

## The Financial Crisis Affecting the Construction Sector

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### ABSTRACT

Today's world is witnessing continuous development, particularly in the construction sector, which is meeting the rising population and their need for essential facilities; this is one of the reasons why construction is witnessing such development. Different crises significantly affect this sector, including the financial crisis in different countries. This paper identifies the financial crises, their categories, and the reasons for appearing them. Inflation, currency exchange fluctuations, and the drop in global oil prices are the most important reasons for the emergence of external financial crises, especially in Iraq, which considers oil an important economic resource for its budget. The unexpected global financial events led to an economic collapse that affected the construction sector. Many large projects in Iraq have been put on hold as a result of these conditions due to the country's lack of resources to address these crises. This paper aims to study and identify potential crises and potential responses and mitigation strategies for each crisis stage.

**Keywords:** Financial crisis, Contractor, Construction sector, Effects of the crisis, Procedures.

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## إدارة الأزمة المالية والحد من آثارها في قطاع البناء

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### الخلاصة

يشهد العالم اليوم تطوراً مستمراً، لا سيما في قطاع الإنشاء، والذي يلبي ارتفاع عدد السكان وحاجتهم إلى المرافق الأساسية، وهذا أحد الأسباب التي تجعل الإنشاء يشهد مثل هذا التطور. يتأثر هذا القطاع بشكل كبير بالأزمات المختلفة، أحدها الأزمة المالية التي تعاني منها الدول المختلفة. حددت هذه الورقة الأزمات المالية ومقتنياتها وأسباب توقعها. يكاد يكون التضخم وتقلبات أسعار الصرف وانخفاض أسعار النفط العالمية من أهم أسباب ظهور الأزمات المالية الخارجية خاصة في العراق الذي يعتبر النفط من الموارد الاقتصادية المهمة لميزانيته، والأحداث المالية العالمية غير المتوقعة هي أدى إلى انهيار اقتصادي أثر على قطاع البناء بشكل خاص. وقد تم تجميد العديد من المشاريع الكبيرة في العراق، نتيجة هذه الظروف بسبب افتقار البلاد إلى الموارد اللازمة لمواجهة هذه الأزمات. تهدف هذه الورقة إلى دراسة وتحديد الأزمات المحتملة، فضلاً عن الاستجابات المحتملة واستراتيجيات التخفيف لكل مرحلة من مراحل الأزمة.

**الكلمات المفتاحية:** الأزمة المالية، المقاول، قطاع المقاولات، اثار الازمة، الاجراءات

### 1. INTRODUCTION

The construction industry has always been one of the most important contributors to national economies around the world, regardless of whether those economies are considered developed or not (Barca, 2012; Inglehart, 2016; Mamdouh, 2018). Construction of roads, bridges, tunnels, airports, ports, sewage treatment plants, water treatment plants and buildings (Uddin et al., 2013). It continues to carry out business in the construction sector and the global market for construction contracts, especially for infrastructure infrastructure projects, including these construction contracts that serve as the basis for model documentation, and construction technology requires the participation of contractors, technicians, craftsmen, workers and industrialists., and suppliers of efforts, and all their efforts are intertwined in some way) (Winch, 2000). It will take a long time to complete. Then you encounter unexpected problems and circumstances that diversify or complete action, change strategic objectives, or change materials used. One of the most important aspects of these circumstances is the possibility that the employee or labor will be exposed to a financial crisis as a direct result of some factors, for example.

Iraq was exposed to such a crisis, which affected the construction sector and eventually led to the suspension of those projects (Azotar, 2022). This study aims to find hypotheses and attempts that can contribute to reducing the impact of these crises and achieving the optimal level in the construction sector in Iraq and to identify the causes of financial crises, whether the nature of these crises, the challenges they pose, the available treatment methods, the



types of crises that occur, and their effects (**Sumaya, 2018**). The economic conditions of the crisis greatly affect the construction industry,

The majority of the time, when there is a financial crisis, projects have to be put on hold. Because of this, the researcher decided to focus his investigation on the construction industry in Iraq. The following factors influenced his decision:

- a. Selecting construction projects in the public sector.
- b. Studying time on the choice of projects between 2018 and 2020.

This study aims to identify internal or external financial crises and their impact on the construction sector in Iraq. Study theories or hypotheses and attempts that can contribute to reducing the impact of these crises. To achieve the optimal level in the contracting sector in Iraq, the following must be taken into account

- 1- Conduct research into the basic factors that contribute to financial crises.
- 2- Determine the impact of these crises on the construction industry.
- 3- Maximizing the efficiency with which construction projects are implemented continuously.
- 4- Make suggestions or put forward potential solutions to the concerned departments as a means of contributing to resolving crises.

## 2. DEFINITION OF CRISIS

The Crisis is defined as a sudden change from the usual behavior, meaning a string of encounters ensue, causing a sudden scenario to occur that poses an immediate threat to the state's core ideals or interests, necessitating the need to make decision-making quickly under time constraints and unpredictable circumstances, so that the crisis does not explode. (**Laurence, 1993; Kuligowski, 2016; Boin, 2021**) defect that the material has an impact on the entire system and undermines the fundamental presumptions that this system is built on. The crisis is often characteristic of the elements of suddenness, Time, lack of, and lack of information, in addition to the physical and human danger factors (**Alchon, 2014**). The term "crisis" refers to a critical and decisive moment in relation to the fate of the administrative entity that has been afflicted by the condition that is causing the crisis. The problem here is that it is very difficult for the person making the decision, which causes him to be very confused. Any decision made within the context of the circle of uncertainty, lack of knowledge, lack of data and information, confusion of causes with results, and successive breakdowns contributes to an increase in the degree of unknown about the development of the crisis in an unknown and escalating light regarding the prospects for the future of the crisis and the crisis itself (**Fahad, 1999; Hinchliffe, 2017**).

A crisis is a state of tension and a turning point that necessitates a decision that results in new situations that can be either negative or positive and affect the relevant entities (**Faulkner, 2013; Schaufeli, 2017**).

A crisis is a period, event, or point. This sudden shift can occur at any time, leading to negative effects, cessation of activity, death, an increase in the unknown, and the inability to make a decision (**Weick, 2015; Stawicki, 2020**).

- Many factors, including natural disasters, human error, and technological failure, can cause a crisis.

Many different types of crises can occur in the workplace, such as financial, technological, personnel, organizational, natural, confrontation, hate, and man-made disasters.



## 2.1 Crisis Characteristics

The crisis has a set of characteristics that must be available in the crisis it faces in the administrative entity, and the most important of these characteristics are.

- 1-The sudden surprise, which usually leads to a state of confusion and paralysis, may be accompanied by a degree of tension and panic as events follow and follow (**Sharpless, 2015**)
- 2-The imminent and growing danger that threatens lives and property, the continuity of services, and the work of public utilities cause tension and turmoil in society and official and unofficial agencies and the spread of rumors that increase pressure on decision-making centers (**Wilensky, 2015**)
- 3-The pressure of the time element and the value of time calculated in seconds for the face-to-face decision-making process of an increasingly complex and deteriorating situation (**Owen-Smith, 2018**)
- 4-The uncertain extent that is difficult to estimate or determine for the end of the crisis, given its successive repercussions, increases tension and makes the process of planning, mobilizing, and mobilizing capabilities complex and challenging (**Madhav, 2018**).

## 2.2 The Concept of Financial Crisis

It is frequently used in certain financial circumstances, such as when financial institutions or assets significantly drop in value. A financial crisis can also refer to other events, such as the crash of the stock market or the burst of a financial bubble. These events have occurred in recent history (**Salah, 2021**). A few broad categories can be used to classify the various manifestations of a financial crisis. Differentiate between two distinct varieties of crises by using purely quantitative definitions. These definitions, however, are highly dependent on qualitative and judgmental analysis to a significant degree (**Wherry and Schor, 2015**). It is an imbalance between the factors of production and consumption, which leads to a disturbance in the measures of economic balance in the region in which this occurs or a group of regions due to disturbances or problems in the various systems. The crisis occurs through a total or partial imbalance in the economic sector, such as a clear decrease in the price of the local currency of the country against international and foreign currencies (**Mjachina, 2018; Seif, 2020**).

The financial crisis can be divided into two groups as follows

- The First Group
  - A. Surprise
  - B. Coin
- The Second Group
  - A. Debt
  - B. Banking Crises

There are also a variety of other financial crises, some related to unfavorable debt dynamics or banking system turmoil, such as the following.

- The Domestic Public Debt Crisis :Such a crisis occurs when a nation fails to pay its domestic financial obligations in full through default, inflation, de-devotion of its domestic currency, or the use of some form of financial repression in a systemic banking crisis.
- Foreign Debt Crisis :Such a crisis occurs when the country cannot or unwillingly provide for its foreign debts.
- Both :It combines the characteristics of the two previous types.

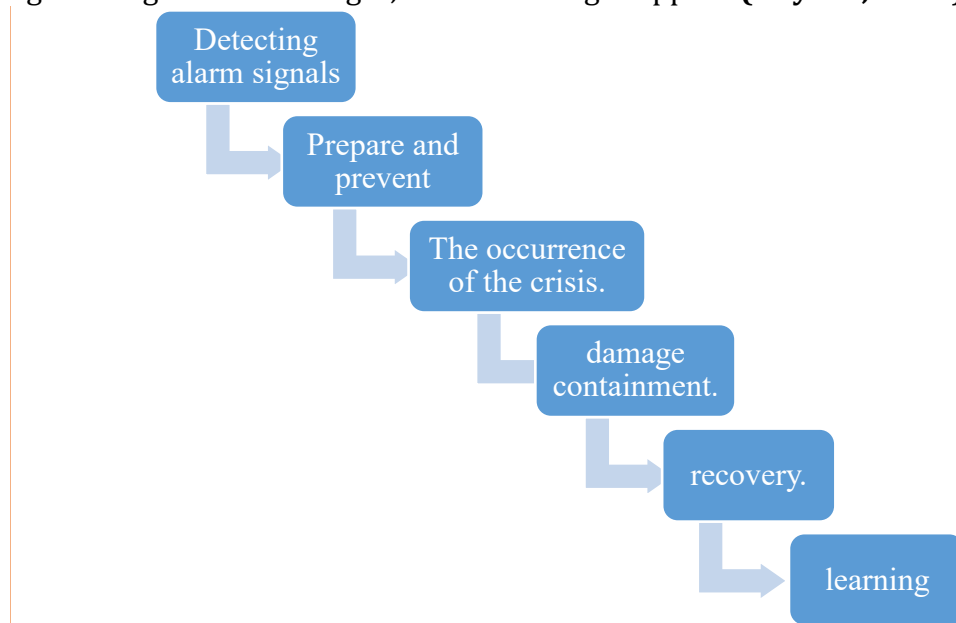
Other types of possibilities: The division of this type of crisis depends on analytical reasons and empirical determinants, and the most important of these types (Currency, Sudden Stops, and Banking Crises) **(Cerutti, 2015)**.

There are a lot of different explanations that have been put forward for why financial crises occur. They differ in terms of the type of these crises, their severity, impact, time duration, the prices of some assets, or because of a currency crisis and the collapse of the exchange rate, which results in several adverse effects on the development path of the national economy. Moreover, they differ in terms of the prices of some assets. The following are some additional factors that may contribute to financial crises:

- Debt Expansion
- Usury
- Declaring Bankruptcy
- Spending Diversification
- Corruption
- Phantom sales (sales without dealing).

### 3. STAGES OF FINANCIAL CRISIS MANAGEMENT

Crises go through six basic stages, and these stages appear **(Dayour, 2020)**.



**Figure 1.** The main stages of the crisis

#### 3.1 Crisis Management in Construction Projects

The goal of crisis management is recognizing, reacting, organizing, confronting, and resolving the crisis in a dynamic and ongoing process involving both proactive and reactive activities denotes a specific management approach that requires a critical choice or reaction to be made in a short amount of time to improve pre-crisis foreseeing **(Jia, 2020; Li, 2021)**, in-crisis rescue, and post-crisis recovery abilities. Crisis management, like risk management, is a preventative treatment system in place before unforeseen occurrences that threaten



public lives and property, social order, and public security (Cao, 2018; Steen, 2020), requiring managers to take necessary actions to reduce losses. The goal of crisis management is not to completely prevent crises, but to limit bad consequences, have rapid and high-quality responses, and be as prepared as possible for all sorts of crises. Because the initial investment expenditures in building projects are very large, a crisis can readily hit construction businesses, resulting in significant financial losses (Uchehara, 2020). As a result, construction businesses must continually assess their internal and external environments, recognize early warning signs to be prepared for crises, and fight effectively during a crisis to ensure their existence (Smith, 2012; Labaka, 2016). Companies that can successfully manage and emerge from a crisis with zero or minimal harm may have strategic advantages over current competitors. A dozen research articles on crisis management are in the construction management literature. However, it is argued that these studies were far from investigating the management practices of construction firms in the crisis process. The specific view is also supported by those who mention that the literature regarding economic crisis in construction is even more limited (Fadhil, 2022).

### 3.2 Methodology

The methodology used in the field survey research and data collection related to the subject of the study included two phases. The first phase included conducting personal interviews with experts specialized in the field of project management through an open questionnaire. The second phase included the closed-ended questionnaire as shown in **Table 1**. A closed-ended questionnaire was designed by reviewing the literature and interviewing experts to identify the most important ones. It was distributed in two ways, electronically and manually.

It was collected by the researcher, and then the results were examined using the SPSS program (Statistical Software Package for Social Sciences) V26. The results of data analysis and statistical tests obtained by the respondents (Statistical Package for Social Sciences) Q26 were also discussed. The results of data analysis and statistical tests obtained by the respondents were also discussed.

**Table 1.** Structure of a Survey

Sections	Objectives
First axis	General information about the respondents
Second axis	The impact of financial crises on the construction sector
2-1	The degree of impact of the financial crisis on the construction sector.
2-2	Causes of internal financial crises.
2-3	Causes of external financial crises.
Third axis	Ways to deal with, reduce or eliminate financial crises
3-1	Stages of the financial crisis
3-2	The effect of the intervention of one of the parties to the project to get rid of the crisis.
Fourth axis	personal interviews
4-1	The contractor's role is to eliminate the impact of the crisis.
4-2	The role of the employer in reducing the impact of the crisis.
4-3	Legal or technical procedures required in the implementation of the project causing crises.
4-4	Solutions provided by government agencies to reduce the impact of crises.



The survey targets engineers in the public and private sectors working in building and construction activities and employees of some ministries specialized in the subject of the research (Ministry of Construction, Housing and Public Municipalities, Building Contracting Companies, Ministry of Oil, Ministry of Industry, Ministry of Finance, Ministry of Planning). The results shown in the following figures have been obtained by relying on neural perturbation techniques and using the MATLAB program.

### 3.3 Mathematical and Statistical Methods Used in Data Analysis

The Statistical Package for Social Sciences (SPSS) V26 was used for the analysis. The primary goal of these programs is to calculate descriptive statistics from the data collected data shown in **Table 2**. Before the data processing, a reliability test was conducted to ensure that the gathered data from a questionnaire survey was internally consistent. Cronbach's coefficient alpha ( $C\alpha$ ) was used to determine inner consistency. Cronbach's Alpha is a coefficient that ranges from 0 to 1, and it calculates the reliability ratio by approximating the correlation between averages of rating and internal constancy for each survey component (**Hamad and Ibrahim, 2020**). According to the findings, Cronbach's Alpha coefficient for the questionnaire was 0.861. These values indicate the excellent reliability of the questionnaire.

**Table 2.** The General Information of the Experts

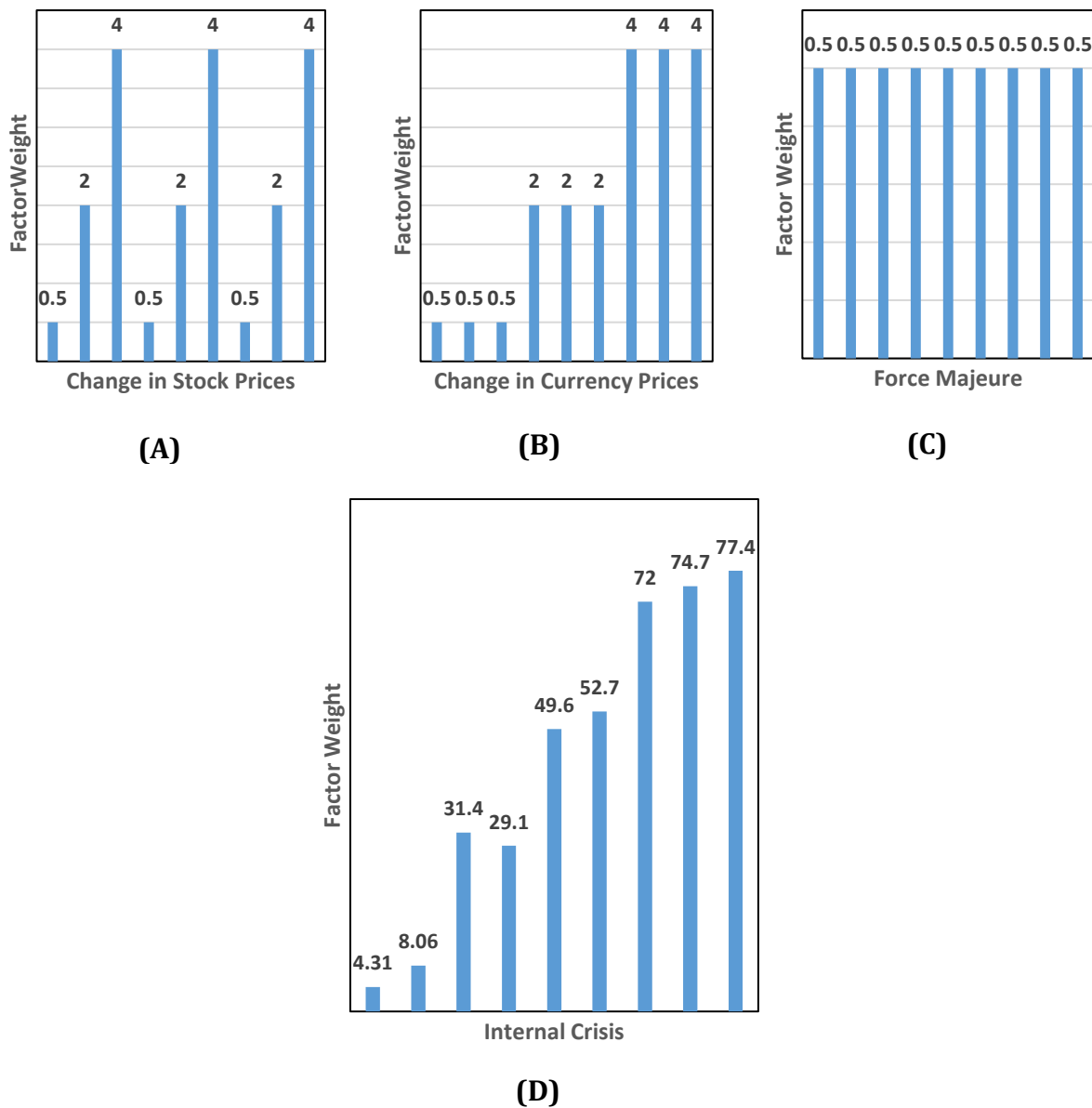
Interviewed Experts in the Survey Sample							
No	Sector of Work	Years of Experience	No	Academic Degree	No	Position	No
1	Public	10-15years	9	B.Sc.	6	Project managers	6
2		15-20years	4	M.Sc.	9	academics	5
3		>20 years	7	Ph.D.	5	financial experts	9
Total of those interviewed				20			

## 4. RESULTS AND DISCUSSION

Two types of financial crises occur as a result of one or more of the following reasons. The first type is the internal financial crisis, which occurs as a result of (changes in stock prices, changes in currency rates, and force majeure). The second type is the external financial crisis that occurs as a result of (high Unemployment rate, change in oil prices, bankruptcy and demand for deposits) (**Benigno, 2020**) and an explanation of the extent of the impact of each of them as shown in **Figs. 2 to 7** and how to treat them.

**Fig. 2** shows the most important factors causing internal financial crises, represented in (a) changes in stock prices, (b) changes in currency rates, (c) force majeure).

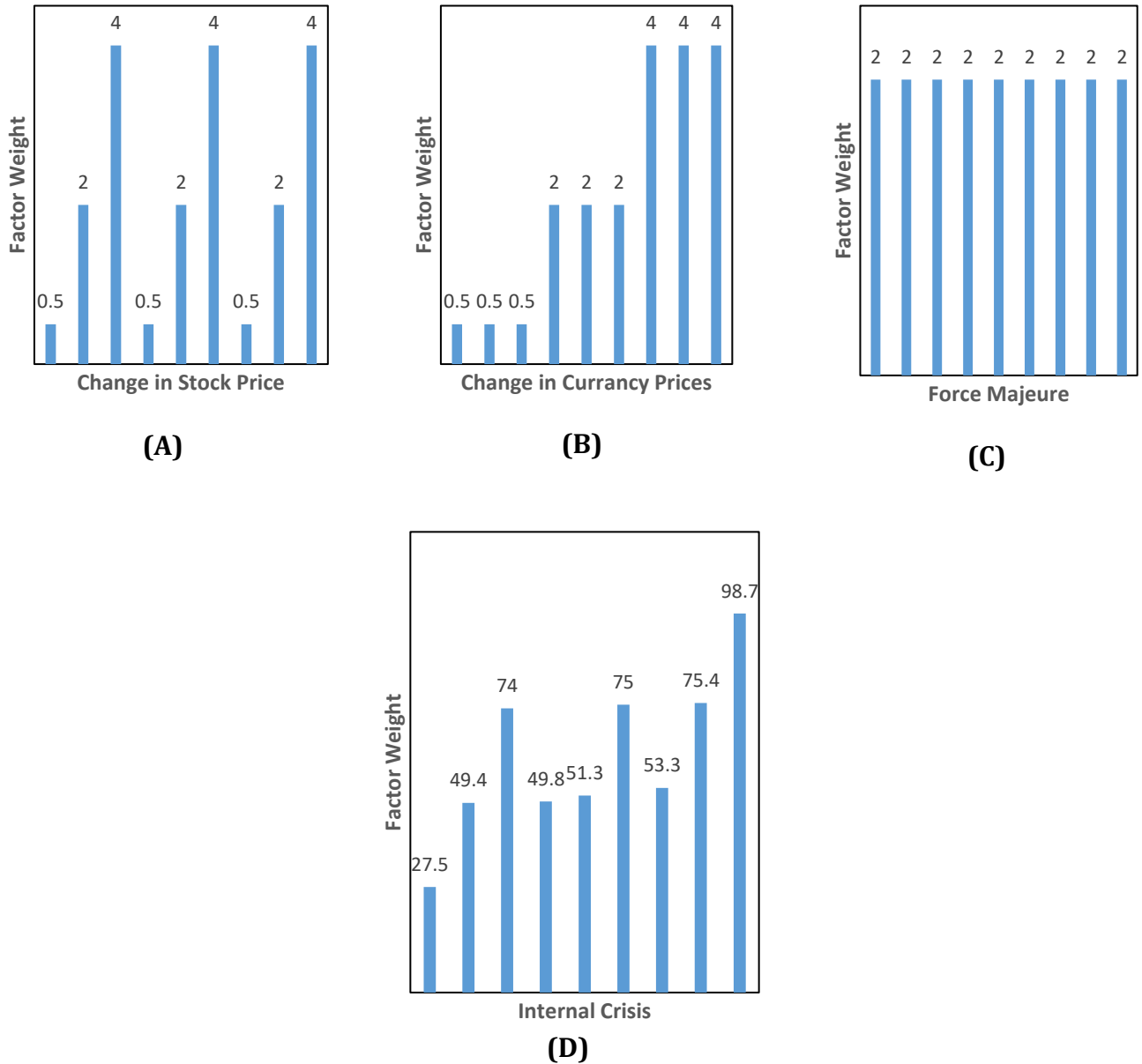
Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors. In the above figure, a constant and weak effect of force majeure is assumed, i.e. at an amount of (0.5), and through that it was found that this factor has little effect on the crisis at this stage. As for the change in currency rates, it will be more influential, due to the increase in the amount of the crisis, by increasing its impact. The most influential factor is the change in stock prices.



**Figure 2.** Factors causing internal financial crises  
(At the amount of force majeure effect (0.5))

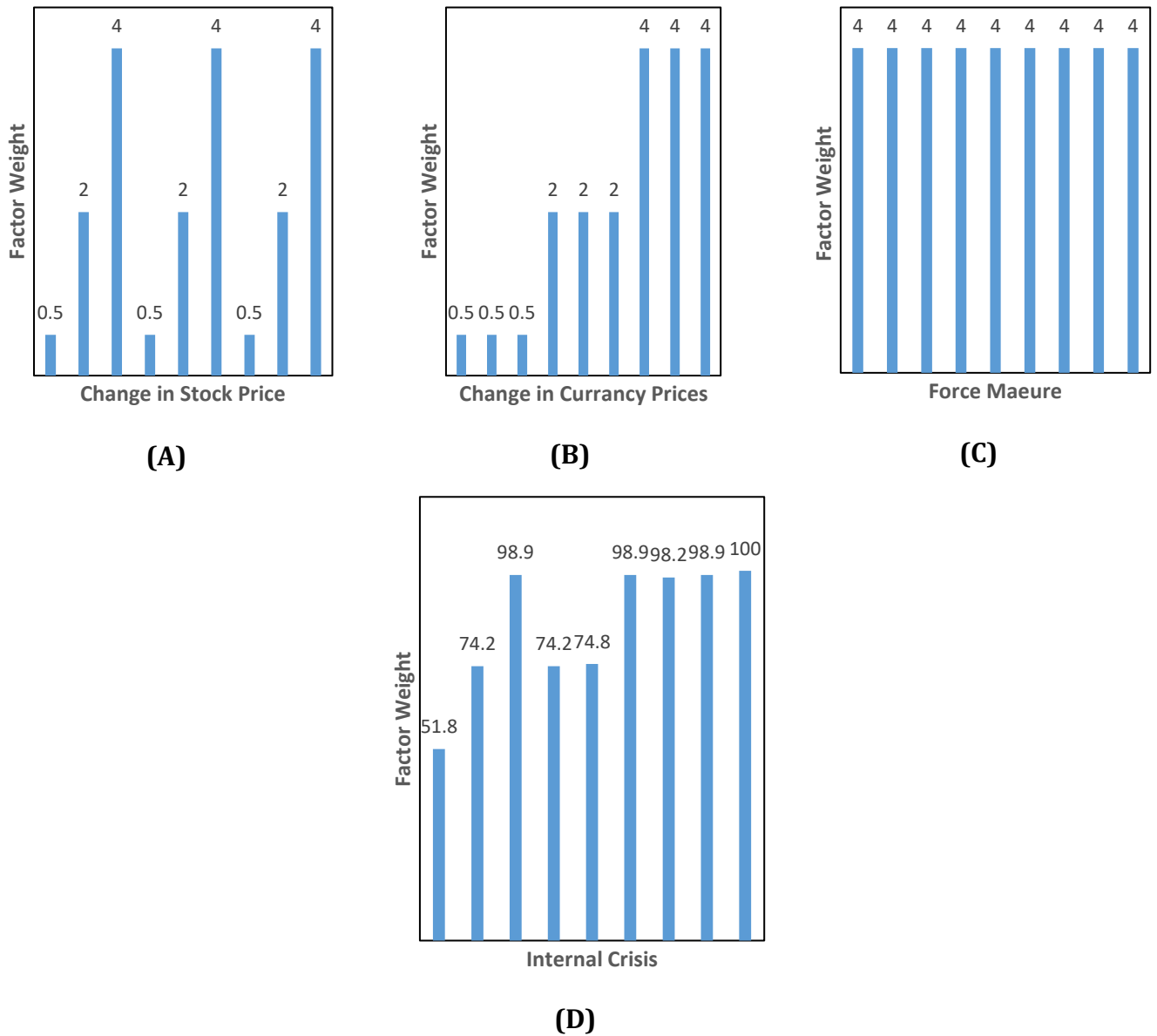
**Fig. 3** shows the most important factors causing internal financial crises, represented in (a) changes in stock prices, (b) changes in currency rates, (c) force majeure). Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors, in the above figure it is assumed that the effect of a medium and constant force majeure, that is, at the amount of (2), and through that it was found that this factor has little effect on the crisis at this stage. As for the change in currency rates, it will be more influential, due to the increase in the amount of the crisis, by increasing its impact. The most influential factor is the change in stock prices.





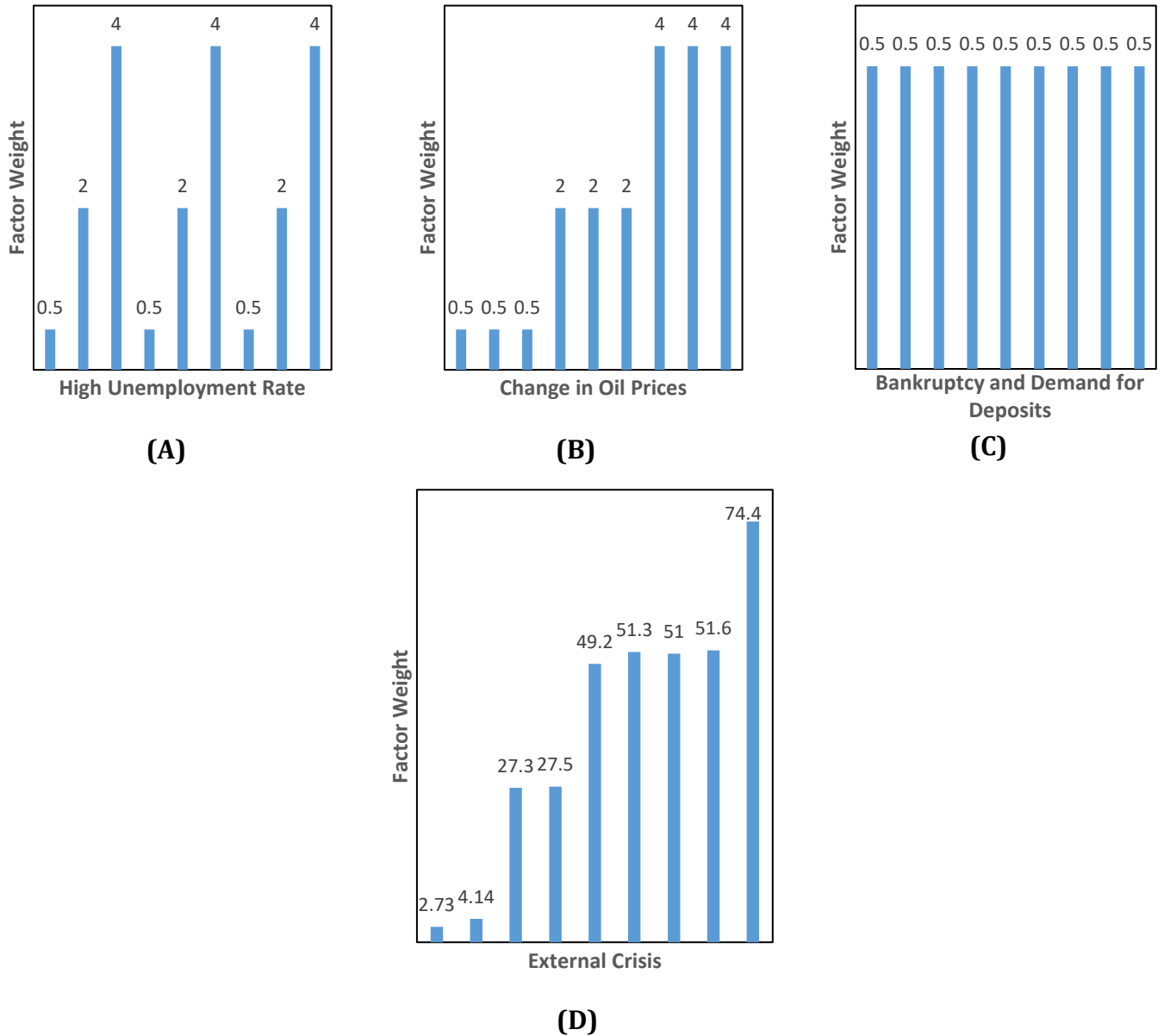
**Figure 3.** Factors causing internal financial crises (At the amount of force majeure effect (2))

**Fig. 4** shows the most important factors causing internal financial crises, represented in (a) changes in stock prices, (b) changes in currency rates, (c) force majeure). Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors, in the above figure it is assumed that the effect of a medium and constant force majeure, that is, at (2), and through that it was found that this factor has a strong impact on the crisis at this stage, as its amount increased significantly with the increase of its impact. The change in currency rates and the change in stock prices have less effect.



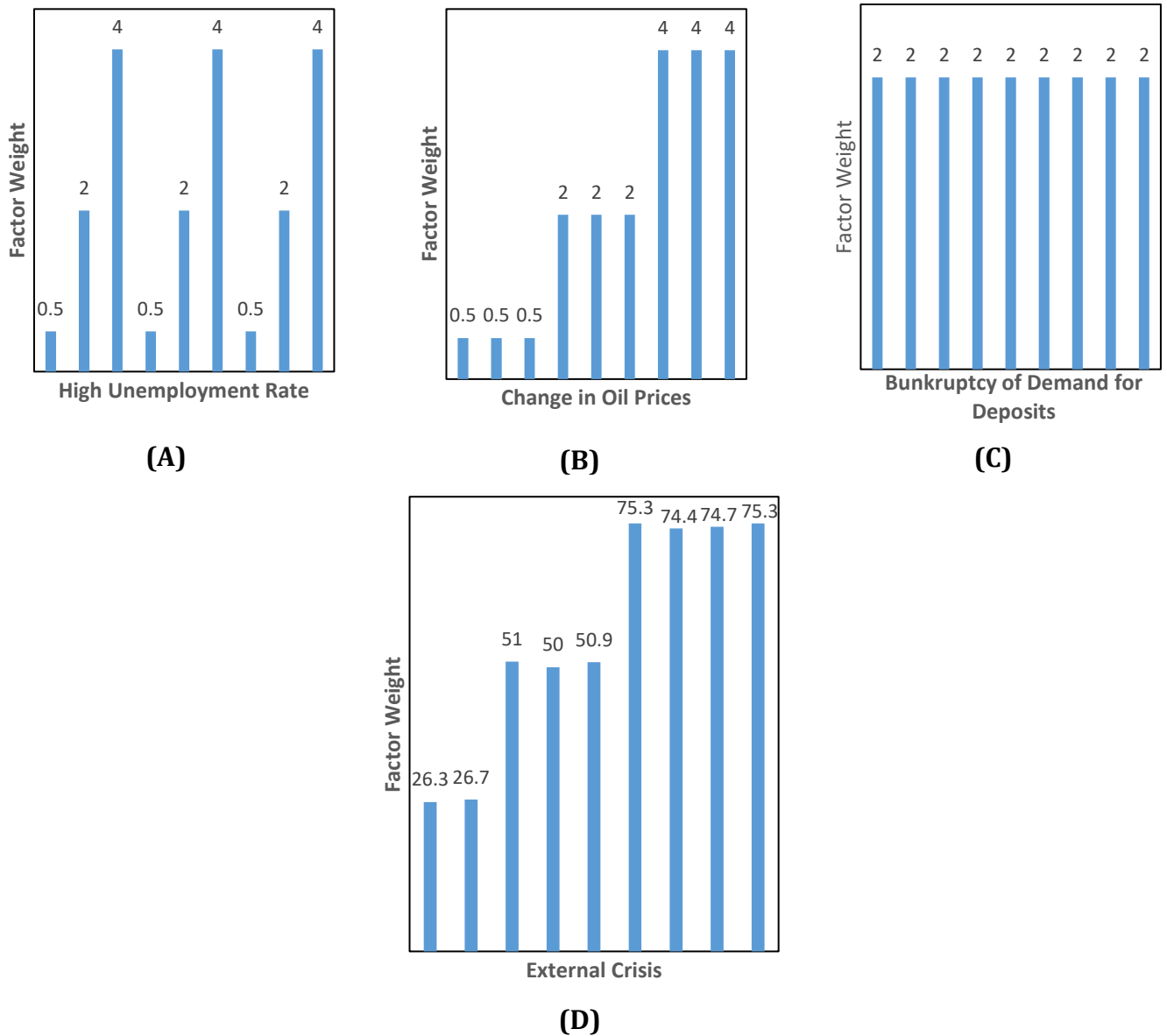
**Figure 4.** Factors Causing Internal Financial Crises (At the amount of force majeure effect (4))

**Fig. 5** explains the most important factors causing external financial crises, represented in (a) the high rate of unemployment, (b) the change in oil prices, (c) the bankruptcy of banks and the demand for deposits). Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors, in the above figure, it is assumed that the impact of bankruptcy and the demand for deposits has a weak and constant effect, that is, by (0.5), and through that it was found that this factor has a small impact on the crisis at this stage. As for the change in the unemployment rate, it will be more influential, due to the increase in the size of the crisis, through the increase in its impact. As for the factor that is considered the most influential, it is the change in oil prices, by observing the clear and significant impact on the amount of the crisis with the change of its impact.



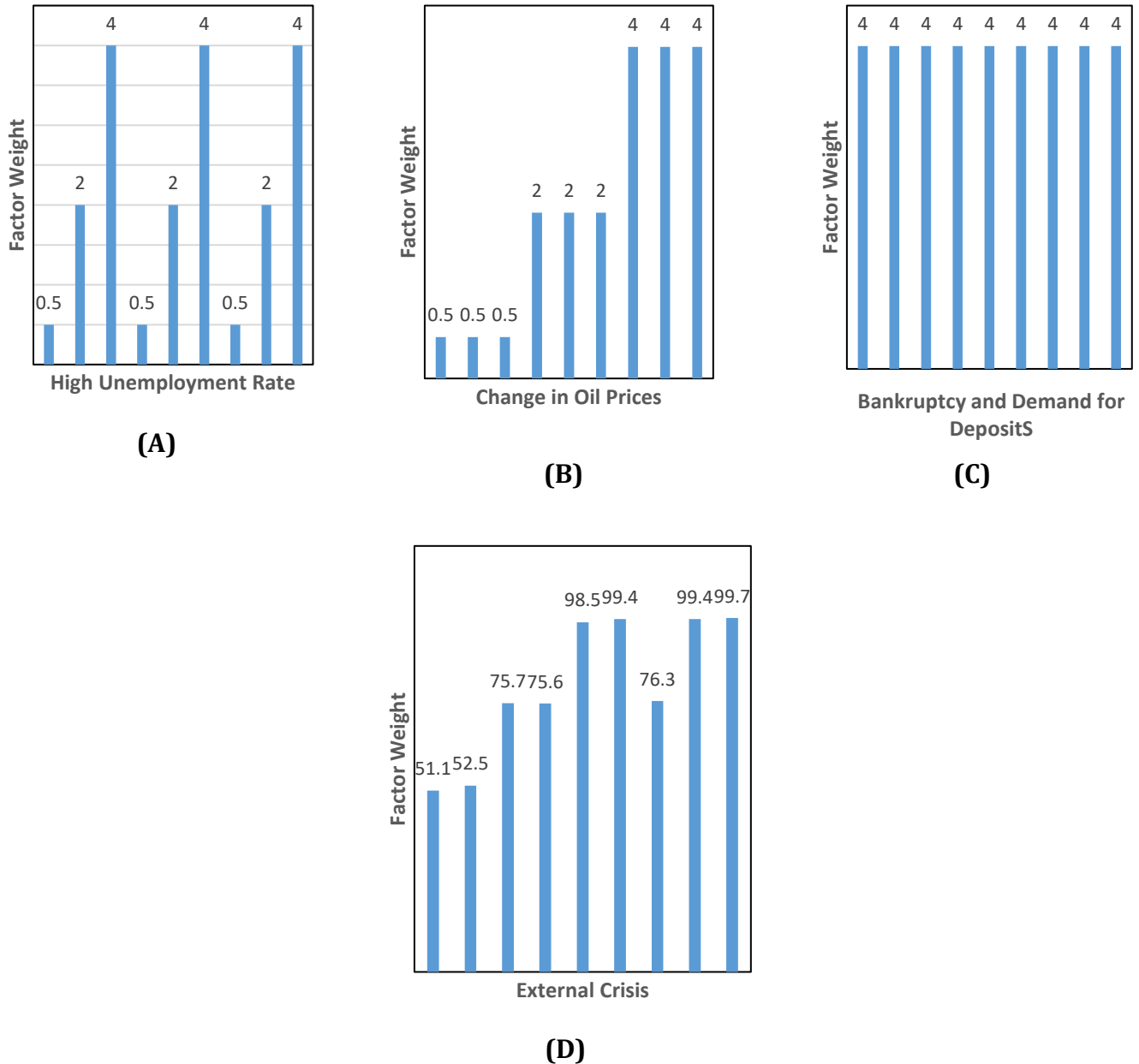
**Figure 5.** Factors Causing External Financial Crises (When Affected by the Bankruptcy of Banks and Demand for Deposits (0.5))

**Fig. 6** explains the most important factors causing external financial crises, represented in (a) the high rate of unemployment, (b) the change in oil prices, (c) the bankruptcy of banks and the demand for deposits). Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors, in the figure above, it is assumed that the effect of bankruptcy and the demand for deposits has a medium and constant effect, that is, by (2), and through that it was found that this factor has little effect on the crisis at this stage. As for the change in the unemployment rate, it will be more influential than the previous factor, due to the increase in the size of the crisis, when its impact increases. As for the factor that is considered the most influential, it is the change in oil prices, by observing the clear and significant impact on the amount of the crisis with the change of its impact.



**Figure 6.** Factors Causing External Financial Crises  
(When Affected by the Bankruptcy of Banks and Demand for Deposits (2))

**Fig. 7** explains the most important factors causing external financial crises, represented in (a) the high rate of unemployment, (b) the change in oil prices, (c) the bankruptcy of banks and the demand for deposits). Where it shows how the amount of the financial crisis changes with the change in the amount of influence of any of the factors, in the figure above, it is assumed that the effect of bankruptcy and the demand for deposits is the largest and constant effect, i.e. by (4) and through that it was found that this factor has little effect on the crisis at this stage. As for the change in the unemployment rate, it will be more influential than the previous factor, due to the increase in the size of the crisis, when its impact increases. As for the factor that is considered the most influential, it is the change in oil prices, by observing the clear and significant impact on the amount of the crisis with the change of its impact.



**Figure 7.** Factors Causing External Financial Crises (When Affected by the Bankruptcy of Banks and Demand for Deposits (4))

#### 4 CONCLUSIONS

The purpose of the study is to develop the management of the financial crises that the construction industry suffers from and to identify the most important types of financial crises affecting the construction sector, which are divided into two types: internal financial crises, which occur due to one of the factors, which are classified from the most influential to the least, according to the analyzes used (force majeure, change stock prices and changes in currency rates). The second type is the external financial crisis, which occurs due to some factors, the most important of which have an impact from high to low (change in oil prices, the bankruptcy of banks, demand for deposits, and high unemployment rate).



In addition to developing direct communication and recommendations that will help find the most effective ways to reduce the impact of the crisis. This is achieved through the use of in-depth expert reviews as well as interviews with subject matter experts working in the construction industry in Iraq. And it is dealt with by adopting a resource other than oil, as well as activating the role of the private sector to reduce the unemployment rate and increase the Central Bank's cash reserves to avoid the bankruptcy of banks.

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### Credit Authorship Contribution Statement

Zainab A. Mahdi: writing – review and editing, writing – original draft, validation, software, methodology. Ibrahim Fadhel: supervision, review and editing, validation, methodology.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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