

The Impact of Financial Crises on The Parties Involved in the Construction Project

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Abstract. Iraq has witnessed a number of crises that had an impact on multiple industries, including the construction industry particularly. In 2014, Iraq was subjected to terrorist acts in several provinces, which led to insecurity and a very large financial crisis that affected all provinces. This was followed by the financial crisis that occurred due to the drop in oil prices and because oil was the main and exclusive source of income for the Iraqi economy, this resulted in a severe economic collapse. This study examines the financial crisis's detrimental effects on the construction industry. The research has divided the crisis in finance into two types: the external crisis, which has occurred as a result of external influences such as the decline in oil prices globally, which has been reflected in the budget of the Iraqi government, and the second type is the internal crisis, which has occurred as a result of bankruptcy or the bankruptcy of any of the parties involved in the constructing industry. The open questionnaire represents the practical side, which was completed by conducting personal interviews with construction and project implementation experts and financial and economic experts to discuss how to deal with the crisis's effects and address them. The researcher concluded that the factors that have a high degree of influence on the occurrence of crises are arranged according to relative importance from highest to lowest, as follows: (changes in oil prices, changes in currency exchange rates, the bankruptcy of banks, force majeure, high prices, and the unemployment rate). The (post-crisis stage) is the highest among the stages, with the highest percentage when it comes to the stage at which the financial crisis impacting construction projects could be addressed.

Keywords: Construction projects; Project parties; the financial crisis; internal crisis; external crisis.

1. INTRODUCTION

A few years ago, Iraq and the rest of the world had a financial crisis that caused many projects to cease. One of the industries this crisis affected was the construction industry. This has affected the contracting sector and led to many problems due to the urgent importance of these facilities to provide various services to people. These crises may arise due to the political conditions that the country is exposed to due to war, other problems, and economic conditions. The Iraqi economy is highly dependent on oil, accounting for 58% of GDP in 2015 (World Bank (World Bank), 2017: 13) [1]. Therefore, via supply and demand, oil is the primary element on which the Iraqi economy depends most strongly on the global stock market. Concentrating on a great opportunity to invest in multiple financial crises. The credit crunch was the second most important method. Many companies claim that a lack of financial assistance for new initiatives has hampered their ability to expand. Because of potential bias in our survey, these results may underestimate the real consequences of lending constraints and low demand, especially for small businesses [2]. The modified risk allocation may shift the cost burden between the parties. This research will discuss the influence of financial crises on the construction sector, the amount of that influence on any party involved in those projects, and the most important procedures and recommendations that can be followed to reduce such influence.

1.1 Definition of the Financial Crisis.

A crisis is a translation of the Greek term (crisis), which describes a decisive moment as well as an abrupt, frequently negative shift [3]. It is a defect that has a material impact on the entire system and undermines the fundamental presumptions that this system is built on. The crisis is often characterized by the elements of suddenness, time, and lack of information, in addition to the physical and human danger factors [4]. It is a sudden change from the usual behavior, meaning a string of encounters ensue, causing a sudden scenario to occur that poses a direct danger to the state's fundamental values or interests, necessitating the need to make decisions quickly under time constraints and unpredictable circumstances, so that the crisis does not explode [5].

1.2 Types of Crise

- Crisis in finance
- Technology Crisis
- Personnel Crisis
- A crisis in the organization
- Natural Disaster

- Crisis Confrontation
- Hate Crisis
- Man-Made Crisis

1.3 Definition of The Financial Crisis

It is a term widely used in some financial circumstances when financial organizations or assets lose a large part of their value. Some other financial crises include events like the crash of the stock market or the burst of a financial bubble. [6]. It is a situation in which one or more valuable financial assets, such as stocks, property, or oil, suddenly lose (usually unexpectedly) a large amount of their face value [7]. The ability of the financial system to allocate capital is disrupted when the financial markets are disrupted, typically accompanied by falling asset prices and insolvency among debtors and intermediaries [8].

1.4 Causes of Financial Crises

Many theories attempt to explain how financial crises differ in terms of their nature as well as their severity, impact, and timeframe. A currency crisis and the collapse of the exchange rate, as well as the prices of some assets, have a negative effect on how the national economy develops.[9] The financial crises can also be attributed to the following reasons:

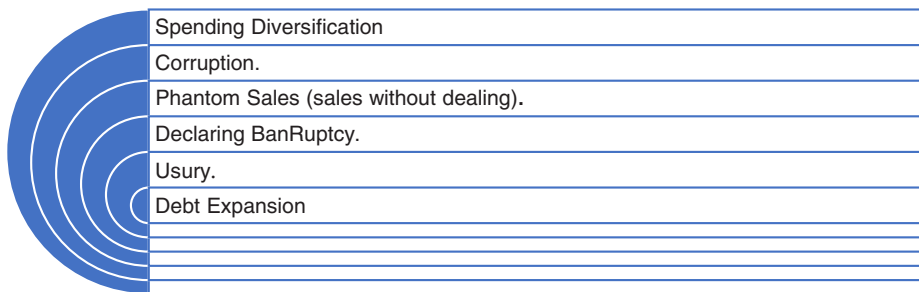


Figure 1: Some of the reasons attributed to financial crises.

1.5 Definition of a Construction Project

The project is the process of conducting an investigation that is useful or adds value to the work that has already been done in order to provide a good or service and achieve that goal. A project is a time- and money-limited process to complete a list of specified deliverables by standards and specifications for quality.

1.6 The Impact of the Financial Crisis on the Project

Project cost management is important for every construction firm or company. Additionally, it is a technique that uses technology to calculate costs and profits across the whole life cycle of major business-level operations. For them to provide sound cost management advice, a number of actions like planning, estimating, budgeting, financing, funding, managing, and controlling expenses are required. Cost management encompasses every project cycle; as a result, certain procedures must be followed, such as creating an early planning stage for evaluating the project's performance, cost, and completion [10].

Efficiently planning and managing a business's costs is known as cost management. It is regarded as one of the most difficult missions in company management. Cost comes first when planning, building, and designing a project [11]. The Cost Manager, also known as a Quantity Surveyor, is an essential individual for the design and construction team. They are particularly concerned with managing construction costs and values and are crucial to building projects' financial and contractual management. [12] Project owners should hire a skilled independent cost consultant with no conflicts of interest to oversee the project's costs from the outset to the end of the last financial report. An understanding of the workflow and associated costs is required to control the construction process. A system of earned-value management was created to account for the combined cost process and building costs [13].

1.7 The Parties Involved in the Implementation of the Project

Every construction project must have an integrated team to implement it within the specified quality and time. This team consists of

- **The Business Owner or (The Project Beneficiary)** is an individual or group owning a company, group of companies, institutions, or government wishing to build a project that it needs or desires or to invest in it [14].
- **Designer (Consulting Office)** has extensive public and private infrastructure planning, design, and construction knowledge. By implementing a safer, cleaner, and more effective foundation, consulting

engineers seek to benefit society. Consulting engineers may have mechanical, electrical, and civil engineering backgrounds [15].

- **The Main Contractor (Contracting Company)** owns the idea, the investment, and the contracting project, where this person establishes his project. The main contractor works on the conduct and management of his project and is the one who is constantly searching for the development of his project concerning the environment.
- **The subcontractor** is any person who engages with contractors or other service providers in a construction project and is not the owner. Carpenters, plumbers, and electricians are the subcontractors employed in home construction projects. They usually work independently or manage small enterprises serving a particular construction industry segment [16].

1.8 Project Team Roles

The project manager is the team's leader, acting on behalf of the customer while also attempting to maintain an effective project team. Under several procurement methods, the construction project's leadership may change during the project life cycle, as stated above [17]. Throughout the building process, the major contractor will be in charge. For a big or difficult project, the client employs a project executive manager to guide the project team and interact with the client. In charge of coordinating the design, construction, and other expert duties shown in Figure 2, the project manager will operate as the client's sole contact point. The communication channels are defined in this diagram, but the customer signs the real contract with different businesses, thus, there are contractual and communication linkages that differ [17].

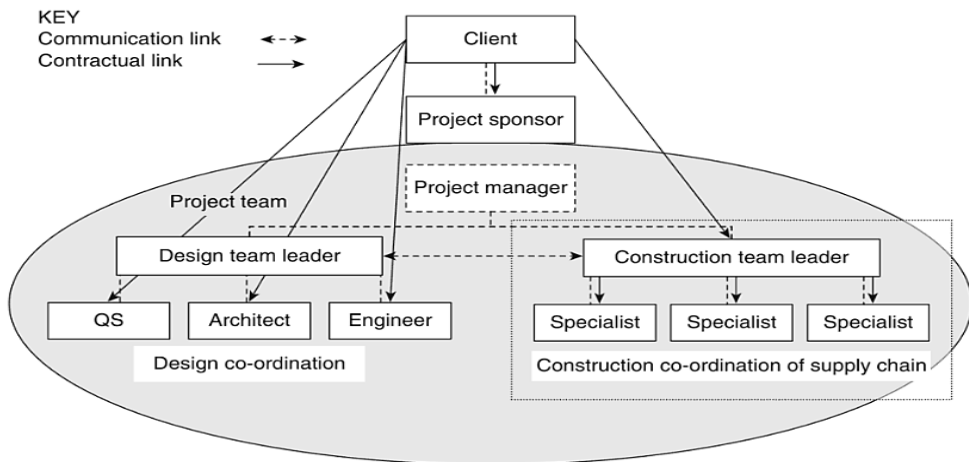


Figure 2: Project diagram structure [17].

1.9 The Literature Survey of the Financial Crisis on the Construction Sector

Many studies dealt with the influence of the financial crisis on the construction industry, but this research has studied the financial crisis more deeply. The literature survey of the global financial crisis in the construction sector was mentioned by other researchers below. In order to understand how financial crises propagated from 2007 through 2014 and how the US stock market affected 47 Japanese construction companies, according to the survey, around 23% of the construction sector has been seriously impacted. The crisis severely damaged construction businesses since they had poor profits, turnover, and leverage rates before the crisis. [18]. Nigeria had an economic crisis from 2008 till 2009 as the country's yearly growth rates fell from nearly 9% down to 6.7% [19]. Recycling has influenced the construction sector and negatively impacted construction costs. Consequently, this impacted the other components such as (materials, labor, as well as plants). However, Nigeria's government did not create effective methods to deal with the economic crisis along with its consequences [20].

2. DATA COLLECTION

There are four components to the questionnaire's statistical analysis, as follows:

2.1 Method of Information Data Survey

The methodology used in conducting the field survey and collecting data related to the subject of the study included two phases:

- 1). The first stage included conducting personal interviews with experts specialized in financial and accounting management at the Higher Institute of Accounting and Financial Studies at the University of Baghdad and in the Iraqi project management sector. The number of experts is 12. The causes and effects of financial crises and the most important methods used to avoid these crises were discussed through an open questionnaire, as shown in the following table.

Table 1: Opinions of financial experts on the causes and treatment of financial crises

The Causes of Crises	Expert Opinion		
	I agree	neutral	I do not agree
Oil price change (lower or higher prices)	9	3	
Currency exchange rates change (high or low exchange rate)	10	1	1
Bank bankruptcy	7	3	2
Force majeure (wars, demonstrations, floods, and earthquakes)	5	4	2

- 2). The second stage included the closed-ended questionnaire. A closed-ended questionnaire was designed through literature reviews and interviews with experts to identify the most important ones. It was distributed in two ways: electronically and manually. It is crucial to identify the population that was surveyed for this study. Accordingly, the survey depended on engineers from the public and private sectors.

Specializing in building, construction, and project management, as well as specialists in managing financial crises and those affiliated with the Ministry of Planning, the Ministry of Industry and Minerals, Electricity, the Ministry of Oil, the Ministry of Construction and Housing (general contracting companies), the Municipality of Baghdad, the Investment Commission of Baghdad and the provinces, where 133 questionnaires were distributed, 33 questionnaires were distributed electronically, and 100 questionnaires were distributed on a separate sheet. Copies of the questionnaire and the manual questionnaire were distributed in Baghdad, Karbala, and Najaf from July 24 to September 30. Table 1 below provides an overview of the distribution of the questionnaire. Out of the total distributed, 111 survey questions were received. 105 questionnaires were analyzed after investigation by using SPSS. (Software Statistical Package for Social Sciences), V26. The results of data analysis and statistical tests obtained by the respondents were also discussed. The stages of analysis were divided into causes and results according to numbering (a, b, c....).

Table 2: Distributed, returned, valid and invalid questionnaires.

Name of the surveyed body	Distributed forms	Return survey	Missing	Valid survey return	Invalid survey return
Ministry of Planning	10	10	-	10	-
Ministry of Industry	10	8	2	7	1
Ministry of Oil	10	9	1	8	1
Ministry of Housing	10	8	2	8	-
Ministry of Electricity	10	7	3	7	-
Baghdad Municipality	10	7	3	7	-
Investment Authority	15	11	4	8	3
Academics	10	8	2	8	-
Construction Companies	15	10	5	9	1
Electronic Forms	33	33	-	33	-
Total	133	111	22	105	6

a) Factors Affecting the Contractor

This part includes respondents' responses about the factors that affect the contractor and lead to a financial crisis and work stoppage in the public sector. The percentages shown in Table 2 demonstrated the respondents' opinions about the reasons that led to a financial crisis for the contractor and the opinions of some contractors as well as experts in financial and banking sciences. It can be seen that referring to several projects in the custody of the contractor at one time is the most effective reason for the occurrence of crises with the contractor, followed by the absence of a real financial study of the project's cost by the contractor and subsequently the contractor's Poor financial ability or lack of cash in his possession.

Table 3: Percentage of respondents' opinions about the reasons leading to the financial crisis with contractors.

No.	Reasons that may lead to a financial internal crisis for the contractor	Respondents' answers
1	Poor financial ability of the contractor or lack of cash in his possession.	17%
2	The lack of financial capacity is in line with the project's size in the contractor's custody.	14%
3	Refers to several projects in the custody of the contractor at one time, which does not correspond to the real financial efficiency of the contractor.	25%
4	Without a real financial study of the project cost by the contractor to ensure the project's implementation without financial hardship or internal financial crisis.	20%
5	Weakness in the contractor's specialized financial staff to ensure that a real financial study is given to the paragraphs of the project in a way that ensures that the financial crisis does not occur.	12%
6	Entering bids for projects announced by the concerned authorities or the fastest in obtaining project bids without careful financial study.	9%
7	Other	3%

b) The Impact of Financial Crises on The Parties to a Project

In Figure 3, it is clear that the business owner is affected by financial crises, but this effect is the highest when internal financial crises occur, as its impact reached (47,619), followed by (46,666) in impact when both crises occur together, and it is less affected when external financial crises occur (5,714). Because the business owner is not responsible for supplying the project with materials and equipment that are affected by external crises.

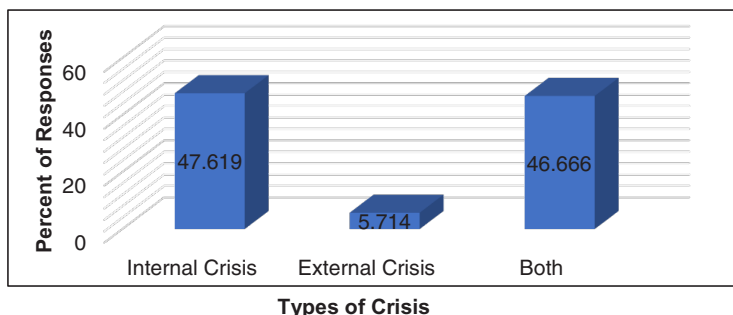


Figure 3: The percentage of the employer's impact on financial crises.

In Figure 4, it is clear that the designer or the consulting office is affected by financial crises, and through the most appropriate indicator, which is (55.24), the highest percentage of his influence on the occurrence of internal financial crises. It is followed by both crises together with a percentage of (32.38), and external crises have the least impact with a percentage of (12.38). One of the most important impacting reasons may be the presence of force majeure, which is considered one of the most important reasons for the occurrence of internal crises that lead to the cessation of work and thus affect the designer.

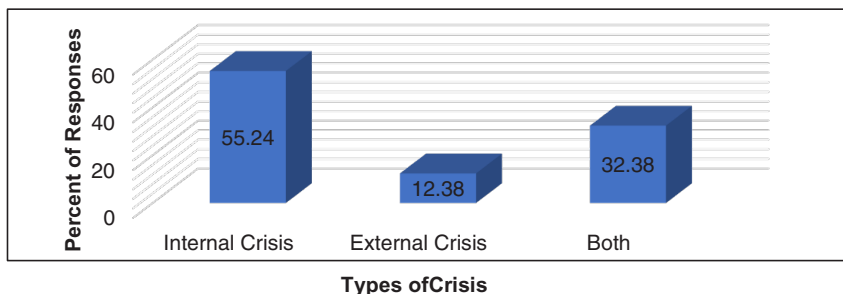


Figure 4: The percentage of the designer or consulting office affected by the financial crisis.

In Figure 5, the impact ratio of the main contractor to the financial crises is evident, which indicates that the highest proportion of the impact lies in the occurrence of both crises together, i.e., Internal financial crises and external financial crises amounted to (48,571), followed by the internal crisis (40,952). The least one is external crises (10,476). The most important causes of crises are force majeure, the change in currency exchange rates, and the change in oil prices. In the event of force majeure, the workflow is suspended for long periods, which leads to the disappearance of some parts from the project or equipment damage due to prolonged

downtime. External crises affect the purchase prices of materials and equipment if the project needs them from outside the country, and the project is greatly affected by the crises because the contractor is most of the time responsible for its preparation.

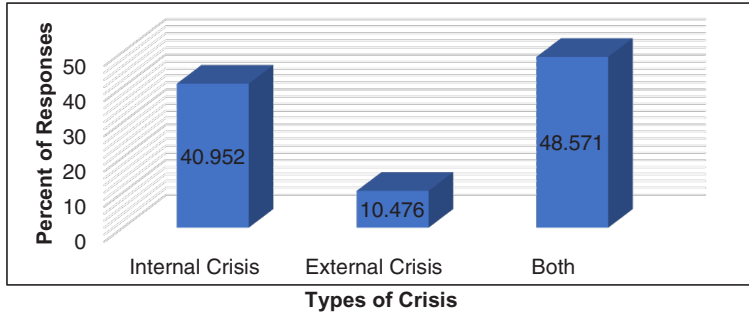


Figure 5: The percentage of the main contractor affected by financial crises.

In the above figure, it is clear that the percentage of subcontractors affected by financial crises indicates that the highest percentage of impact is when internal financial crises occur (44,769), followed by the two crises together (internal financial crises and external financial crises) with (41,904). The least impact is the external crisis (13,333). And through what was shown above, the highest percentage of impact is because the workflow interruption for long periods leads to the extinction of some parts of the project or damage of the equipment due to its stopping for long periods. As for the external crises, they are affected by the purchase prices of the project's materials and equipment needs.

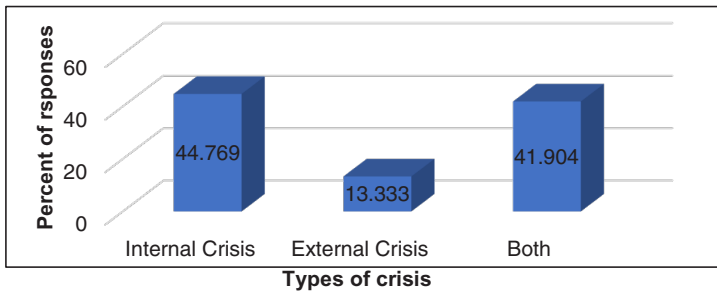


Figure 6: The Percentages of the subcontractor affected by financial.

In Figure 7, it is evident that the resource impact ratio is higher when the two crises occur together, i.e. (Internal financial crises and external financial crises) with (68,571), followed by the external crisis with (18) and the least influence is the internal crisis with (13,429) because the supplier is most often responsible for supplying the project with materials and equipment, which in turn is affected by external crises that a change currency rates or oil prices may cause. If the country's economy also depends on them, as in Iraq, this explains why the resource is affected by a very high rate of external crises.

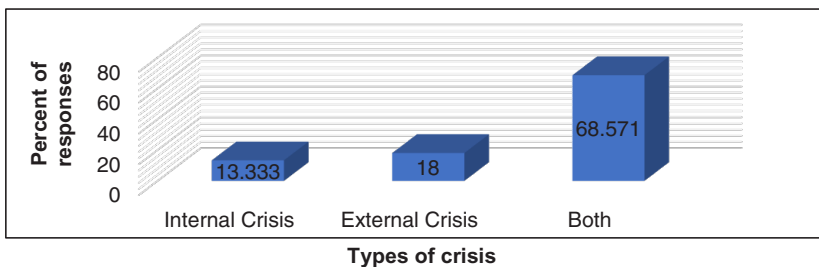


Figure 7: The percentages of the suppliers or supplied companies affected by financial crises.

c) Data analysis techniques that use math and statistics

The Statistical Package for Social Sciences (SPSS) type V26 and Microsoft Excel 2010 programs were used to conduct the analysis. The primary function of these programs is to calculate descriptive statistics using the information received in the manner described below:

- Perform the validity and reliability test on the questionnaire questions, which were used in data collection;
- Calculate the Relative Importance Index (RII) for ranking the answers.

2.2 Validation and stability tests of the questionnaire

Reliability and validity are the two most important characteristics of any measurement technique and are the cornerstones of any successful study.

2.2.1 Validity Test

The key measure of a concept's or conclusion's reliability in Orting's measurement is well-founded and probably correctly reflects reality [21]. The strength of a variety of distinct sorts of evidence is what determines validity. (e.g., face validity, construct validity, etc.)

2.2.2 Reliability Test

A reliable survey will produce the same results when administered more than once under the same circumstances. In other words, its results will be stable and won't change considerably when administered to the sample members multiple times during specific times [22]. A reliability test was conducted before data analysis to define the degree of internal consistency of the information gathered by the questionnaire survey. Cronbach's alpha (C α) was utilized to gauge internal consistency. Lee Cr Cronbach was rated in 1951 to offer a measure to evaluate whether the scale or testing is reliable and internally consistent or not. The number between (0–1) represents this measurement, in which the value of one point to that the scale is highly consistent and vice versa. The range of the items inside a testing measurement with a similar idea or construction is explained by internal consistency [23]. Table 4 displays the standard deviation of the alpha Cronbach coefficient along with its corresponding degree of reliability [23].

Table 4: Rule of Thumb for Interpreting Alpha Cronbach [23].

Cronbach's alpha	Classification of reliability
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Doubtful
$0.5 \leq \alpha < 0.6$	Low
$\alpha < 0.5$	Unacceptable

The statistical calculation is done by using Eq. (1) [24]:

$$C_{\alpha} = \frac{k}{k-1} \left(1 - \frac{\sum_{i=1}^k \sigma_y^2}{\sigma_x^2} \right) \tag{1}$$

Where C α is Cranach's Alpha, k is the number of factors, σ_x^2 is the variation in the respondents' overall scores and σ_y^2 is the variation of respondents' component i. Table 3 shows that Cronbach's alpha value for all questionnaire items equals (0.816). Such numbers show that the questionnaire has a high level of reliability.

Table 5: Cronbach's alpha for questionnaire form reliability statistics.

Cronbach's Alpha	N of Items
0.816	35

2.3 Relative Importance Index

The relative significance index (RII), the most accurate technique to measure the central tendency for ordinal data according to the equation below, was applied for both indicators and sorted accordingly to determine the relative weights of each/scale [25].

$$RII = \frac{\sum W}{A.N} \tag{2}$$

Where W is the weighting given to each factor, A is the highest weight, and N is the total number of respondents.

Table 6: Importance degree as measured by the relative relevance index.

RII Values	Importance level	
$0.8 \leq RII \leq 1$	High	H
$0.6 \leq RII \leq 0.8$	High- medium	H-M
$0.4 \leq RII \leq 0.6$	Medium	M
$0.2 \leq RII \leq 0.4$	Medium-low	M-L
$0 \leq RII \leq 0.2$	Low	L

The purpose of using the RII approach was to rank the key crisis management indicators according to the importance of each proposal considered by the participants (The research sample). This classification process can help to shortlist the key crisis management indicators of the proposed performance measurement model to simplify the process. The KPI (key performance indicator) categorized according to the RII is shown in Table 7. According to the analysis of the respondent's answers, the following four groups, shown in Tables 7 to 10, of factors and procedures significantly impacted the respondents' responses.

Table 7: Moody reasons for crises (RII of KPIs).

Paragraphs of the questionnaire	Mean	Standard Deviation	RII	Effect level
Financial crises impact the construction sector; what is the degree of that impact?	3.95	1.735	0.79	H-M
The financial crisis influence on constructing projects is evaluated based on the amount of reluctance in implementation or a complete halt ... with a percentage	4.053	1.804	0.81	H
The effect of stock prices on financial crises	3.680	1.515	0.736	H-M
The effect of the rise in currency exchange rates on financial crises	4.573	2.368	0.914	H
The Effect of Currency exchange rates on financial crises	4.322	2.188	0.864	H
The impact of financial instability on financial crises	3.840	1.661	0.768	H-M
The effect of force majeure on financial crises	4.040	1.776	0.808	H
The impact of the unemployment rate on financial crises	3.000	1.498	0.600	M
The influence of high oil prices on financial crises	4.600	2.391	0.920	H
The influence of lower oil prices on financial crises	4.000	1.932	0.800	H
The influence of the bankruptcy of some banks in financial crises	4.150	2.646	0.630	M
The effect of demanding deposits in financial crises	2.790	1.100	0.558	M
The impact of the internal financial crisis	3.230	1.373	0.645	M
The impact of the external financial crisis	4.520	1.930	0.904	H

Table 8: The importance of avoiding the crisis during project stages (RII of KPIs).

Stage	Mean	Standard Deviation	RII	Effect level
The effect of the pre-crisis phase	2.02	1.038	0.404	M
The impact of the crisis stage	1.98	0.909	0.396	M-L
Post-crisis impact	2.25	1.063	0.45	M

Table 9: Procedures used in contracting companies to reduce the crisis (RII of KPIs).

Factor	Mean	Standard Deviation	RII	Effect level
The impact of the intervention of the project parties in reducing the financial crisis	2.49	1.230	0.498	M
Could the contractor be the cause of the internal financial crises?	2.69	1.233	0.538	M
The impact of the cost and size of the project on the financial crisis	2.158	2.649	0.657	H-M
The effect of the implementation method in reducing the financial crisis	3.01	1.098	0.602	H-M
The role of neglecting the crisis in reducing financial crises	2.58	1.158	0.516	M
The role of stifling the crisis in reducing financial crises	3.509	1.342	0.701	H-M
The role of forming a crisis discussion committee in reducing financial crises	2.40	1.034	0.48	M
The role of isolating crisis-making forces in reducing financial crises	2.55	0.980	0.51	M
The role of quelling the crisis in reducing financial crises	2.23	1.040	0.446	M
The importance of teamwork in reducing the financial crisis	3.192	1.309	0.638	H-M
The importance of tactical reserve in reducing the financial crisis	2.21	0.840	0.442	M
The importance of democratic participation in reducing the financial crisis	2.28	0.956	0.456	M
The importance of containing the crisis in reducing the financial crisis	2.19	0.856	0.438	M
The importance of diverting the course of the crisis in reducing the financial crisis	2.18	0.841	0.436	M

Table 10: Measures taken by government agencies to reduce the crisis (The RII of KPIs).

Factor	Mean	Standard Deviation	RII	Effect level
Suspension or termination of work	3.59	1.660	0.718	H-M
Giving additional compensatory periods	4.533	1.771	0.907	H
Termination of contracts and payment of amounts owed to the contractor	3.15	1.087	0.630	H-M
prepaid payment mechanism	2.75	1.077	0.550	M
Elimination of late fines and insurance fees	4.465	1.924	0.893	H
Not calculating interest on loans for the period of suspension of work	4.05	1.747	0.810	H
Turning the project into an investment opportunity	3.85	1.868	0.770	H-M

Through the above results, some conclusions were reached, summarized in the following points:

- a) Analysis of the respondents' answers showed that the factors that have a high degree of impact on the occurrence of crises from the point of view of the respondents were arranged according to relative importance from highest to lowest (change in oil prices, change in currency exchange rates, the bankruptcy of banks, force majeure, and high unemployment rate), as shown in Table 7.
- b) As for the most important stage in which the financial crisis affecting construction projects can be addressed, according to the opinion of the respondents and the analysis used, the (post-crisis stage) is the highest among the stages with the highest RII ratio of (0.45), as shown in Table 8.
- c) As for the measures done by the contracting companies to avoid the crisis influence from top to bottom, they are (suffocating the crisis, the cost and size of the project, the importance of teamwork, the method of implementation, isolating the forces causing the crisis), these are followed by the rest of the least influential factors, according to the amount of RII, as shown in Table 9.
- d) As for the measures taken by government agencies to avoid the impact of the crisis from highest to lowest, they are (granting additional compensatory periods, canceling delay fines and insurance fees, not calculating bank interest during downtime periods, converting projects into investment opportunities, suspending or terminating work, terminating the contract and paying Contractor dues (prepayment mechanism), according to the amount of RII, as shown in Table 10.

3. CONCLUSIONS

The research included two stages: the initial stage involved personally interviewing experts who specialized in financial management, project management, and the contracting sector. An open questionnaire supported these interviews. The findings of such interviews provided a summary of the key elements causing financial crises in the contracting sector in Iraq, 35 elements.

- In order to identify the factors that have a substantial degree of effect on the crises' occurrence, the closed questionnaire was used as a second phase of the study. The Statistical Package for Social Sciences (SPSS V.22) program examined the participants' answers.
- The outcomes of the analysis of the respondents' answers showed that the factors that have a high degree of impact on the occurrence of crises from the point of view of the respondents were arranged according to the Relative Importance Index (RII) from highest to lowest as follows: (change in oil prices, change in currency exchange rates, the bankruptcy of banks, force majeure, and high unemployment rate). These factors ranged between (0.92-0.736) according to RII amount.
- The parties participating in the project are also affected by the financial crises that the country is exposed to, as each of them is affected by a certain percentage. It has been found that the project's owner experiences internal financial crises to a greater extent than the other crises, with an impact of (47.619); this is also true of the designer, whose impact is (55.24); and the subcontractor, whose impact is (44,769). If both crises—an internal crisis and an external crisis—occur simultaneously, the primary contractor is severely impacted since it will be impacted by (48,571) and the supplier will be impacted by (68,571).
- Regarding the most important stage in which the financial crisis affecting construction projects can be addressed, according to the analyses used, the (post-crisis stage) is the highest among the stages, with the highest percentage of (0.45).
- From the point of view of the researcher, one of the most important factors causing the occurrence of crises is the change in oil prices, which is the main source of the economy of Iraq, as well as the manipulation in currency rates and all factors have an impact on construction projects, and that all stages of the crisis are important to avoid its impact.

REFERENCES

- [1] Idris, I. Inclusive and sustained growth in Iraq. Helpdesk reports are commissioned by the UK Department for International Development and other Government departments, KD4. 2018
- [2] Westergaard-nielsen, n. And Neamtu, i. How are firms affected by the crisis and how do they react?. SSRN Electronic Journal. 2021; 6671(1): 21.
- [3] Azoutar A. Crisis Management. Polit Encycl. 2022;14(6):1–2.
- [4] Hamid, R. A. Role of leadership in merchandising. Al-Iman Press for Printing and Publishing. 2000; 08(4): 26. Available at: <https://www.textiletoday.com.bd/role-leadership-merchandising/>.
- [5] Barton, L. Crisis in organizations: Managing and communicating in the heat of chaos. South-Western Publishing Company Cincinnati, OH. 1993.
- [6] Valencia F, Laeven L. Systemic banking crises: A new database. IMF Work Pap. 2008;2008(224).
- [7] Institute (CFI) Corporate Finance. Real-world skills for finance professionals. 2022.
- [8] Manzoor A. Early Warning System for Financial Crises. 2016;1.
- [9] Farid Kurtul KR. The financial crisis as its concepts, causes, and repercussions on Arab countries. Alge RI. 2010; 8.
- [10] Hue, L. Cost Estimation Impact on Project Cost Management. Business Bliss Consultants FZE.2018. Available at: <https://ukdiss.com/examples/factors-affecting-cost-estimation.php>.
- [11] Dunkerley, J. Why do we need good construction cost management. Lorman Construction Resources.

2014. Available at: <https://www.lorman.com/resources/why-do-we-need-good-construction-cost-management-15750>.
- [12] Towey, D. Cost Management of Construction Projects. *Project Cost Management*. 2013; 2(1): 336. Available at: <http://books.google.com/books?id=4tXeO-BJeggC&pgis=1>.
- [13] Kim, S. J. and Kim, T. H. A study on the integrated construction cost management method with the reflection of the characteristics of public construction works in South Korea. 2015.
- [14] Muhammed AH. Value engineering and its applications in reconstruction projects in Iraq. *Univ Technol*. 1994;9(4):22.
- [15] ACEI. What is a Consulting Engineer Ireland, Assoc Consult Eng. 2022; Ireland.
- [16] Benarroche A. Contractor or Subcontractor What is the difference? *Univ Alicant Spain*. 2022;3(9):454.
- [17] Fewings P. Construction Project Management: An Integrated Approach. *Constr Proj Manag An Integr Approach*. 2013;1–624.
- [18] Alex Kun Chan, and C. Y.-L. H. School of Business, Macau University of Science and Technology, Centre for Applied Macroeconomic Analysis (CAMA). The Impact of Global Financial Crisis on Japan's Construction Industry. 2017; 23.
- [19] Olanrewaju O. I., Idiako J.E., Oyewobi, L.O., and Akanmu W. P Global Economic Recession: Causes and Effects on Nigeria Building Construction Industry. *Journal of Surveying, Construction & Property*. 2018; 9(1): 9–18. doi: 10.22452/jscp.vol9no1.2.
- [20] Oludolapo Ibrahim Olanrewaju. Nexus of Economic Recession and Building Construction Cost in Nigeria. *Quant 65, (Anniversary Ed 85-98), Surv*. 2019;4(2016).
- [21] Brains, C. et al. Empirical political analysis. Abingdon, UK: Routledge. 2011;105.
- [22] Ismaeel, Sanaa Mehdi Efficient Implementation of the Iraqi Public Sector Projects. *University of Baghdad Journal*. 2020; 42(7): 13–27.
- [23] Tavakol, M. and Dennick, R. Making sense of Cronbach's alpha. *International journal of medical education*. 2011; 2(1): 53.
- [24] Rao, P. B. and Joseph Camron, C. Causes of delays in construction projects-A case study. *International Journal of Current Research*. 2014; 6(6): 7219–7222.
- [25] Rooshdi, R. R. M. et al. Relative importance index of sustainable design and construction activities criteria for green highway. *Chemical Engineering Transactions*. 2018; 63(1): 151–156.