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Review Article

Financial Risks in Building Planning: A Literature Review

Riesgos financieros en la planeación de edificios: revisión de la literatura

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Abstract

Introduction: The construction industry plays a crucial role in the economic development of countries, driving both growth and infrastructure. However, this sector also faces significant challenges, with financial risks being particularly critical. Proper planning in construction projects is a key factor for success, as it allows for the anticipation and mitigation of such risks from the early stages of the project.
Objective: The objective of this study was to identify and classify financial risks associated with the planning of building construction through a scientific literature review.
Materials and Methods: This study was conducted through a systematic literature review in both English and Spanish, covering the period from 2000 to 2024. A mixed-methods approach was employed, combining quantitative and qualitative analysis.
Results: The analysis identified 28 causes of financial risk in the planning stage of building construction. These risks were classified by origin, highlighting common sources such as bidding, financing, and consulting. It was observed that 30% of the reviewed literature pointed to engineering consulting as the most recurrent source of financial risk, which facilitates the implementation of mitigation strategies.
Conclusions: The review revealed that financial risks in construction planning stem from multiple interrelated factors. Inadequate consulting, poor planning practices, and errors in initial economic assessments are the main drivers. Early identification and proper classification of these causes are essential for developing effective mitigation strategies that ensure the financial viability of construction projects.

Keywords: Buildings, Construction, Financial risks, Literature review, Planning.

Resumen

Introducción: La industria de la construcción desempeña un papel crucial en el desarrollo económico de los países, impulsando tanto el crecimiento como la infraestructura. Sin embargo, este sector también enfrenta desafíos significativos, siendo los riesgos financieros particularmente críticos. Una planificación adecuada en los proyectos de construcción es un factor clave para el éxito, ya que permite anticipar y mitigar dichos riesgos desde las primeras etapas del proyecto.
Objetivo: El objetivo de este estudio fue identificar y clasificar los riesgos financieros asociados con la planificación de la construcción de edificaciones mediante una revisión de la literatura científica.
Materiales y métodos: Este estudio se realizó mediante una revisión sistemática de la literatura, tanto en inglés como en español, que abarcó el período de 2000 a 2024. Se empleó un enfoque de métodos mixtos, combinando análisis cuantitativo y cualitativo.
Resultados: El análisis identificó 28 causas de riesgo financiero en la etapa de planificación de la construcción de edificaciones. Estos riesgos se clasificaron por origen, destacando fuentes comunes como la licitación, la financiación y la consultoría. Se observó que el 30% de la literatura revisada señaló la consultoría de ingeniería como la fuente más recurrente de riesgo financiero, lo que facilita la implementación de estrategias de mitigación.
Conclusiones: La revisión reveló que los riesgos financieros en la planificación de la construcción se derivan de múltiples factores interrelacionados. La consultoría inadecuada, las prácticas de planificación deficientes y los errores en las evaluaciones económicas iniciales son los principales impulsores. La identificación temprana y la clasificación adecuada de estas causas son esenciales para desarrollar estrategias de mitigación eficaces que garanticen la viabilidad financiera de los proyectos de construcción.

Palabras clave: Construcción, Edificios, Planeación, Revisión de la literatura, Riesgos financieros.

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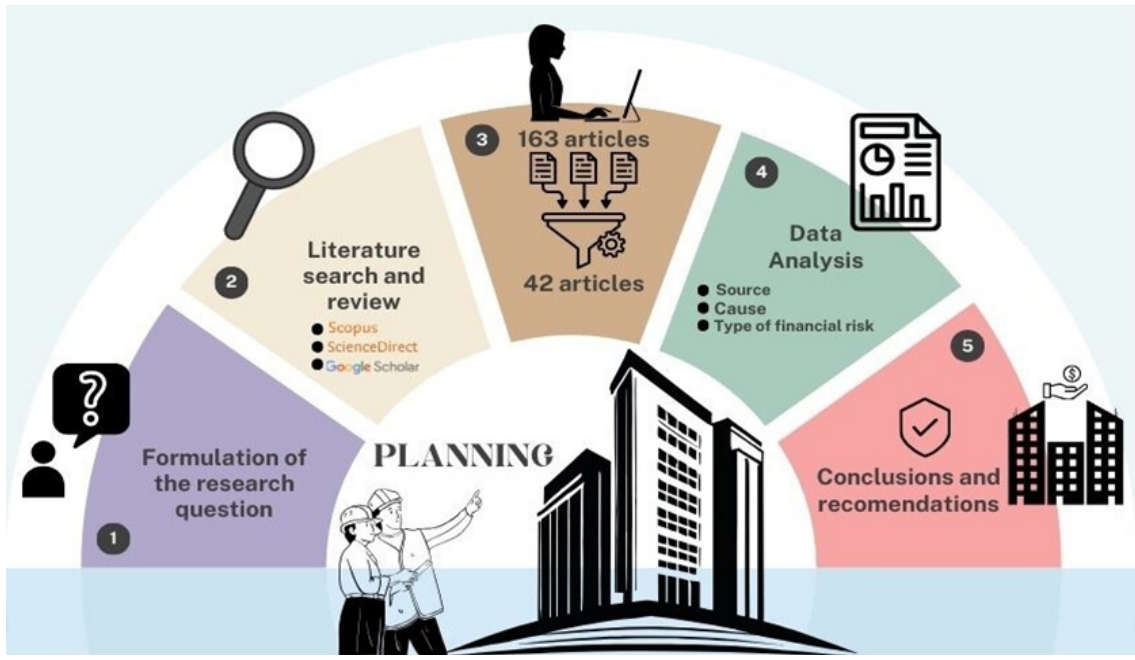
Contribution to the literature

Why was it done?
This article presents the findings of research aimed at identifying the financial risks associated with building construction planning. The information provided contributes to the field of engineering by offering an in-depth analysis of the subject, facilitating better decision-making, and supporting the development of sustainable and financially viable projects.

What were the most relevant results?
The research enabled the identification of the main sources of financial risk during the planning phase of building construction projects, including consulting, bidding processes, and project financing. Furthermore, the study identified the primary causes of these risks, which are associated with modifications to the initial documentation and designs, inaccurate estimations of time, cost, and quantities, as well as deficiencies in planning methodologies. Operational and liquidity risks emerge as the most critical financial risks according to the findings.

What do these results provide?
The results offer a comprehensive understanding of the current state of financial risks associated with the planning phase of building construction projects. Additionally, they enable the classification of these risks and support the formulation of both individual and collective mitigation strategies aimed at improving risk management practices. These findings provide a solid foundation for future research in this area.



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Introduction

In the construction of any civil work, there are different unforeseen situations due to its own characteristics that differentiate it from the automated manufacturing industry, such as staged production, a variable workforce, work environment, variations in operations, high accident rate, etc. (1). These particularities may lead to different types of risks, including financial risks. A financial risk is defined as the probability that the expected return on an investment will deviate from the actual return (2). When the financial aspect is negatively affected, it impedes the development and successful completion of a project, leading to issues related to time and costs from the planning stage.

Identifying the causes of financial risks should be done at early stages. During building construction project planning, financial risks related to the administrative and operational aspects may arise. Companies can manage their risks by mitigating, transferring, or eliminating them. Planning consists of developing and deploying policies and strategies, shaping appropriate partnerships and resources, and quality design (3).

Despite the significance of the construction sector, financial risks during the planning stage have not been extensively studied in the literature, mainly due to the misconception that risks only arise during the execution phase of a project. Most research has focused on identifying issues that emerge during the development of building construction projects through various methodologies such as case studies, literature reviews, surveys, and interviews, among others. However, these studies have limitations in classifying the causes across different phases of a project. Similarly, they have often overlooked consequences such as financial risks. Therefore, it is necessary to establish a classification of causes and risks specifically within the planning stage.

Considering that building construction requires significant capital investment and the involvement of various sectors of the economy, financial risks play a crucial role. Globally, the construction sector represents an essential pillar of a country's gross domestic product (GDP). In 2020, construction spending accounted for 13% of global GDP and is estimated to reach 13.5% by 2030 (4). However, the sector is no stranger to its environment. That same year, there was a stagnation in the construction of buildings due to the health crisis caused by COVID-19, and in some countries, the figures declined. Subsequently, the sector was recovering in 2021, achieving GDP growth in 2022 in several countries. For example, in Italy the increase was 23%, in the United Kingdom 12%, in France 10%, in the United States and South Africa 8% (5) thanks to the contribution of construction. In Colombia, GDP grew by 7% compared to the previous year, according to the Departamento Administrativo Nacional de Estadística DANE (6), employing 6.9% of the country's total employed population in 2023 (7).

The present research was conducted through a literature review spanning from 2000 to 2024 across major databases, using a mixed-methods approach (quantitative and qualitative). The study focuses on identifying and describing the causes and consequences of financial risks, classifying them according to their sources and the type of financial risk they generate and propose prevention measures that help companies manage these risks and thus improve their productivity to maximize their resources.

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Literature review (The construction)

The construction industry encompasses multiple forms, each of which comprises different procedures and requirements. Construction is considered a planned and efficient task that uses machinery and personnel to achieve a structure. Some types of construction are: residential, commercial, industrial, and civil works. Due to the need for residential buildings, demand has increased (8).

Unlike other companies, those in the construction sector carry out projects with a series of unique characteristics, such as: the projects are designed for specific conditions, the added value of the products is provided by the work teams whose staff changes constantly, some projects have a long duration, the customer is often involved in the design and construction phases and finally the quality of the final product depends on many suppliers who are responsible for the project. They are involved from the design phase to the completion of construction (3).

Construction's contributions to the economy

Countries require infrastructure to achieve progress, which is taken care of by construction companies that take on public and private projects. The latter prioritizes buildings intended for housing use due to population growth and migration to the capitals of people who live near cities (9,10).

The limitations of the area available in cities for designing new constructions mean that high-rise structures are chosen (11). The demand for housing means that the sector strongly impacts economic and social development. In the same way, trade is dynamized due to the requirement of inputs necessary for developing projects, which positions the sector as one of the most important in advancing countries seeking development (12).

The large number of construction projects has positioned the sector as one of the largest contributors to a country's GDP growth, activating other branches of the economy directly or indirectly (13,14).

It is also observed that when the global economy strengthens, so does the construction sector, and when it weakens, the sector is one of the first to feel the consequences (15,16).

The building

The concept of the building is very broad because it not only encompasses its structural system but is complemented with finishes and elements that make permanence pleasant for its users (17), in addition to being designed so that its structural components withstand different types of forces and provide security to the inhabitants of said space (18). For their part, Gonzáles and Robles (19) state that buildings also "must satisfy other requirements, such as keeping the cost within economic limits and satisfying certain aesthetic requirements" (p. 13). The lifespan of a building depends mainly on two factors: the environment to which it is exposed and the material with which it was built (20).

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Basic concepts about risks

Risks relate to events that cause variations in the normal development of a project. According to the Diccionario de la Lengua Española, risk is "contingency or proximity of damage" (21). In a broader definition, risk is defined as the probability of the occurrence of an event with negative consequences that may be economic, social, or environmental (22,23).

The level of risk depends on three variables: the probability of occurrence, which is the frequency with which an event occurs; the severity of the damage that the event can cause from different aspects; and the exposure time, which is the period in which it can occur.

Once the risk has been assessed, different decisions can be made about its management: avoid, transfer, reduce the probability of occurrence, share and accept the risk (24).

In financial terms, risk is the degree of uncertainty of the future return on net cash flow generated by an investment (25). Financial risk is the probability that the expected return on an investment will deviate from the actual return (2).

In the financial world, the focus is on operational risk, which is defined as the possibility of a company presenting losses due to failures generated in human resources, production processes, information technologies or any type of external event and becomes an important variable when estimating the cash flows of any construction project.

When the financial part of a company is deficient, it could have trouble meeting its obligations. The financial part is monitored through accounting, which identifies the factors that affect the economy and presents alternative solutions to avoid the economic crisis (26).

According to Valaskova et al. (27), financial risk management consists of examining economic difficulties and seeing how they affect the company's performance, which contemplates the possibility that the company will not make the payment of its debts in the future. Financial risk management is a benchmark for financial policy and the way to act in different situations.

Heo and Yang (28) claim that construction companies have a different capital system than the rest because it is debt-to-equity. They also face risks characteristic of the sector that make them more susceptible to financial problems. In the same way, they must have good capital, and it is often necessary for it to come from bank loans. In addition, because construction uses multiple sectors, being economically affected causes the sectors employed to have financial repercussions as well.

Due to the COVID-19 health crisis, companies faced economic problems by using their economic reserves and/or loans from financial institutions, in addition to the political support provided by countries through guarantees. However, the prolonged duration of the crisis led many of them to declare bankruptcy (29).

Risks in the construction sector

Risk management allows to control a wide range of risks as there are internal or external events that are not certain (30).

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Flanagan and Norman (as cited in (31–33)) state that the construction sector is one of the sectors that is exposed to the most uncertainty; therefore, it is common for risks to arise that other sectors would not have, in addition to external factors which are not taken into account, which is why it is necessary to create methodologies that mitigate these risks

This sector has grown in recent years, which makes planning more difficult. Therefore, mitigating risks and uncertainties would translate into better execution, which generates better economic benefits for all parties involved (34).

The projects often face two major drawbacks. The problems related to time are associated with the planning of the schedule of works, the availability of requested machinery, and changes in designs, in addition to the economic variation of the country. Cost issues are caused by shortages of materials, lack of communication between parties, and poor practice or professional ethics. The cost problem encompasses all stages of the project, as opposed to time, which is a problem of the planning stage for the most part (35). Decision-makers face concerns and inaccuracies, so it is necessary to identify the different types of risks (36).

Alashwal and Al-Sabahi (37) propose a classification considering the risks as external or internal. External risks are generated due to conditions that are beyond the company's control, including economic, environmental, legal, and political risks. The interns are related to the project itself, and they are managerial, financial, construction-related, technical, and partnership risks. For Syed and Bawazir (38) financial risks are divided into market, credit, liquidity, legal, and operational risks.

Methodology

The initial literature review was conducted for articles related to causes that generate financial risks in building construction. The following parameters determined the scope of the research: Language: English and Spanish. Period: from 2000 to 2024. Keywords: financial risks, construction, buildings, planning. Databases: Science Direct, Scopus, Academic Google and books.

Although the search was conducted in two languages, most of the articles consulted were written in English because the most recent and impactful research was published in this language.

The above databases were selected because of their size and the publications' quality. If more information was needed, other sources were consulted.

The articles analyzed were selected according to the importance of the information that each of them contributed to the topic. In addition, other descriptive characteristics of each article, such as the year of publication, the journal in which it was published, and the topic of further research, were taken into account. A mixed approach was used for the analysis. The study made it possible to classify research related to situations that generate financial risks according to their source, in addition to describing the causes and their consequences on the one hand, and the number of publications by period was determined for both the initial and specific searches, calculating their weight with the total found, on the other.

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The keywords connected by Boolean operators allowed search engines to return similar articles associated with financial risks in building construction and collect the most information.

A first filtering system analyzed the title, abstract, and keywords similar to those used in the search, which resulted in 163 documents related to the research.

In the case of physical and electronic books, the title and table of contents were analyzed, seeking to identify the chapters related to the aforementioned leak. Then, an in-depth reading was carried out. Table 1 summarizes the articles found in the first search according to source and period.

Table 1. Preliminary selection of potential documents according to source and year

Source	Year					
	Before 2000	2000-2005	2006-2011	2012-2017	2018-2024	Total by journal
Advanced Engineering Informatics				1	1	2
Ain Shams Engineering Journal					7	7
Alexandria Engineering Journal				1	2	3
Automation in Construction	1		3	3	8	15
Engineering, Construction and Architectural Management			1		1	2
European Journal of Operational Research			1	1		2
Heliyon					2	2
International Journal of Project Management		1	3	3		7
IOP Conference Series: Materials Science and Engineering				1	3	4
Journal of Building Engineering					5	5
Journal of Construction Engineering and Management			1	1		2
Journal of Financial Management of Property and Construction	1		1			2
Journal of Open Innovation: Technology, Market, and Complexity					2	2
Materials Today: Proceedings					5	5
Procedia Computer Science				1	2	3
Procedia - Social and Behavioral Sciences				4		4
Procedia Engineering				11		11
Results in Engineering (RINENG)					2	2
Technological and Economic Development of Economy				1	1	2
Conferences			2	4	3	9
Other journals and resources	4	3	9	20	36	72
TOTAL PER PERIOD	6	4	21	52	80	163
	4%	2%	13%	32%	49%	100%

The source “Other journals and resources” refers to journals with a single article, physical and virtual books related to the research topic.

A second filter consisted of reading previous documents in depth and discarding publications prior to the year 2000 in order to prioritize the most recent and up-to-date research. At the end of the process, 42 documents were obtained with key information on the specific causes that can

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generate financial risks in the planning stage of building construction. The following is a flowchart of the methodology used in this research (Figure 1).

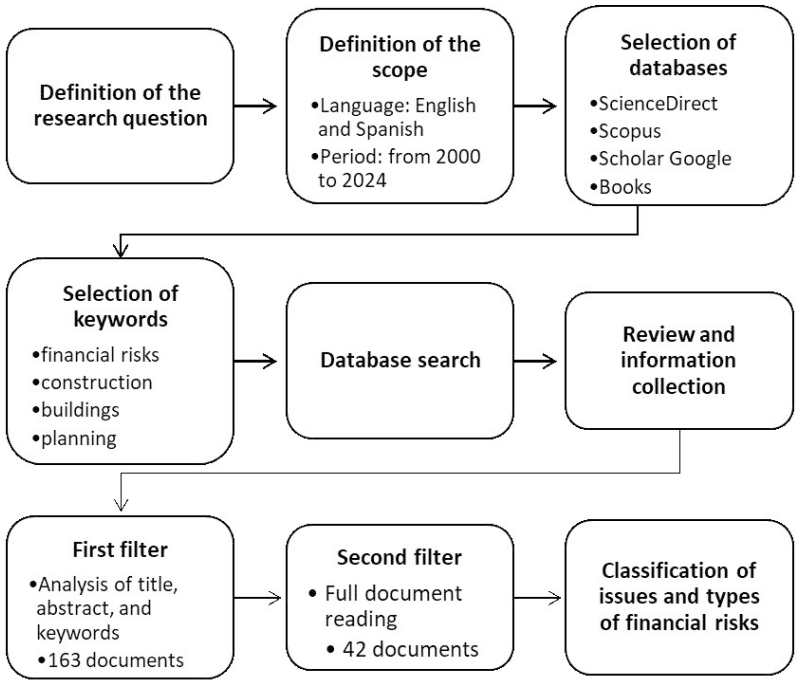

Figure 1. Literature research process

Figure 2 presents the number of selected documents per year (up to the first quarter of 2024).

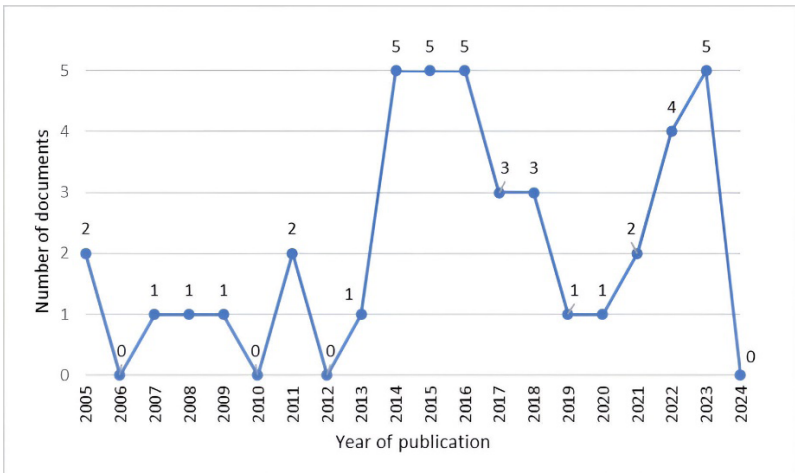

Figure 2. Number of documents per year

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A bibliometric analysis of keywords was carried out, as shown in Figure 3. The VOSviewer software was used for its development. The search was conducted in the Scopus database for the years 2000 to 2024 using the following combination of terms: "financial risks" AND planning AND (construction OR buildings).

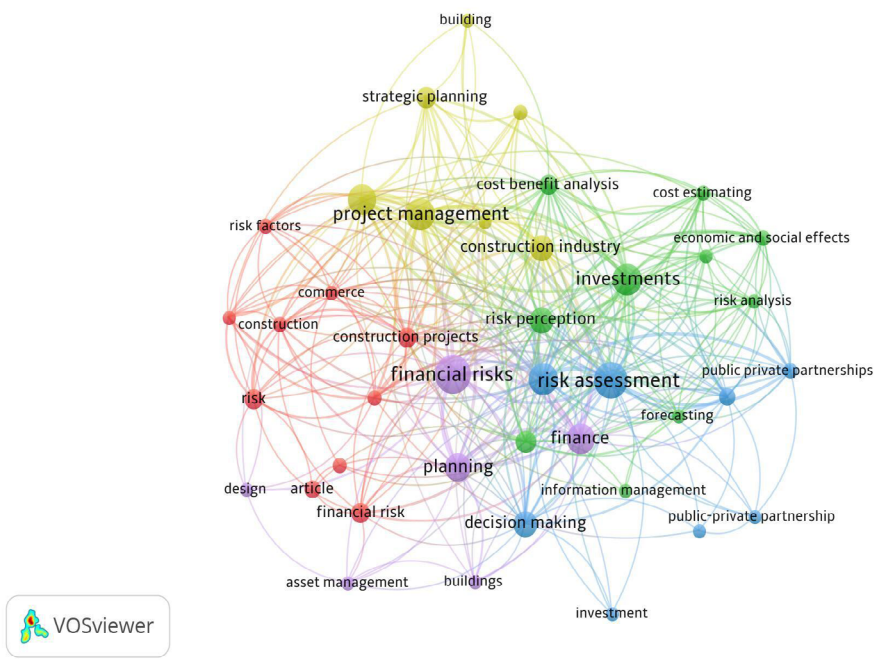

Figure 3. Bibliometric analysis map of keywords

The analysis reveals five distinct groups, in which the larger circles represent the most relevant keywords in each group, based on their number of correlations with others. The red group consists of 10 keywords, with the most significant being construction projects, financial risk, and risk. This group highlights that financial risks are a constant concern in construction projects. The green group is also made up of 10 keywords, where concepts such as investments, risk perception and economic sciences refer to the field of financial management. The blue group contains eight keywords, with the most important being risk assessment and risk management, indicating that identifying and mitigating risks in any project is crucial to reducing uncertainty in public-private investment projects. The yellow group includes seven keywords, with the most prominent being project management, costs, and construction industry. This group demonstrates the importance of planning and project management in building construction to optimize costs. Finally, the purple group has six keywords, with the most significant in both the group and the overall chart being financial risks, finance, and planning, emphasizing the importance of identifying and managing financial risks during the planning phase.

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Results and discussion

The causes that generate financial risks in the planning stage of building construction projects were identified to propose alternatives for managing them that allow their mitigation, transfer, or elimination.

Building construction projects involve a wide variety of activities that contribute to problems in the planning process. However, many of them have similarities in their origin, making them easy to handle. The authors consulted in this research agree on the most representative causes of financial risks.

After analyzing the 42 selected documents, Table 2 shows the sources, the causes of financial risks, the references of the authors who included them in their research, the consequences, and the type of financial risk.

Table 2. Causes and financial risks in the planning stage

Source	No.	Cause	Author(s)	Consequences	Type of financial risk
Bidding	1	Selection of economic proposals from underqualified bidders with insufficient resources.	(39–44)	Failure to comply with the proposal generating delays and cost overruns to be paid by the owner.	Operational
	2	Lack of project information leads to poor bidding cost estimates.	(45,46)	Unforeseen events occur causing an increase in the initially proposed values.	Operational
	3	Little knowledge of the project owner to structure the bidding requirements.	(47)	Alteration in costs due to failure to consider important requirements.	Operational
	4	Lack of knowledge on the part of bidders about local procurement rules and requirements.	(48,49)	Payment of penalties for non-compliance with regulations.	Legal
	5	The owner does not give enough time to prepare a good offer.	(46)	Time constraints cause errors or miscalculations in the bid, resulting in unforeseen costs.	Operational

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Financing	6	Little knowledge of procedures and requirements for loan eligibility.	(49–52)	Borrowing at a high rate of interest will reduce profits.	Operational
	7	Lack of liquidity causing delay or non-payment of loans and short-term obligations.	(41,42,49,53–55)	Accumulation and increase in financial obligations resulting in a decrease in long-term profits.	Credit/ Liquidity
	8	Lack of investors in large projects due to slow capital recovery and exposure to higher risks.	(40,52,56,57)	Increased need for loans due to the lack of capital injection from investors.	Liquidity
	9	The company's capital is not taken into account for the development of the initial stage of the project.	(52)	Unnecessary indebtedness in loans that would cause higher interest payments reducing economic benefits.	Operational
Human resources	10	Failure to assign suitable professionals for each stage of project planning.	(40,41,58)	Time is wasted, which in turn generates additional costs due to a lack of efficiency.	Operational
	11	Not having professionals trained in financial consulting.	(46,47)	Poor advice leads to the owner's profits being affected.	Operational

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Consultancy	12	Lack of relevant information to perform designs, studies, costs, etc.	(40,44,45,48,58–62)	The lack of information would mean that these activities would have to be repeated or adjusted, generating additional costs to those initially budgeted.	Operational
	13	Modifications in the initial documentation and designs causing alterations in the scope.	(35,40–42,48,55,59,63–69)	Higher investment due to lack of clarity regarding the use and size of the project.	Operational
	14	Use of the wrong planning technique by the personnel in charge.	(40,41,44,46,48,53,55,57,61,62,66,67,70)	Multiple planning errors causing time and cost overruns.	Operational
	15	Erroneous reduction of the execution time of activities not belonging to the critical path in order to contribute to the reduction of the total project time.	(53)	Unnecessary use of resources in executing activities that does not affect project completion time, but does reduce profits.	Operational
	16	Special requirements, unprecedented innovations and the lack of new and/or appropriate technologies affect the planning process.	(41,45,48,49,53,64,70)	Loss of time due to lack of historical data and poor implementation leading to unnecessary cost increases.	Operational
	17	Risks generated by different external factors (weather, natural disasters, public order problems, etc.) in planning.	(41,44,46,54,55,57,64,66,67,71,72)	Cost overruns due to loss of time due to the occurrence of such unforeseen events because of the lack of a contingency plan.	Operational
	18	Delays in construction permits and licenses.	(41,67,72)	Prolongation of the building delivery time causing the client to lose profits.	Operational
	19	The project consultants do not consider the suggestions made by the contractor.	(48,73–75)	Possible errors or bad estimates causing cost overruns.	Operational
	20	Unclear, incomplete plans or with errors.	(41,44,46,55,57,64,66,67,69,76,77)	Re-elaboration of plans causing delays and additional costs.	Operational
	21	Delays in the approval and delivery of designs.	(41,42,44,46,55,64,67)	Delays in the initiation and completion of project execution causing loss of profits.	Operational
	22	Insufficient or unrealistic duration, price and quantities of activities.	(40,41,44,46,55,62,64,66,67,69,70,77–79)	Time extension and cost overruns.	Operational
Costs	23	Underestimation of costs at the beginning of the project due to the pressure to meet an established budget.	(59,60)	Lack of funds. Priority is given to presenting an economic proposal to obtain the contract.	Operational
	24	Financial problems of the project owner disrupting normal planning processes.	(40,48,49,57)	Little certainty that the project will continue causing the loss of the investment made so far.	Liquidity
	25	Not taking inflation into account in the budget.	(40,41,44,46,49,54,55,62,64,69,70,72)	Increase in the price of materials and equipment causing cost overruns.	Market

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Communications	26	Discrepancies in internal coordination causing problems in planning and design.	(40,41,43,44,46,55,59,66,67,69)	Delays in delivery times causing additional costs.	Operational
	27	Disagreements and poor preparation of the contract hindering the planning and execution of the project.	(41,44,46,48,59,67,70)	Economic and time losses due to the disagreement of the parties involved.	Operational
	28	Poor communication among project stakeholders.	(44,53,78,79)	Additional costs for modifications and corrections.	Operational

Many of the financial risks that arise during the construction, maintenance, and after-sales service of buildings originate in planning. Despite its importance, little research was carried out on the subject before the year 2000. However, so far in the 21st century, research has increased significantly without constant growth. The highest number of publications in a year is five (Figure 2), which shows a large field of work for conducting studies.

In every project, the efficient management of resources is a priority. For this reason, the planning stage plays a fundamental role in obtaining satisfactory results. Planning is based on the scheduling of tasks, economic means, equipment and personnel necessary for the execution stage; this scheduling guarantees a logical and orderly sequence which would avoid setbacks. Therefore, within the planning, risks and indeterminacies must be considered to mitigate or have a backup plan at the time of the implementation of the project (80). Poor planning significantly increases the possibility of errors that turn into diminished profits.

During this research, financial risks in building planning were identified from six main sources. Figure 4 illustrates the percentage representation of each cause, based on the number of authors addressing them in the 42 selected articles, as listed in Table 2. This helps to evaluate how representative these causes are in the planning stage. Each cause is identified by the number assigned to it in Table 2 and geometric figures were assigned for each type of source and each type of financial risk presented.

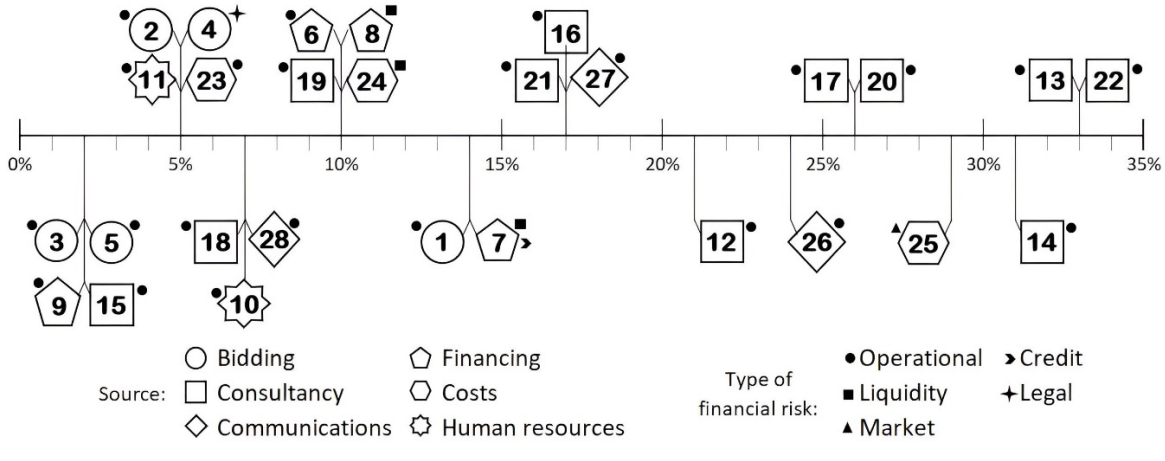

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Figure 4. Type of financial risks classified according to their percentage and source

Consulting had the highest operational risks, with 11 associated causes. Consulting plays a fundamental role in the planning stage. It involves professionals from different areas of engineering, which can lead to problems related to the repetition of activities due to misinterpretations, calculation errors, delays in the approval of designs and, in general, lack of coordination between the parties involved.

Causes 13 and 22 that generate operational risks are the most frequent and are related to modifications in the initial designs and documentation, the poor estimation of the project time, the prices of work items and their quantities, which are referenced in 33% of the reviewed literature. Knowledge of the project's characteristics is the basis for good planning.

The problem of time can be controlled with proper scheduling. Tomczak (80) states that it is the tool with which the project's development is planned and controlled. It allows to determine the execution time for final delivery. On the other hand, the cost problem can be controlled with a correct budget. According to Shah and Chandragade (81) a more efficient planning brings at the same time a correct estimate regarding the general expenses of the project.

Cause 14, also operational, stands out with a 31% percentage and is related to poor project planning technique. Having a clearly defined plan that reflects how the project will be carried out with its goals and objectives is essential for managing unforeseen events that generate delays in completion and cost overruns for various concepts.

Unlike the previous cases related to consulting (internal variables), number 25 related to inflation (external variables), whose percentage is 29% of the total of the referenced causes, presents greater difficulty in its management because it depends on the country's economy and its economic policies.

Causes 3, 5, 9 and 15 are the ones that generate the least financial risks. In most cases, private project owners usually hire specialized consultants to develop a project. For this reason, the requirements and times foreseen for implementing the activities are adequate. Unlike public projects, private projects have financial backing from financial institutions. Time and cost estimates are made according to the project's requirements. Figure 5 shows the percentage of each type of financial risk concerning the total according to its type.

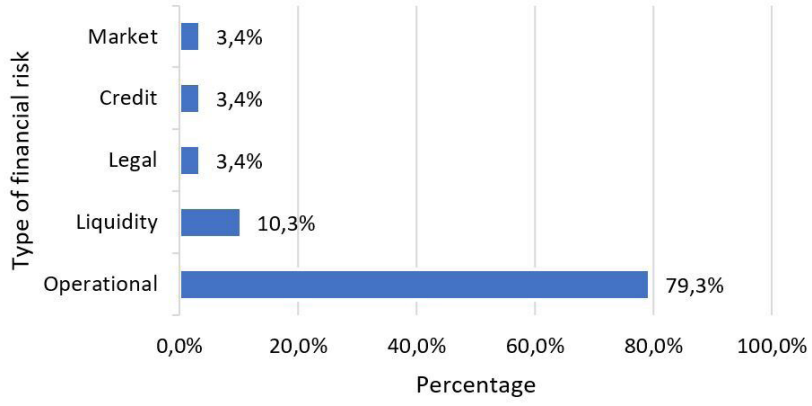

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Figure 5. Percentages of financial risks in building planning

Operational risks account for 80% of all risks. Together with liquidity risks, they account for approximately 90% of the financial risks found in the study. Operational risks are related to human error. Construction, being an artisanal activity in each stage, including planning, and despite currently relying on information technologies (ICT), constantly faces this type of risk. Liquidity, on the other hand, consists of having the resources to meet short-term financial obligations. The availability of resources to carry out a public and private project normally is one of the main challenges every builder faces. Funding is a key success factor.

In general terms, many of the causes studied are interrelated, which facilitates their elimination or mitigation by applying common strategies, as can be seen in Table 3.

Table 3. Mitigation measures applied to the causes

Mitigation measure	Applied to:
Have experience in building construction projects.	1-10-14
Secure the financial capital for the realization of the project	1-7-8-24
Provide the information required by the consultancy.	2-12
Have qualified advice for the presentation of documents and requirements demanded by financial institutions.	6-10-11
Improve the formulation of the project proposal by reducing possible financial risks.	13-23
Hire and assign qualified professionals for each step of planning.	1-3-10-11
Have good communication between the parties involved.	2-12-19-26-27-28
Schedule project activities in detail in planning.	15-21-22
Have adequate time for submitting proposals by builders in bidding processes.	5-17-25
Develop contingency plans for contingencies.	17-18-25
Correctly estimate the time required for each stage of planning.	5-15-22
Having training and documentation regarding the different regulations.	4
Properly manage financial resources.	9
Preparation of documents accurately.	2-12-13-20-27
Hiring specialized personnel in the latest trends and technological advancements.	16

Conclusions

In construction projects, the execution stage is often more important than the planning stage, which leads to its initiation in the shortest possible time, allowing the achievement of financial resources through the pre-sale of the project. However, poor planning leads to reactive measures in the face of unforeseen situations that can affect the expected benefits. On the contrary, in proper planning, proactive measures are taken to improve the level of safety to obtain profits at the end of construction.

In this study, the financial risks associated with each type of source and the cause that generates them were analyzed, finding that most of them are operational. Consultancy, being in charge of

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most of the activities in the planning stage, is the greatest source of risk generation and, therefore, requires the most support from the other parties involved in the project.

Lack of proper documentation can lead to errors that cause financial problems for both the construction party and the project owner. Using qualified personnel is important to avoid repeating activities that demand resources and generate expenses not contemplated in the initial budget. The successful completion of a project depends mainly on two factors: good management of financial resources and time.

Many of the financial risks whose origins are due to similar causes can be managed through common strategies even though they belong to different sources within the planning stage.

Around the world, the importance of identifying financial risks in building construction lies in its ability to inform decision-making for their mitigation, transfer, or elimination, ultimately leading to sustainable construction with economic viability, along with social, business, labor, and environmental benefits, among others, by ensuring the necessary resources for successful completion. Compared to several global studies, this document specifically focuses on the planning stage, as few provide precise information about this phase. Most studies identify causes throughout the entire construction process, concluding that the early stages of a project are crucial to its success; however, they place greater emphasis on the risks encountered during the execution phase.

This research can serve as a reference point for planning any building construction project because the collected data includes information from various countries, building types, project sizes, work methodologies, and economies. The identified causes and financial risks analyzed are also reflected in other countries; therefore, the proposed mitigation measures can serve as guidance for management. In 2024, Colombia is facing financing challenges for projects due to a decline in sales, a decrease in housing subsidies, and rising interest rates from financial institutions. The current situation in several countries mirrors this trend. In China, the high level of corporate debt has triggered a real estate crisis, while in Spain, there has been an increase in loan interest rates, making financing more difficult for both companies and buyers. In the United States, project planning has encountered limitations in estimates due to increasing wages and a shortage of skilled labor. Given these global challenges, managing financial risks from the planning stage is critical.

It is recommended that future research further explore the identification of financial risks that may arise during the building planning phase. Additionally, studies should be conducted to apply the proposed mitigation measures to assess their effectiveness.

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