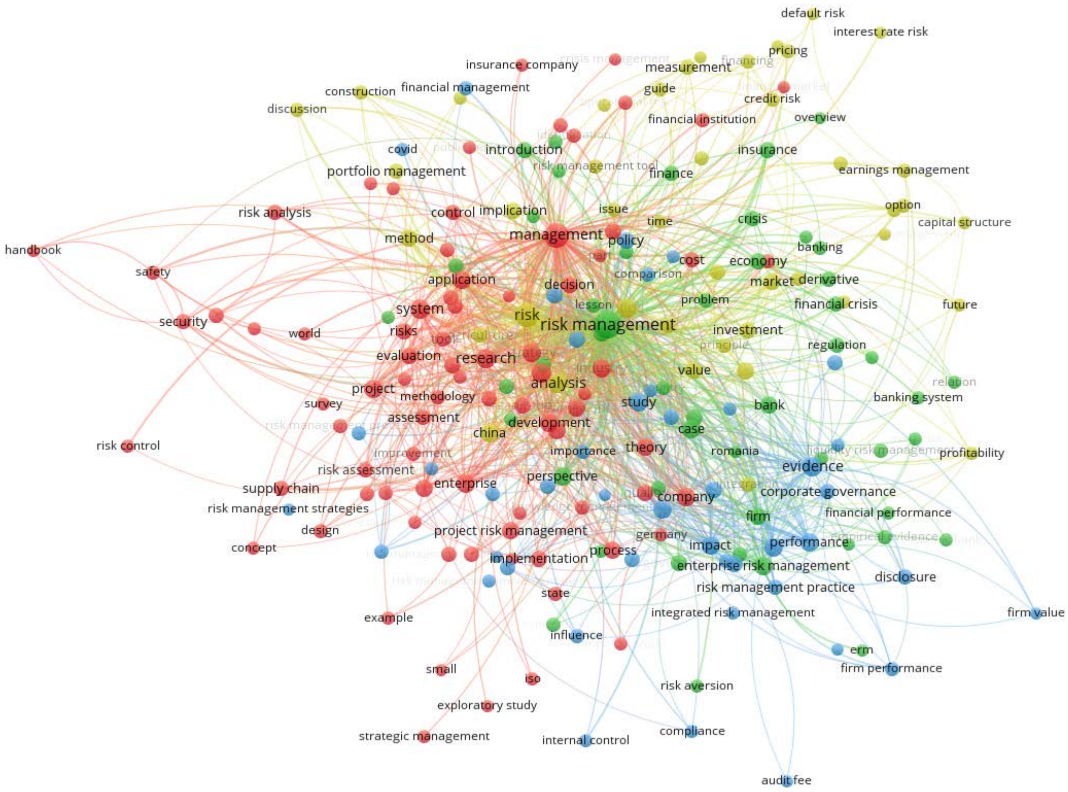



*Source: Own processing based on* Web of Science Group (clarivate.com)

## 4. BIBLIOMETRIC ANALYSIS

Based on the search method used on the WoS platform and the results, we performed a bibliometric analysis of the risk management concept using the VOSviewer software tool, using keywords from the titles of the published articles. This extracted 10.215 terms, of which only 1.310 terms reached the threshold of at least 10 frequencies.

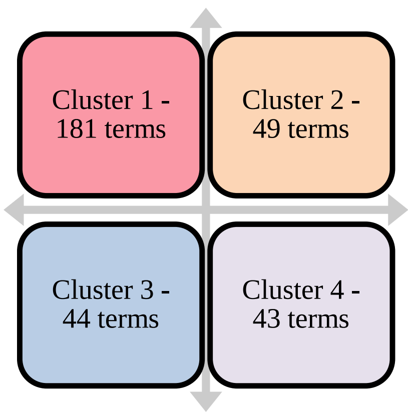
**Figure 6. Complete network of key terms**




*Source: Own processing based on Wosviewer tool*

Analysing the complete network of key terms, we observe four different clusters:

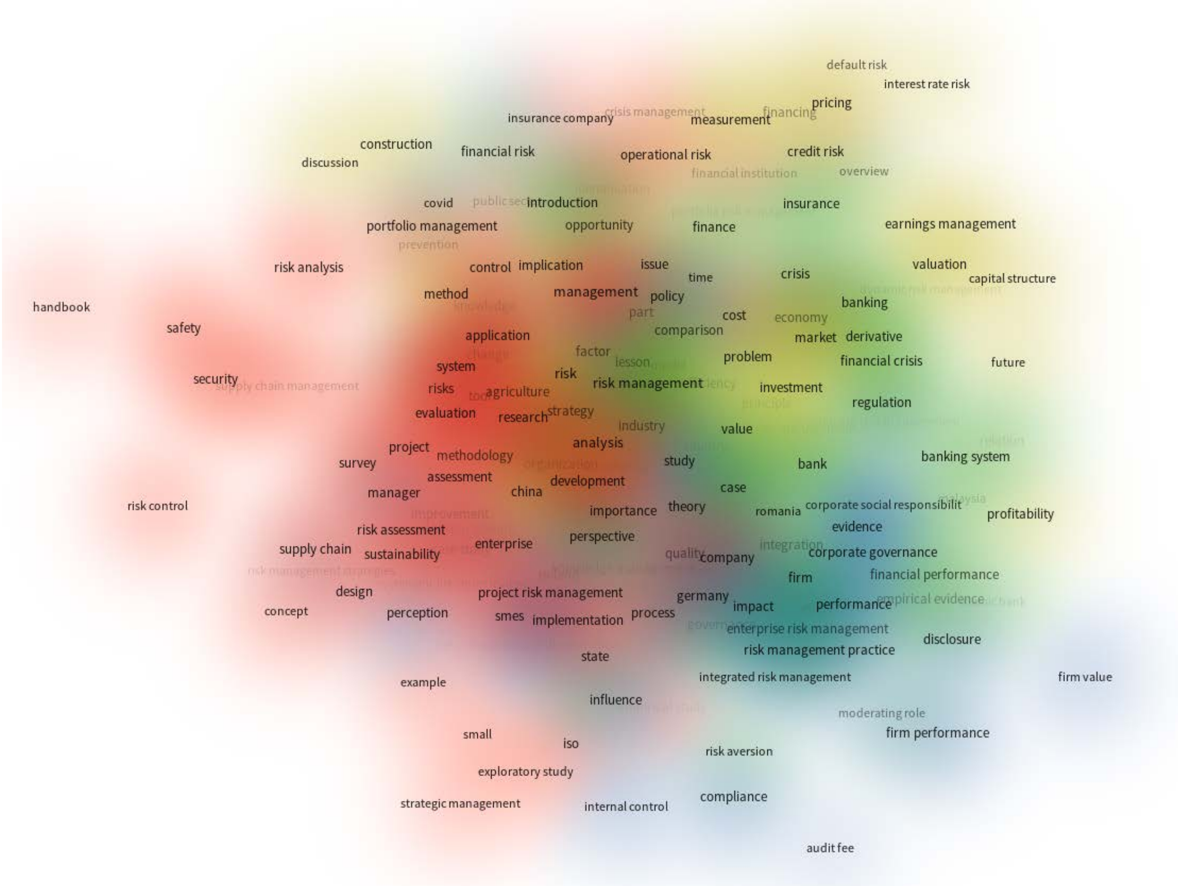
**Figure 7. Terms distribution in cluster**




*Source: Own processing based on Wosviewer tool*

The first cluster shows the connection between the following terms: company, control, decision, development, management, etc. The second cluster includes terms such as risk management, financial performance, governance, enterprise, opportunity, regulation, etc. The third cluster, coloured blue, comprises 44 terms related to: business, decision-making, financial management, internal control, performance, etc. The last cluster is the smallest and consists 43 terms revolving around the concept of risk management, including terms such as risk, method, accounting, integration, measurement, portfolio risk management, profitability, risk management tool, etc. Investigating the Cluster Intensity map, we can observe that the red cluster has the most higher intensity and Cluster 3 and 4 has almost the same intensity.

**Figure 8. The intensity of the groups**

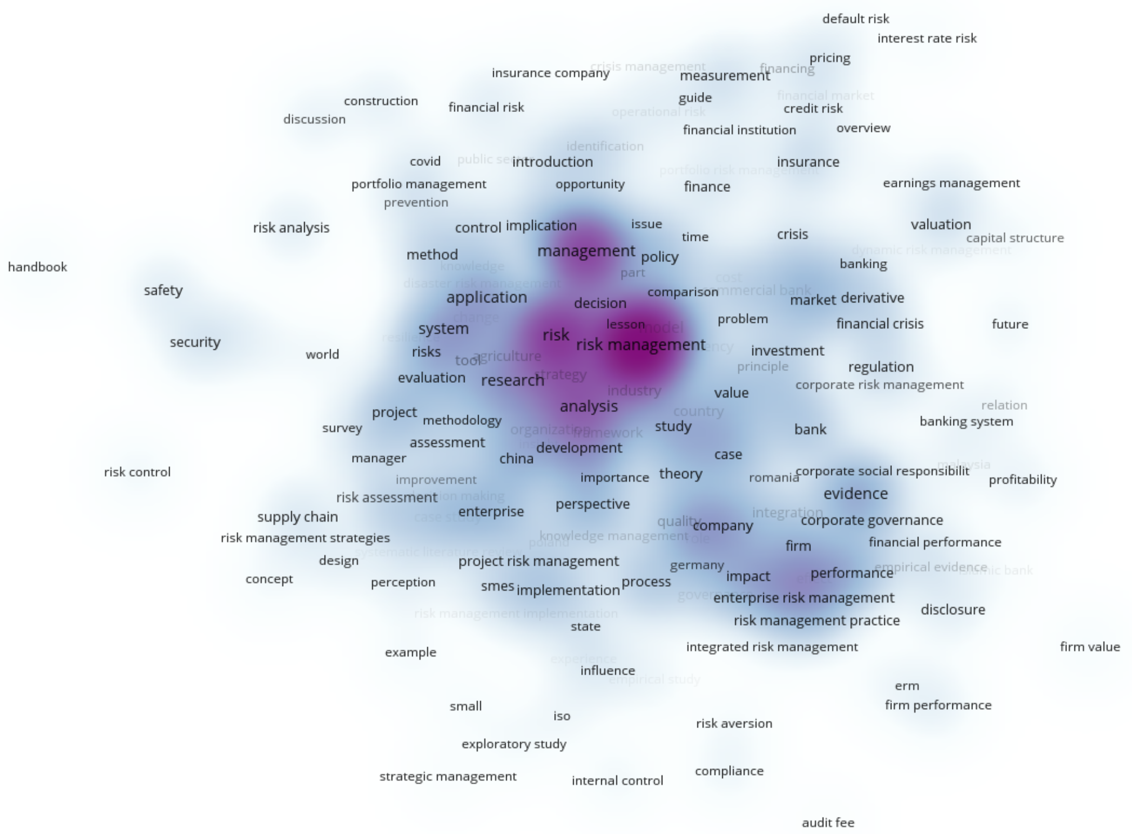



*Source: Processing based on Wosviewer tool*

Risk management and assessment are essential for investors, debtors, corporate managers and other stakeholders to make proper decisions. However, risk management is about dealing with potential risks and the plan that firms put in place to either mitigate, reduce or avoid potential risks. To clarify, risk assessment is the information about the risk, while risk management is the plan for dealing with the information about the risk. It is not enough for companies to assess risk, they must also manage it if they are to survive and succeed. Risk assessment and risk management are like partners.

Without a risk assessment, companies do not know which risks to include in their risk management plans. While businesses may not be able to stop or avoid all risks, with a solid risk assessment and risk management plan, they can at least be prepared to deal with the impact of unavoidable risks. Risk management helps businesses prepare for the unexpected. How companies deal with risk affects their success and survival in the marketplace.

**Figure 9. The intensity of the terms**




*Source: Processing based on Wosviewer tool*

Based on the previous map, we can conclude that the following terms have a much higher intensity than the others: risk management, decision, analysis, lesson, company, performance.

## 5. RELATIONSHIP BETWEEN INTERNAL CONTROL AND RISK MANAGEMENT

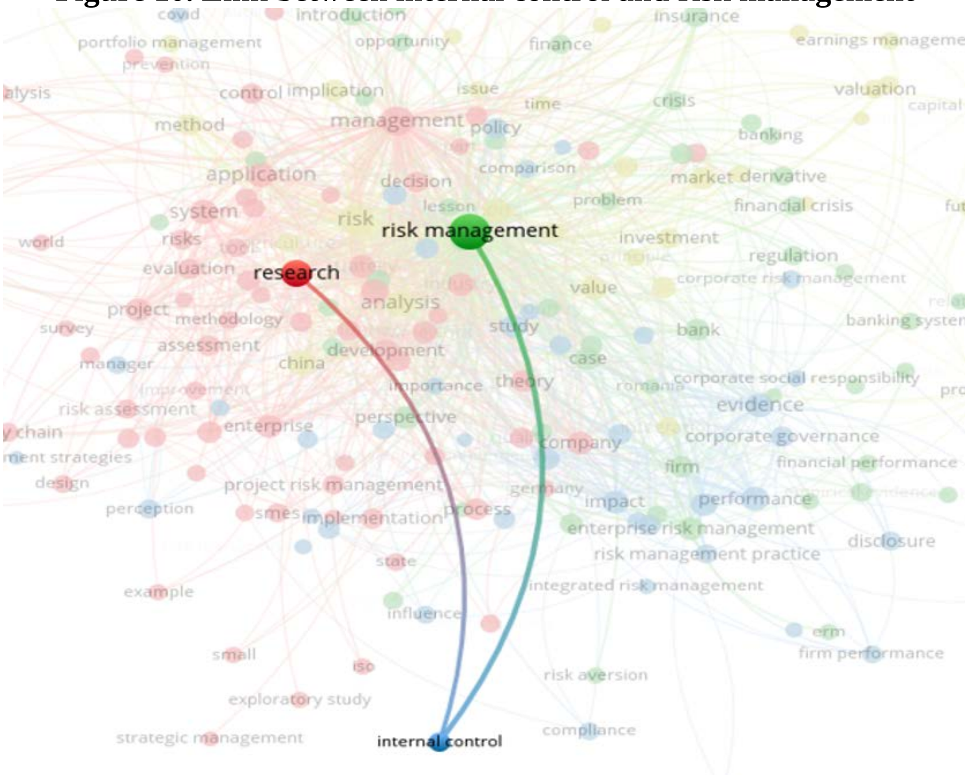
From the bibliometric analysis, it appears that the term control is in cluster 3 and the term risk management is in cluster 2. According to the software used, this represent a link between these two terms. Analyzing the case of a multinational company, based on our research, we find that the risk management model consists of two interrelated systems: the Internal Control System (ICS) and the Risk Management System (RMS). The ICS serves as the first instance to counteract the risks arising from the controls. At this point, risks are defined as possible, uncertain deviations from objectives compared to their planned extent.

Based on three main objectives (operation, financial reporting, compliance) the ICS pursues through the following main sub-processes, summarizing that it's anchored throughout the organization, at all levels:

- Control environment: establishing the necessary standards, processes, and structures, including responsibilities, etc.
- Risk assessment: identification and evaluation of risks
- Control Measures: implement controls to counteract risks, particularly in the form of behavioural instructions, approvals of decisions, quality controls, etc.

- Information and communication: the flow of information within the organizational unit from management to the organization
- Monitoring: ensures the sub-processes are effective, efficient and harmonized.

**Figure 10. Link between internal control and risk management**




*Source: Processing based on Wosviewer tool*

The danger that events, developments, or actions will prevent the Group or one of its business units from achieving its objectives is referred to as risk. It is also critical for the Corporation to identify opportunities and capitalize on them in the course of its operations, thereby protecting and enhancing the Corporation's competitiveness.

At the respective management level, risks and opportunities are always evaluated in relation to the company's objectives. Company-wide risk management leads to effective management of uncertainties, as well as the associated risks and opportunities, and provides a different perspective for corporate planning and activities. It supports the achievement of corporate goals and the company's continued existence by impacting the sustainable decision-making process. The Internal Control process focuses on controls to counteract risks in a broader sense and the risks that cannot be fully managed by controls are part of the Risk Management process.

Risks can arise from internal or external factors that affect business processes. To manage the volatility of these factors, each organizational unit shall first attempt to implement controls as first-instance measures. In case of the previous mentioned factors change, the business processes or their controls are initially adjusted so that possible process deviations are still within the control framework of Internal Control System.

If, despite these adjustments or because of the lack of adjustments, the business process deviates from the target state to such an extent that it can no longer be controlled by the existing control system, a current and concrete risk arises for which a measure must be defined, implemented and monitored. In this way, risk management can have an impact on the internal control system. For each identified risk, a measure must be defined, implemented and monitored. In this way, risk management can have an impact on the internal control system**.**

## 6. CONCLUSION

Risk management represent the identification, evaluation, and prioritization of risks trailed by composed and efficient use of assets to limit, screen, and control the likelihood or effect of disastrous events or to augment the acknowledgment of chances.

Striving with the assumption that people work for the group in an organization that employs a group structure as a management model. As a result, each employee is committed for contributing to the overall goal of the organization. This suggests that all team members have a fundamentally similar task: to make sure that the company can deal with risks while remaining safe and enforceable.

Risk can emerge from inward or outside factors that influence business processes. To deal with the unpredictability of these elements, each hierarchical unit will initially endeavour to execute controls as first-occurrence measures. If there should be an occurrence of the past referenced elements change, the business processes or their controls are at first changed so conceivable interaction deviations are still inside the control structure of Internal Control System.

Concluding based on our bibliometric analysis, we can state that around risk management, swing terms as: performance, decision, manager, efficiency, opportunity, regulation, internal control. Before making decisions, it is critical for all managers to focus on identifying and monitoring risks. Their organizations' success is dependent on the relevance of their decisions, and thus on their ability to oversee and manage various types of risks.

Establishing and implementing risk prevention measures, detecting and correcting deviations that occur in the company and may affect the achievement of the company's objectives, and verifying the existence of adequate planning processes and mechanisms for the company's design and organizational development are also important objectives of internal control

Our research pointed the relationship between internal control and risk management, clearly showing that the internal control is considered as an expansion of risk management and is accordingly firmly identified with it concerning system detailing and execution, being indeed an impressive development.

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