



Presentation of an Operational Budgeting Model in Crisis Management

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Abstract

Important decisions are always the imperatives of the crisis in the first moments. The speed of crisis control is higher, whatever the speed of decision-making be more by crisis management. Since each country is exposed to different crises, and Iran is also one of these countries, the objective of this investigation is to design a budgeting model for crisis management. In the present study, a questionnaire with 37 items was designed based on the research background to identify crisis management and operational budgeting criteria. The statistical population of this study has been developed from 100 industry experts and professors in crisis management and 100 experts in operational budgeting. The final population of the research is used to determine the credibility of the combined model, including all ministries and government agencies in the context of budgeting and crisis management; this population consists of approximately 250 specialists selected from 85 specialists for exploratory factor analysis by principal components analysis and factor ranking. Also, 150 people are selected for the final fitting of the model. Smart Partial Least Squares (PLS) structural equation software was used in this research. The results revealed that the severity of the effect of pre-crisis and post-crisis criteria was respectively calculated to be 0.496 and 0.416 on operational budgeting, and 0.328, and the test probability statistic was higher than the critical value t at the error level of 5% namely 1.96. Consequently, all three criteria possess a positive and significant effect on operational budgeting with 95% confidence. By studying the fitting of the model, it was determined that the subscription indicators and the redundancy indicator are positive and acceptable, and the GOF indicator was obtained to be 0.486, which is an important indicator and presents the overall validity of the model.

Keywords: Budget, Crisis, Crisis Management, Operational Budgeting.

Introduction

The crisis management process is the planning, performance, and enforcement actions undertaken by governmental, non-

governmental and public authorities on the identification and reduction of risk and managing the prevention, preparedness, coping, and rehabilitation of damaged areas (Coombs, 2014). Existing literature often

sees crises as a major threat to the organization, which is defined by insufficient resources to deal with the threat, low response time, high levels of uncertainty, or incompatibility. Previous research has shown that when situations are new and organizational decision-makers have a limited understanding of the consequences, with organizations considering planning as a mechanism to reduce uncertainty and therefore likely emphasizing it and looking for different scenarios (Becker Matthias Sebastian & Mahlendorf Utz Schäffer Mario, 2016).

The process attempts to comprehensively integrate and coordinate the existing tools of crisis by observing and analyzing the pre-indicators, and also analyzing the available information resources; if they become available, they will be prepared to instantly confront the financial and life losses required to return them to normal conditions. In this case, crisis management and other financial resources should be evaluated and identified to manage the crisis to be employed in crisis management projects (Ziek, 2015).

Companies use a range of activities and tools to support planning, control, and decision-making to increase organizational performance and competitive advantage over their competitors. In this context, management accounting systems and operations identification, collection, measurement, classification, and information reporting are used to achieve these goals. In particular, since the 1920s, budgeting has been widely used for planning and control in organizations, showing revenues and expenditures for the next period based on

information and forecasts (Tiomatsu José Carlos et al., 2018). The budget plays an important role in business management and is related to management principles. In the current definition of business management, there are five main functions: planning, organization, staffing, guidance, and control. Be a manager, plan. This plan is guided by the organization, staff, and performance. To control operations, management must determine appropriate methods for observing and reporting and comparing actual results with expected results. In short, management must have appropriate reports available to make decisions about resource allocation to achieve organizational goals. Budgeting is one of the main tools of management for the efficient allocation of resources (Kwarteng, 2018).

Budgeting considers the resource allocation process restricted to unlimited needs. The total effort made on budgeting and allocating resources is to maximize the usage of resources that are usually not adequate and so-called "scarce" economically. Consequently, it is necessary to achieve "desirable goals" (Zengin & Serdar, 2010). Operational budgeting is a significant component of strong corporate governance that can be considered as a controlling tool, which limits the management incentives to manipulate profits (Ebrahim, 2010). Primary budgeting studies have generally focused on further linking traditional financial controls, such as annual budgets in stable environments and cost strategies. However, recent research has provided a way to continue to link annual budgets in turbulent environments that have not focused on cost



strategies. New studies have sought this question. To what extent can a more advanced form of budgeting be related to organizational variables? Given the current situation, two important prerequisites for the development of budget forms need to be considered, which is the relationship between uncertainty and strategy (Bhimani et al., 2017).

Although the operational budgeting was applied on the agenda of the government and particularly on the country's management and planning organization since 2002, the survey reveals that the current budget trend in most government agencies is based on traditional budgeting and distributes the credits by allocating a small amount to the micro-data.

The present method of budgeting is in a way that government agencies are generally allocating funds on the same basis regardless of the organizational product and only based on the pattern of past allocations and bargaining power, despite performance indicators. The limitations of long-term planning, the difficulty of monitoring, non-operational and non-transparent, lack of accountability, and the lack of information system on budgeting performance and consequently the lack of evaluation of the efficiency and effectiveness of credit programs, are of the weaknesses of aforementioned budgeting system which has imposed considerable costs on the country (Mahdavi, 2009).

In Iran, the budgeting system undergoes several problems. One of the central problems is the lack of a precise definition of the relationship between the annual budget and the development plan objectives, the

implementation of the incremental cost and the retrospective budget without attention to the responsibilities of devices, the application of personal tastes in determining the ceiling of the credits of executive agencies, unrealistic assessments of the cost of projects, the political allocation of resources, the lack of awareness of people about the purposes and the economic and social consequences and also the effectiveness of the budget on political tastes (Nili, 2006).

Given that the most important benefits of operational budgeting are the transparency and redesign of programs focusing on improvements, higher accountability, assisting in rationalize allocations by applying performance information as the basis for decision-making and aligning government expenses with overall purposes, and also the anticipation that the budgeting to be formulated operationally in the present circumstances, an average annual savings of 5% to 8% would be available from the establishment of this system in the country (Azar, 2009). Hence, the implementation of this method of budgeting in the country is of great importance.

Although the budget is considered as a system for managing crisis management and a necessary force in Iran, there is no reason to pay attention to it. Due to the probability of limited success in predicting unexpected events and the disadvantage of services in normal circumstances, there is no need for budgeting in crisis, and only the aforementioned issues are addressed. On the other hand, many organizations involved in crisis management, including the Ministry of Health and the Red Crescent, are also in a

state of emergency due to the lack of equipment and facilities.

In addition to these problems, the budgeting process is unfortunately conducted unofficially and traditionally in the country, and the actual processes and actions are not the same as planning and decision-making, and one of the important reasons for the budget deficit in Iran formed by budgeting is a fiction that has strongly influenced crisis management. On the other hand, the sources of earnings in crisis management are not considered, such as tax systems and insurance organizations. While in many advanced countries, insurance organizations and tax systems are the most important source of funding for the crisis.

In addition to these issues, the critical weakness of intelligence and monitoring systems in the crisis leads to the unequal allocation of resources and also distorts the link between costs and performance, as well as inconsistencies between organizations active in the crisis; each of them acts based on the idea and personal opinions, and this will lead to a considerable waste of resources (Heo Bo et al., 2020).

Despite many studies on operational budgeting, no model has been formulated to demonstrate the effect of quantitative and qualitative factors on decision-making for budget allocation within the organization. In the present investigation, the combined effect of quantitative and qualitative factors in the form of a model has been inconsiderably considered. Accordingly, the main issue at this research is to present a model for operational budgeting that can fill the described vacuum and make the operational

budgeting of the organization as flexible to reduce the complexity and timing of this method by considering the quantitative and qualitative factors involved in budgeting. The set of above-mentioned conditions illuminates the necessity of designing a budgeting model for crisis management.

Due to the extensive scope of the crisis, determining the budgeting of the crisis should be made using systemic thinking and theory. The purpose of the preparation of a comprehensive budget management approach in crisis management is to develop a systematic budgeting system in a variety of ways and to pick a feasible method in which a software system can receive information by distributing budgets between regions and sectors for providing optimal allocating resources. Therefore, the present study seeks to answer the following question: What are the dimensions of the optimal model for operating the budgeting in crisis management?

Experimental Research Background

(Tokakis et al., 2019) examined the algorithm for the validity of investment efficiency in the South Korean crisis and safety management budget. Crisis and safety management budgets must be managed well by acknowledging that they are appropriate. In this study, the performance was performed using matrix analysis. The study looked at 16 vulnerable areas over the past 10 years. The results showed that areas in high-risk groups accounted for a smaller share of the budget, or that the budget was not allocated effectively.



(Talebnia & Ghazani, 2010) examined crisis management in general management based on a three-step model for safety incidents. The statistical sample includes 177 people with experience in crisis management who represented the government, public organizations, and the security / armed forces in Greece. The results show that the ability of the leader and members of the crisis management team to make the right decisions, internal and external communications, and the type of crisis predicting the three stages of crisis management (pre-crisis, crisis, and post-crisis) is effective in general management. Management outcomes include the need to implement cultural and structural changes, develop the ability of the crisis management team leader to make decisions in emergencies, transform channels and formal internal communication procedures, and redesign external communication strategies to effectively manage safety events in an environment. Dynamic and unpredictable is essential.

(Kwarteng, 2018) examined the impact of budget planning on resource allocation in developing countries. In this study, the executive managers and budgeting in the companies listed on the Ghana Stock Exchange were examined, and the hypotheses were tested using structural equation modeling and PLS software. The research results showed that budgeting has a significant relationship with performance management and resource allocation. Performance management also mediates the relationship between budget planning and resource allocation.

(Bhimani et al., 2017) examined the forms of non-Qaeda budgeting and strategy. This study examines the importance of flexible budgeting for planning, controlling, and evaluating different strategies based on strategy and uncertainty in business units. This study examines the quarterly and monthly periods of flexible budgeting. In this study, by collecting the opinions of 182 companies in the field of flexible budgeting, the results showed that uncertainty and strategy in organizations were different based on monthly and quarterly periods. Sensitivity to menstruation has been more than three months.

(AbbasNezhad, 2016) evaluated the obstacles and difficulties in implementing operational budgeting is Najah. The results of this research reveal that there is a meaningful relationship between the implementation of operational budgeting and environmental, technical, and process, and human factors.

(Jordan Meagan & Hackbart, 2005) studied organizational crisis management. The issue of crisis management is discussed in many areas, and organizations are not excluded as of the main components of today's society. Leading executives attempt to avoid unpredictable hazardous waves using the findings of crisis management and integrating it with strategic management achievements and management control systems. The study indicated that crisis management involves a general process of crisis forecasting, crisis prevention, intervention and crisis management, and post-crisis healthy.

(Pollard & Hotho, 2006) evaluated the importance of accountability and its proper

realization with the implementation of the operational budgeting system by conducting a study entitled "Objectives and success of implementing operational budgeting." They found that the government's main purpose was to implement a system of operational budgeting and improvement of responsibility for the program response. The researchers then studied the success rate of achieving the objectives of deploying the operational budgeting system. In this case, the success rate in achieving the objective of improving program responsiveness had the highest score, and the lowest score was about the change in the allocation of relevant budget.

Also, in operational budget surveys as a response tool, it was concluded that performance measurement improves responsiveness to executive systems.

(Virbickaitė, 2009) claim that an organization can better manage critical decision-making as much as it is prepared to deal with critical situations.

In a study entitled "Critical Situation Diagnosis in an organization", (King et al., 2010) has designed a pattern for identifying a crisis in an organization to a combination of artificial neural networks. He has also reviewed a variety of interpretations of the crisis and has specified the concept of crisis identification in an organization. He has regarded crisis detection as an assessment of the depth of the crisis and not the estimation of the cause of the crisis. His pattern has been approved along with data from 30 existing companies.

In a study entitled "Evaluating the Methods of Budgeting and Functioning in Small Healthcare Businesses," (Lu et al., 2011)

have concluded that cohesive budgeting is related to size and structure, and for business, organizations can use and develop this codified budget, and the relationship with structure, strategy, and perceived environmental uncertainty should be considered. Improvement of the "fit" between the contingency factors of the business and the amount of operational budget use is tested.

In a study entitled "Operational Budgeting in the United States, what is required by law to implement it?", has evaluated the content of the performance budgeting and its significance in the quality of the operational budgeting system. Recent research reveals that in states where the operational budgeting system is well implemented, implementing laws and regulations are related to the operational budgeting system further than the states where operational budgeting is not or poorly implemented. Their research results show that the performance budgeting law, including detailed guidelines for the development, reporting, and performance data use, leads to the more robust use of performance budgeting systems in the states.

In an investigation entitled "Identifying and Prioritizing the Effective Factors on Operational Budgeting in Telecommunications Company Using the TOPSIS Method" in the East Azarbaijan Telecommunications Company, (Pakmaram et al., 2012) concluded that environmental, administrative, and operational controls are necessary for the implementation of operational budgeting. Their absence in organizations is an obstacle to the implementation of operational budgeting. It



has also been stated that among the factors mentioned above, the environmental factor is the most important, and the control and implementation factors are in the next priorities.

The Theoretical Framework of Research

According to this budgeting method in crisis management, it can be discussed that an organization can better manage critical decision-making as it is more prepared to handle critical situations. (Reilly, 2008), highlights that effective internal and external communication is essential in a crisis. Effective communication in a crisis can mitigate or eliminate the crisis, and sometimes it can give a more positive reputation to the organization compared to the time before the crisis. Crisis management will not succeed without communication. Consequently, crisis communication must be made appropriately throughout the crisis.

In recent decades, several studies have been conducted on the crisis and its formation and management, with different perspectives and practices. Some scholars have based their analysis on case studies. Others have turned to comparative studies, and some have embarked on an empirical approach. For instance, in a study entitled "Resource Planning in Crisis Conditions Using Mathematical Models," (Rabbani et al., 2001) presented three strategies for critical situations. In these strategies, it has been attempted to target functions according to the needs and necessities of the crisis. All three strategies have been introduced using

repeated numerical examples and sensitivity analysis of important parameters in its related mathematical models.

The crisis prevention or management will not be achieved without financial resources. All recurrent activities should be available in three stages of prevention, critical phases, and recovery by (Klučka, 2013). There is a question to answer these crisis management steps about how much funding is required for these steps? Crisis management requires details and budget resources. Significant amounts of funding to finance the aftermath of the crisis are needed, among which the most important sources of funding for crisis management are as follows:

- Governmental budget
- Local budgets
- Saving for crisis management in the public management budget chapter
 - Donations from real and legal entities
 - The use of additional government budget resources
 - Paying claims from insurance companies
 - Issuance of government bonds
 - Loaning
 - Collaboration between the public and private sectors

Financial security for critical actions provides guarantees for handling critical situations and the proper management of its outcome. The preparation of crisis group activities requires adequate financial resources in the pre-crisis and post-crisis periods. Crisis planning and crisis training should also be (Kalupováing, 2015).

In evaluating the factors affecting the implementation of operational budgeting,

some scholars have proposed two different definitions for a concept. Some scholars have expressed a similar definition for two

different terms. Some variables also overlap each other. The criteria studied by the researchers have been presented in (Table 1).

Table 1. Primary Research Model Criteria

Dimensions	Components	Indicators
Crisis Management (Pakmaram et al., 2012)	Pre-crisis Criteria	Identification of Symptoms (Boudreaux, 2006) and (Rabiei, 2006)
		Maritime planning (Boudreaux, 2006)
		Organizing and creating a structure (Memarzadeh & Sarafrazi, 2010)
		Training, Practice, and Maneuvering (Anatoli Bourmistrov, 2017)
	In-crisis Criteria	Identification of the crisis (Boudreaux, 2006)
		Rapid reaction (Boudreaux, 2006) and (Mahmoodi Khaledi, 2010)
		Collecting information (Boudreaux, 2006)
		Decreasing Negative Consequences (Boudreaux, 2006) and (Badiee et al., 2015)
	Post-crisis Criteria	Deleting Negative Consequences (Boudreaux, 2006)
		Ensuring security (Boudreaux, 2006)
		Learning from the crisis (Boudreaux, 2006)
		Allocation of Future Resources (Kalupováing, 2015) and (Boudreaux, 2006)
Operational Budgeting (Rabiei, 2006)	Ability	Ability to evaluate performance (Keramati & Bayat, 2016)
		Manpower Ability (Tenenhaus et al., 2005)
		Technical Capabilities (Olawale, 2014)
	Authority	Organizational empowerment (Markus et al., 2015)
		Procedural Opportunity (Blumentritt, 2006)
		Legal authority (Schick, 2009)
	Admission	Political Admission (Kalupováing, 2015)
		Management Admission (Anatoli Bourmistrov, 2017)
		Motivational Admission (Rabiei, 2006)

The conceptual model of the research has been formulated as follows according to the definition of the variables stated in the aforementioned theories: Considering the

issues discussed in this research and using the following conceptual model, the relationships between the following variables were tested (Figure 1):

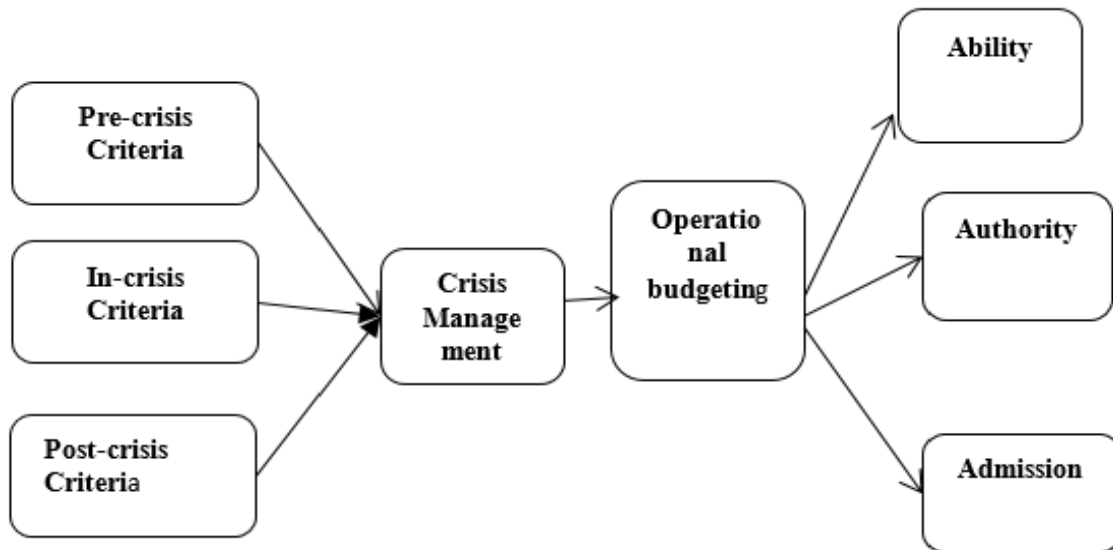


Figure 1. Primary Conceptual Model of Factors Affecting the Establishment of Operational Budgeting in Crisis Management

As it is evident, the crisis management affects operational budgeting. To measure this relationship, the authors consider crisis management and operational budgeting, reconfiguration, and other aspects extracted by

the researcher as crisis management axes and independent variables. The authors also evaluate the level of operational budgeting as the response variable. The research model can be summarized as follows (Figure 2):

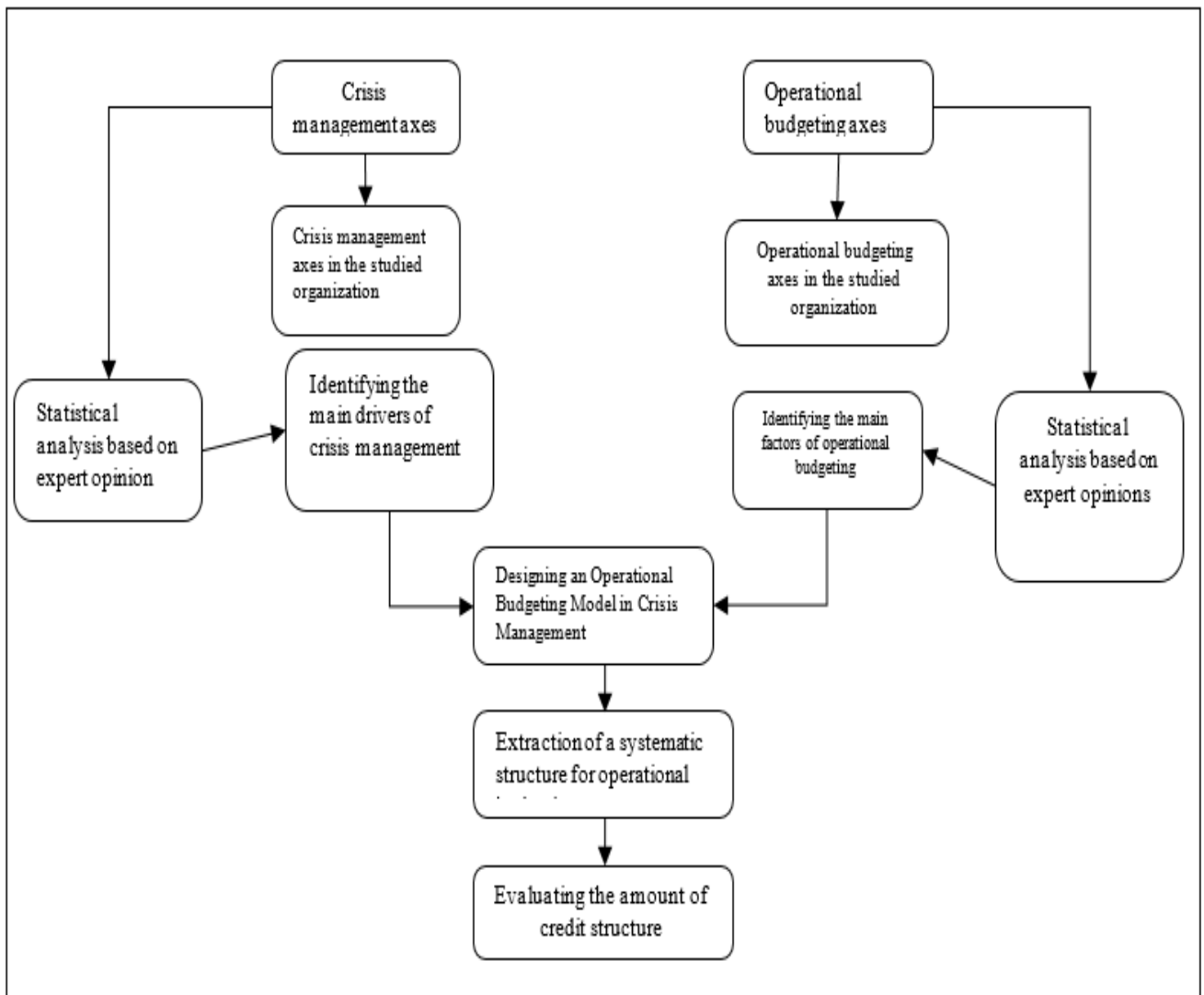


Figure 2. Analytical model

Research Hypothesis

First hypothesis: At least one of the factors identified by the researcher can be considered as the main axis of operational budgeting in crisis management.

Sub-hypothesis 1-1: Pre-crisis criteria affect operational budgeting.

Sub-hypothesis 1-2: In- crisis criteria affect operational budgeting.

Sub-hypothesis 1-3: Post-crisis criteria affect operational budgeting.

Second Hypothesis: Operational Budgeting Model in Crisis Management is valid.

Research Methodology

The present research is applied in terms of target. It is a survey and a descriptive-correlative method in terms of nature. The



statistical population of this research has been categorized into three groups: The first population consists of all experts in industry and professors in crisis management, and according to random sampling and prioritizing critical factors of crisis management in ministries and governmental institutions.

The statistical population of this research has been developed from 100 industry experts and professors in crisis management and 100 experts in operational budgeting. The purpose of the final population of this research is to determine the credibility of the combined model, including all ministries and government agencies in the field of budgeting and crisis management, which consists of about 250 specialists chosen from 85 specialists for exploratory factor analysis by principal components analysis and factor ranking. Also, 150 people have been selected for the final fit of the model. The statistical samples of this research are selected based on

random sampling and according to the Morgan table.

Interviews with experts and documents, documents, reports, and existing literature are employed to collect the research information required to explain the factors affecting the implementation of operational budgeting in crisis management. First, the effective factors in the implementation of operational budgeting are derived from the theoretical foundations of the subject. It is presented to research experts to ensure the fitness of these components and indicators in crisis management. The model for the implementation of operational budgeting is designed after the final agreement of the experts on the components and indicators.

Modeling the structural equation of partial least squares (PLS) technique has been used to study the relationship between variables.

Research Findings

Evaluation of the Measurement Model

Table 2. Factor loads of research variables

Direction	Factor load	T-statistics
q01 ← Ability	0.750	7.817
q02 ← Ability	0.823	22.077
q03 ← Ability	0.908	43.551
q04 ← Authority	0.879	16.032
q05 ← Authority	0.882	29.096
q06 ← Authority	0.935	60.698
q07 ← Admission	0.776	6.998
q08 ← Admission	0.925	46.473
q09 ← Admission	0.953	82.379
q10 ← Pre-crisis criteria	0.835	20.521
q11 ← Pre-crisis criteria	0.881	21.201
q12 ← Pre-crisis criteria	0.868	19.982
q13 ← Pre-crisis criteria	0.898	61.386
q14 → In-crisis criteria	0.866	29.421
q15 ← In-crisis criteria	0.878	24.006
q16 → In-crisis criteria	0.768	8.533
q17 → In-crisis criteria	0.824	23.532
q18 ← In-crisis criteria	0.727	13.261
q19 ← In-crisis criteria	0.805	13.087
q20 → Post-crisis criteria	0.643	7.254
q21 → Post-crisis criteria	0.835	20.135

According to the results of the measurement model presented in (Table 2), the observed factor load in all cases possesses a value higher than 0.5, which shows that there is a proper correlation between the observable variables and their hidden variables. Also, by the results of the measurement model, the strapping boot value (t statistic) in all cases is

higher than the critical value of 1.96, which indicates that the correlation between the observable variables with their hidden variables is meaningful; hence, it can be concluded that each variable has been accurately measured by its obvious variables and the research hypotheses can be tested by considering the findings of this scale.



Table 3. Cronbach Alpha and Combined Reliability

Variables	Cronbach's Alpha	Combined Reliability (CR)
Ability	0.770	0.868
Admission	0.866	0.917
Post-crisis criteria	0.747	0.841
Pre-crisis Criteria	0.893	0.926
Authority	0.881	0.926
In-crisis Criteria	0.855	0.902

According to (Table 3), the values of combined reliability (CR) and Cronbach alpha are larger than 0.7 for all dimensions of the studied model. Therefore, it can be claimed that the questionnaire possesses acceptable reliability.

Table 4. Convergent validity of research variables

Variables	AVE	CR
Ability	0.688	0.868
Admission	0.788	0.917
Post-crisis criteria	0.572	0.841
Pre-crisis Criteria	0.758	0.926
Authority	0.808	0.926
In-crisis Criteria	0.698	0.902

It is observed that the mean value of the extracted variance (AVE) is always higher than 0.5, and the combined final value is also larger than 0.7 in all cases, which is also higher than the mean value of the extracted variance (AVE); therefore, convergent validity is confirmed as well (Table 4).

Table 5. Divergent validity of research variables

Row	Ability	Admission	Post-crisis criteria	Pre-crisis Criteria	Crisis Management	Authority	In-crisis Criteria	Operational budgeting
Ability	0.829							
Admission	0.188	0.888						
Post-crisis criteria	0.302	0.351	0.756					
Pre-crisis Criteria	0.333	0.296	0.175	0.871				
Crisis Management	0.509	0.510	0.632	0.573	1.000			
Authority	0.225	0.163	0.309	0.209	0.451	0.899		
In-crisis Criteria	0.112	0.094	-0.042	-0.466	0.273	0.174	0.835	
Operational budgeting	0.542	0.436	0.405	0.365	0.628	0.492	0.185	1.000

As it is evident from the matrix as mentioned above, the crater AVE of each structure has increased its correlation coefficients with other structures in each column, suggesting the acceptability of divergent narrative structures (Table 5).

In general, the overall validity of the measurement model is also accepted with the convergent and divergent validity confirmation (Figure 3).

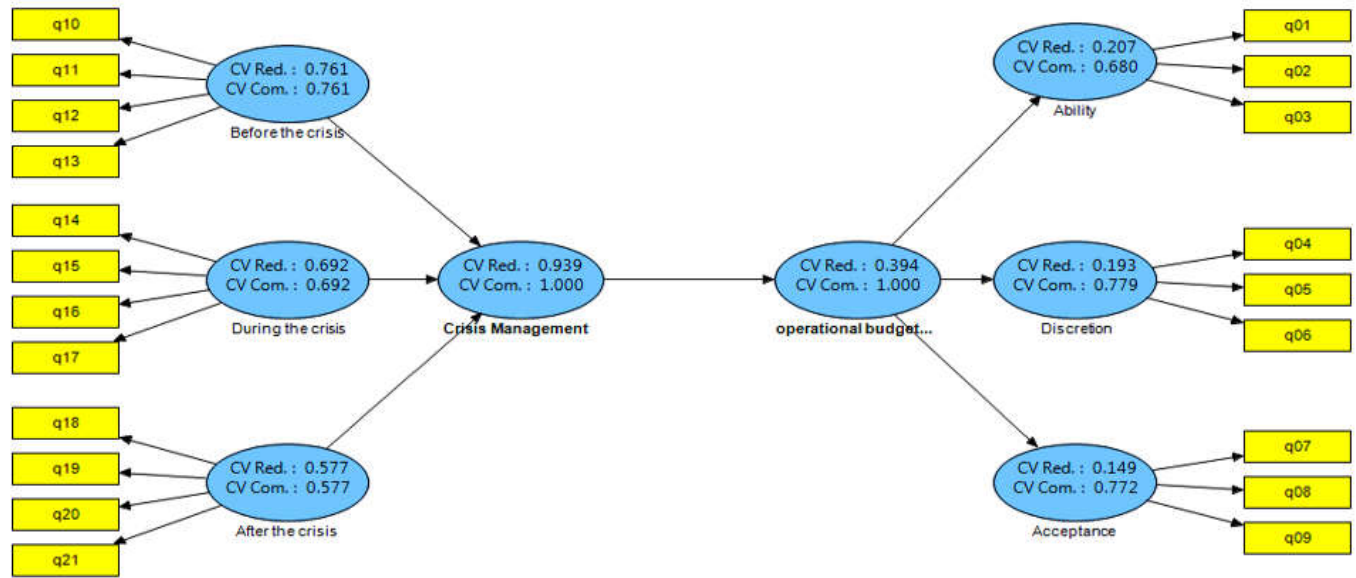


Figure 3. Fitting indicators of the research model

Table 6. Subscribe Indicators and Redundancy Indicator

Variable	Subscribe Indicators (CV Com)	Redundancy Indicator (CV Red)
Ability	0.680	0.207
Admission	0.772	0.149
Post-crisis criteria	0.577	0.577
Pre-crisis Criteria	0.761	0.761
Crisis Management	1.000	0.939
Authority	0.779	0.193
In-crisis Criteria	0.692	0.692
Operational budgeting	1.000	0.394

(Table 6) presents the values of each of the indicators for independent and dependent variables. As can be seen, the indicators are

The General Test of the Quality of Structural Model

(Pakmaram et al., 2012) have introduced the Global Approach Indicator (GOF) to

positive and greater than zero. It can be said that the model possesses excellent quality and credibility.

evaluate the fitting of the model. The general fitting criterion can be obtained by calculating the geometric mean of the communality values and the coefficient of determination (R^2). For this indicator, the values of 0.01, 0.25, and 0.36 have been

respectively defined as weak, moderate, and strong.

$$GOF = \sqrt{(Communality) \times (R Square)}$$

Table 7. Subscribe values and R²

Variable	Subscribe values	R ²
Ability	0.688	0.294
Admission	0.788	0.190
Post-crisis criteria	0.572	---
Pre-crisis Criteria	0.758	---
Crisis Management	1.000	0.964
Authority	0.808	0.242
In-crisis Criteria	0.698	---
Operational budgeting	1.000	0.394

(Table 7) After making the calculations, it is evident that the GOF indicator is equal to 0.486, which is a strong indicator and

indicates the overall high quality of the model (Figure 4).

Testing the Research Hypotheses

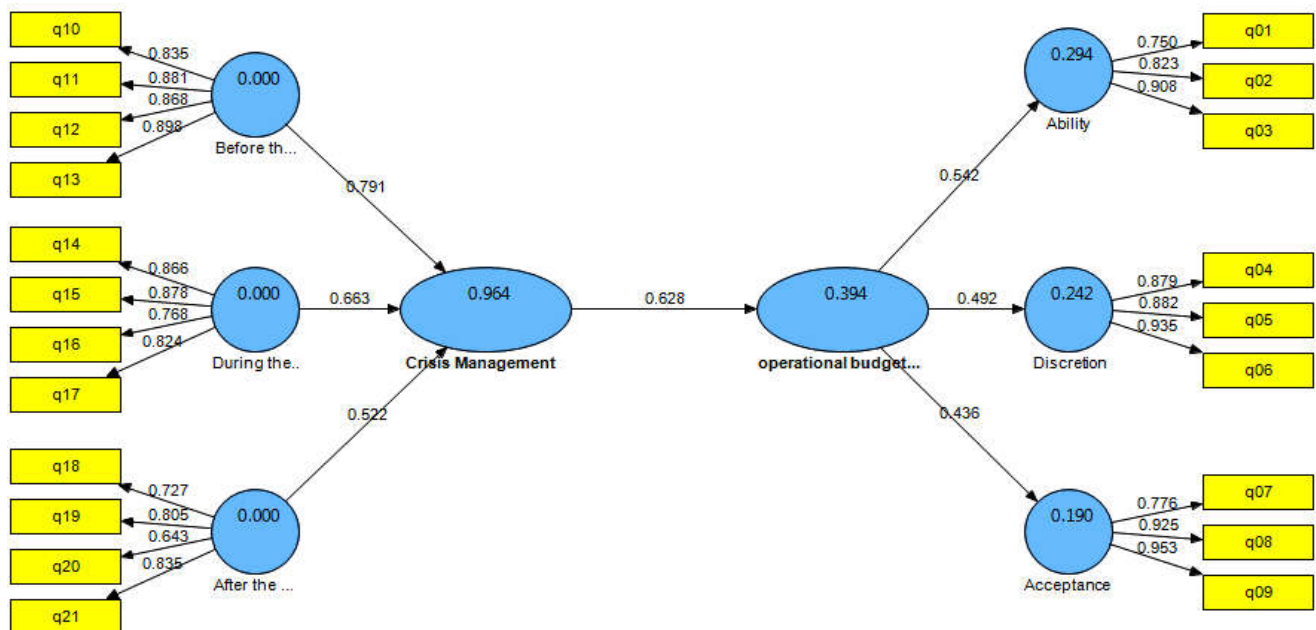


Figure 4. General research model with partial least squares technique

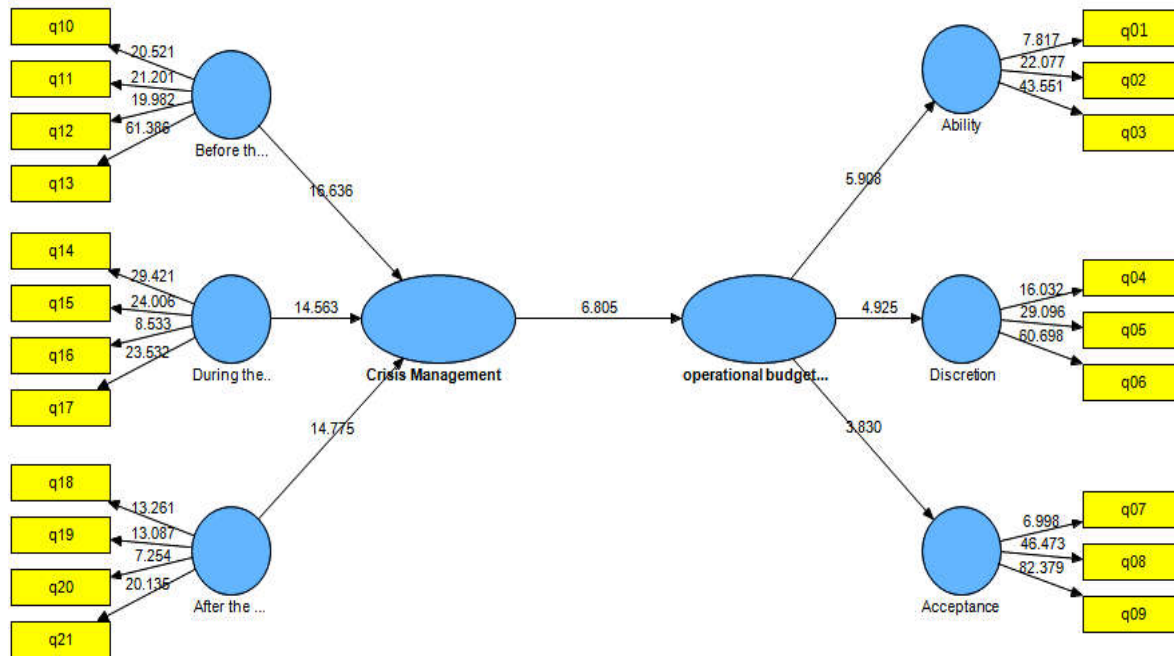


Figure 5. T-statistic, the overall research model with strapping boot technique

The calculated values in (Figure 5) have also been presented in (Table 8).

Table 8. Path Coefficients

Direction	Effect	T-statistics
Crisis Criteria → Crisis Management	0.522	14.775
Pre-crisis Criteria → Crisis Management	0.791	16.636
Crisis Management → Operational Budgeting	0.628	6.805
In-Crisis Criteria → Crisis Management	0.663	14.563
Operational Budgeting → Ability	0.542	5.908
Operational Budgeting → Admission	0.436	3.830
Operational Budgeting → Authority	0.492	4.925

Testing the First Main Hypothesis:

At least one of the factors identified by the researcher can be considered as the main

axis of operational budgeting in crisis management.

Table 9. Overall Effects

Direction	Effect	T-statistics
Post-crisis Criteria → Ability	0.178	3.705
Post-crisis Criteria → Admission	0.143	2.752
In-Crisis Criteria → Crisis Management	0.522	14.775
Post-crisis Criteria → Authority	0.161	3.313
Post-crisis Criteria → Operational Budgeting	0.328	6.298
Pre-crisis Criteria → Ability	0.269	3.720
Pre-crisis Criteria → Admission	0.216	2.832
Pre-crisis Criteria → Crisis Management	0.791	16.636
Pre-Criteria Criteria → Authorization	0.244	3.346
Pre-crisis Criteria → Operational Budgeting	0.496	6.295
Crisis Management → Ability	0.340	3.930
Crisis Management → Admission	0.274	2.922
Crisis Management → Authority	0.309	3.419
Crisis Management → Operational Budgeting	0.628	6.805
In-Crisis Criteria → Ability	0.226	3.811
In-Crisis Criteria → Admission	0.182	2.777
In-Crisis Criteria → Crisis Management	0.663	14.563
In-Crisis Criteria → Authority	0.205	3.349
In-Crisis Criteria → Operational Budgeting	0.416	6.471
Operational Budgeting → Ability	0.542	5.908
Operational Budgeting → Admission	0.436	3.830
Operational Budgeting → Authority	0.492	4.925

Testing the sub-hypothesis (1-1):

Pre-crisis criteria affect the operational budgeting.

According to (Table 9), the severity of the effect of pre-crisis criteria on operational budgeting has been calculated to be 0.496, and the probability test statistic was obtained to be equal to 6.295, which is higher than the critical value of t at the 5% error rate of 1.96 and indicates that the observed effect is significant; hence, 95% of the pre-crisis criteria have a positive and significant effect on operational budgeting.

Testing the sub-hypothesis (1-2):

In- crisis criteria affect operational budgeting.

According to (Table 9), the severity of the effect of the in-crisis criteria on operational budgeting has been calculated to be 0.416, and the probability test statistic was obtained to be equal to 6.471, which is higher than the critical value of t at the 5% error rate of 1.96 and indicates that the observed effect is significant; hence, 95% of the in-crisis



criteria have a positive and significant effect on operational budgeting.

Testing the sub-hypothesis (1-3):

Post-crisis criteria affect operational budgeting.

According to (Table 9), the severity of the effect of the post-crisis criteria on operational budgeting has been calculated to be 0.328, and the probability test statistic was obtained to be equal to 6.298, which is higher than the critical value of t at the 5% error rate of 1.96 and indicates that the observed effect is significant; hence, 95% of the post-crisis criteria have a positive and significant effect on operational budgeting.

As can be seen, pre-crisis, in crisis, and post-crisis criteria had significant effects on

operational budgeting; hence, the first hypothesis is confirmed.

Testing the second main hypothesis:

The operational budgeting model is valid in crisis management.

By assessing the fitting criteria of the model, it was discovered that the subscribe indicators and the redundancy indicator are positive and acceptable, and the GOF indicator was equal to 0.486, which is a strong indicator and indicates the overall validity of the model and the second hypothesis is confirmed.

The final model of the research was as follows (Figure 6):

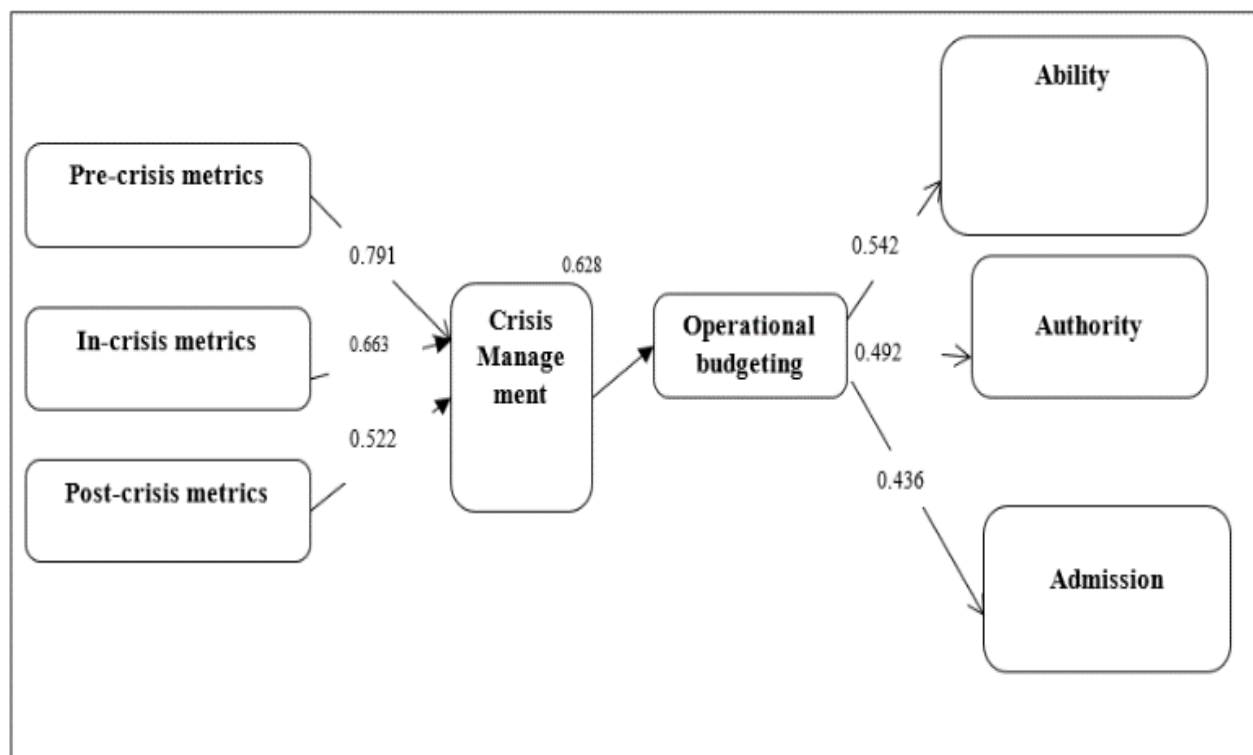


Figure 6. Fitted final Model of the research

Discussion and Conclusion

The results revealed that a significant value for the effect of pre-crisis criteria on operational budgeting was calculated to be 6.295 which is higher than the critical value of t at the error level of 5% namely, 1.96, and indicates that the observed effect is meaningful; hence, the pre-crisis criteria have a positive and significant effect on operational budgeting with 95% of confidence.

According to the results, the severity of the effect of the in-crisis criteria on operational budgeting has been calculated to be equal to 0.416, and the probability test statistic was obtained to be 6.471, which is larger than the critical value of t at the 5% error rate of 1.96 and shows that the observed effect is significant; hence, 95% of the in-crisis criteria have a positive and significant effect on operational budgeting.

According to the results, the severity of the effect of the post-crisis criteria on operational budgeting has been calculated to be 0.328, and the probability test statistic was obtained to be equal to 6.298, which is higher than the critical value of t at the 5% error rate of 1.96 and shows that the observed effect is significant; hence, 95% of the post-crisis criteria have a positive and significant effect on operational budgeting.

As can be seen, pre-crisis, in crisis, and post-crisis criteria had a significant effect on operational budgeting; thus, the first hypothesis is confirmed.

In recent decades, there were several studies and research on how to shape, manage, and be conducted with different perspectives and

practices. By considering the financial implications and other effects of the crisis on organizations, it is necessary to consider a proper budgeting process for organizations in crisis management. Financial security for critical actions provides guarantees for handling critical situations and the proper management of its outcome. The development of crisis group activities requires adequate financial resources in the pre-crisis, post-crisis, and in-crisis period. Crisis planning and crisis training should also be considered (35).

Structural equation modeling has been employed to assess the extracted model and investigate the relationships between variables. A structural equation model was applied to measure the correlation between the variables affecting operational budgeting. By evaluating the fitting criteria of the model, it was discovered that the subscribe indicators and the redundancy indicator were positive and acceptable, and the GOF indicator was equal to 0.486, which is a strong indicator that indicates the overall validity of the model and the second hypothesis is confirmed.

Extremist organizations and institutions are facing wide-ranging developments and threats in different fields of crisis management, crisis forecast, crisis prevention, crisis intervention, and post-crisis health. In other words, the terms of crisis management involve any means to avoid the crisis, a thoughtful search for the crisis, and finally, the inhibition of the critical conditions and the budget is the most important strategic plan. Consequently, a



model for budgeting should be designed to be unable to endanger the budget's optimality while enforcing it.

In recent decades, numerous studies and researches have been conducted with different perspectives and practices on the way of developing and managing a crisis. Although the selection of the proper decision-making model under the conditions of an organizational and financial crisis is essential and possesses high sensitivity, it has been less analyzed with scientific methods so far.

In the present study, it was addressed to this issue from a scientific point of view for covering this research vacuum. In summary, this study possesses two main achievements: the first achievement is to select the appropriate model for decision-making under the critical conditions, which was determined by turning to the results of the calculations.

The second achievement of the study was to identify more effective crisis indicators and connect with the operational budgeting process. By establishing a connection between the budgeting process and the crisis management stages, it can be applied to finance the organization's financial resources in critical circumstances, so that the time required to fund the crisis management is reduced. Prevention or management of the crisis will not be accomplished without financial resources. All activities related to solving the critical situations should be available inadequately detailed and sufficient resources in three stages: prevention, critical,

and recovery. Studies have been conducted by budgeting and crisis management.

In this regard, Blumentritt indicated that managers are encountering many challenges in budgeting and strategic planning. The budgets are not related to business and operational strategies, and a budget cannot be effective except for the organization's decisions to be strategic. The management and budgeting are distinct; however, activities are interdependent, and they improve the capability to create and maintain better performance if both are accurately applied.

Schick also showed that the crisis affects budgeting. To implement the appropriate measures for crisis management, it is important to apply proper budgetary policies to mobilize resources throughout the in-crisis and post-crisis periods. Sebastian et al. also revealed that organizations are needed to increase their budget awareness in responding to organizational changes and manage them against different crises using budget monitoring tools.

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