

## FINANCIAL MODELS

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Motto: "If we know from the start where we are and where we want to get, we can better decide what we should do and how." Abraham Lincoln

**Abstract:** *The idea of using models is not a new one, but it is an idea that kept the interest of many researchers in different fields of activity for a very long time now. The present paper looks at models starting from the very general forms (divided according to the way they are expressed or to the kind of research they support) to the ones that are specific for the financial field. Financial models are useful as they give managers and other categories of users the possibility to innovate, manage and plan the financial information. The paper provides a theoretical approach to financial models and their importance in the management of different companies. Financial models are very technical instruments that have to be exact enough in order to provide the users with accurate results regarding the financial state of the company. They give users the possibility to examine both past and future events and the quality of the financial decisions highly depends on them. Models that are not based on reality lead to wrong decisions that are incorrect and have adverse effects. Models generate the decision support information. The financial models are based on the normal, natural succession of processing information regarding the transactions and their effects. Such models offer the possibility to imagine what would happen in case of different decisions without having to expose the company to the associated risks of those decisions. Of course that models also have certain shortcomings and they have to be revised all the time. The model used generates results that need to be analyzed, explained and applied. The financial models are applied in order to facilitate the financial decision and the choice of one model over another highly depends on the results the manager expects to obtain and on the degree of exactitude expected.*

**Keywords:** financial model, information, decision, information flow, decision making

**JEL classification:** G00.

### 1. Introduction

The model is defined as a theoretical system (logic or mathematic) or material that helps us indirectly study the properties and transformations of a more complex system, as long as it shares a certain analogy with that system (see the Small philosophical dictionary, 2nd edition, Political Publishing House, Bucharest, 1973, pg.380) .

The model is a simplification, a partial reflection of the object or process, with the purpose of offering a material, more accessible means of theoretical or experimental investigation as theory without practice has no value, just as practice without theory is blind.

The model, both in logic and mathematics, is an interpretation of a formal system.

According to the way they are expressed, models can be very different:

- Ideal, as logical-mathematic representation or construction. It is an intermediate connection between the experience and theory referring to the studied object or phenomena that permits the verifying of the hypothesis;
- Similar with the original system. There is a difference in the size, characteristic values;
- Analogical, of a different nature, characterised just through relations (equations) of the same kind as those of the original system;
- Miniatures, small copies of the original.  
Models are true research instruments.

Research is a group of organised activities, scientific, controlled and checked information, regarding a certain established field of reality, used in order to exercise a direct or indirect control and management of the field's specific processes.

Research is using or even building different models, according to the nature of the research:

- Fundamental through newly discovered events and processes are explained, establishing and drawing up laws for them
- Operational that applies scientific models and methods to management or coordination problems, for integrating different centres' activities, when these centres are different as functioning or hierarchy;
- Applied in which is dominating the extension of the effective control over events and processes.

No matter what kind of research or model it is used, the major importance is that of the informational flow. Information describes what is going on and together with theory; it shows what is possible and evaluates that theory, in order to improve it.

## 2. Financial Models

Combining the economic reality with the financial ideas leads to a financial model. The model is a useful tool, that managers have at their disposal for planning and execution activities, in order to use as well as possible the financial information.

Information and the computers power allow not only handling the financial models, but also the creation of new ones that are necessary to the management.

The financial model is both an instrument and a result of the research and situations.

Financial models are simple way of innovating, managing and planning the financial information.

Models are useful in testing the implications of plans drawn up by managers, before they apply them in the real world. They simulate the possible actions, decisions over the added value, the assets and liabilities, over the cash-flows, the budget, the success and security through the financial flexibility or over the financial passivity.

The increased degree of incertitude, in a risky environment, the rapid changes contribute to the need to make predictions, as precise as possible, that allow the managers to formulate tactics and strategies that will ensure the survival and success of the company.

The traditional management models were starting from the idea that planning is a strictly rational process but reality showed different, taking into account the pressure of time.

Drawing up financial models, for planning and decision making purposes, needs time invested and time is not always available.

A model has to follow certain steps in its designing and testing:

- Identifying the variables in the analysing stage, as inflows of the model;
- Establishing relations between the analysed variables and expressing them in a mathematic form;
- Formulating the calculus rules that can lead to the expected result;

- Explaining the connections, in a logical structure, in an ascending evolution of the form inflows – transformations - results;
- Separating the logic and reporting in the model, in respect to a referential.

In the case of drawing up financial models, the alternative is applying the decisions in practice and taking full responsibility of all financial consequences.

### 3. The Content Of Financial Models

The model equally reflects and influences the understanding of the real world.

If humans would understand and fully know the real world, models would not be needed anymore and the decisions' results could be accurately estimated.

Models are drawn up in order to examine both past and future events. In general, the model is made of facts, states, hypothesis and numbers, in a form that can be mathematically described.

Models that are not based on reality lead to wrong decisions that are incorrect and have adverse effects. Models generate the decision support information.

The decisions' quality is up to the quality of the inflows that are processed and transformed, the systems quality (or the processing and transformation of information model) that influence the outflows quality. Of course that the quality level depends also on the decision taking system's quality.

The financial model is made of facts, hypothesis and numbers that are correlated in a manner that can be described through a model (in a mathematical form). The model is designed to support the decision process, the financial management process, the operations' processing, the risk control and management at the company level. As decision support, the model allows performance analysis, cost analysis and backing up of the strategic plan.

In the field of transactions' processing, which is the most important in the financial function activities, models are diversified according to the requirements of the accounting. Through the model, control is increased, a better access to information is provided along with a better integration and profitability is increased through the competitive advantage.

The financial models are based on the normal, natural succession of processing information regarding the transactions and their effects.

### 4. Advantages And Disadvantages Of The Financial Models

The model is an instrument used for setting a frame for solving the financial functions' problems of the company. It allows a better understanding of the problem by building a model that can contribute to its control.

The model offers the possibility of testing a large set of possible scenarios based on the question „what would have happened if?”

Applying the model involves economy of time and money.

But models do not have only advantages. On the contrary, the disadvantages should be identified in order to be eliminated or avoided. Among the disadvantage, one could name:

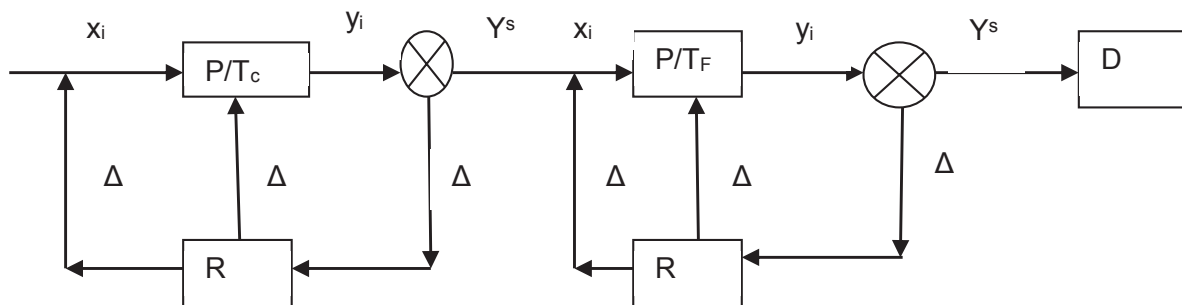
- The danger of oversimplifying, in the case certain essential factors are not taken into account from the stage of projecting the model;
- Not all relations can be expressed in a mathematic language. Any forcing of this is a problem in the drawing up of the model;
- The possible rigidity of the model makes it inflexible towards eventual changes;
- The model offers, in the planning stage, just estimations and not sure facts;
- The possible manipulation of the inflows of the model, in order to get the wanted outflows. It is a manipulation of the results in order to reach a certain objective.

## 5. The Use Of Financial Models In The Company's Financial Function

The financial function is the whole made up by components that gather together activities that facilitate reaching the financial function's objectives.

The models used and the results reached through processing refer to different positions: business consultancy, business analysts, technical specialists.

The model used generates results that need to be analyzed, explained and applied.



**Figure 1.** Using a series of models of processing/ transforming information for taking decisions

Source: own processing of information in which

$X_i$  = inputs (data, information)

P/T = processing, transforming through the model

$Y_i$  = outputs of the model

$Y^s$  = standard reference data

$\Delta$  = deviation, variation

R = decision control and adjusting centre

F = financial

D = decisions

The models' users are either those that use them in order to generate information for different users or those that use the information given, as outputs, in order to take correct decisions regarding the performance, sustainable growth, risks, strategies, reporting, declaring and presenting the economic-financial state, audit, treasury.

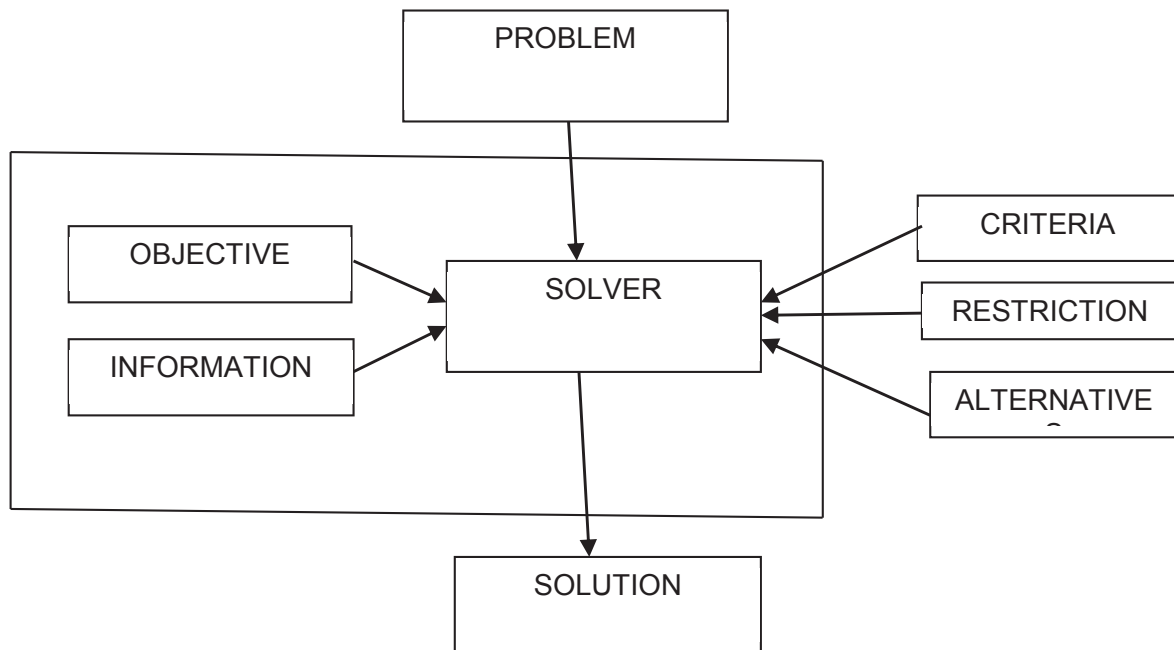
Besides, models are a support in the risk control and management through: budgeting, performance reporting, treasury management, internal audit, tax planning, cash-flow management.

The model is drawn up and applied into an environment full of risks that influence the reception, presenting, use of information and future forecasting.

Still, the future is estimated, a wish that can be negotiated. The future cannot be considered as known or certain. It is just a result with lots of sides. It is improbable but possible under a certain degree of probability.

The information generated by applying financial models is a source for the accounting management in understanding its role and responsibilities in modeling the financial function.

The financial models are applied in order to facilitate the financial decision. The financial decision as solution, applied in the tactic area, leads to fulfilling the problem's requests.



**Figure 2.** The results of using the model  
 Source: own processing of information

The model offers the possibility of evaluating the alternatives and to select the best one that becomes the problem's solution.

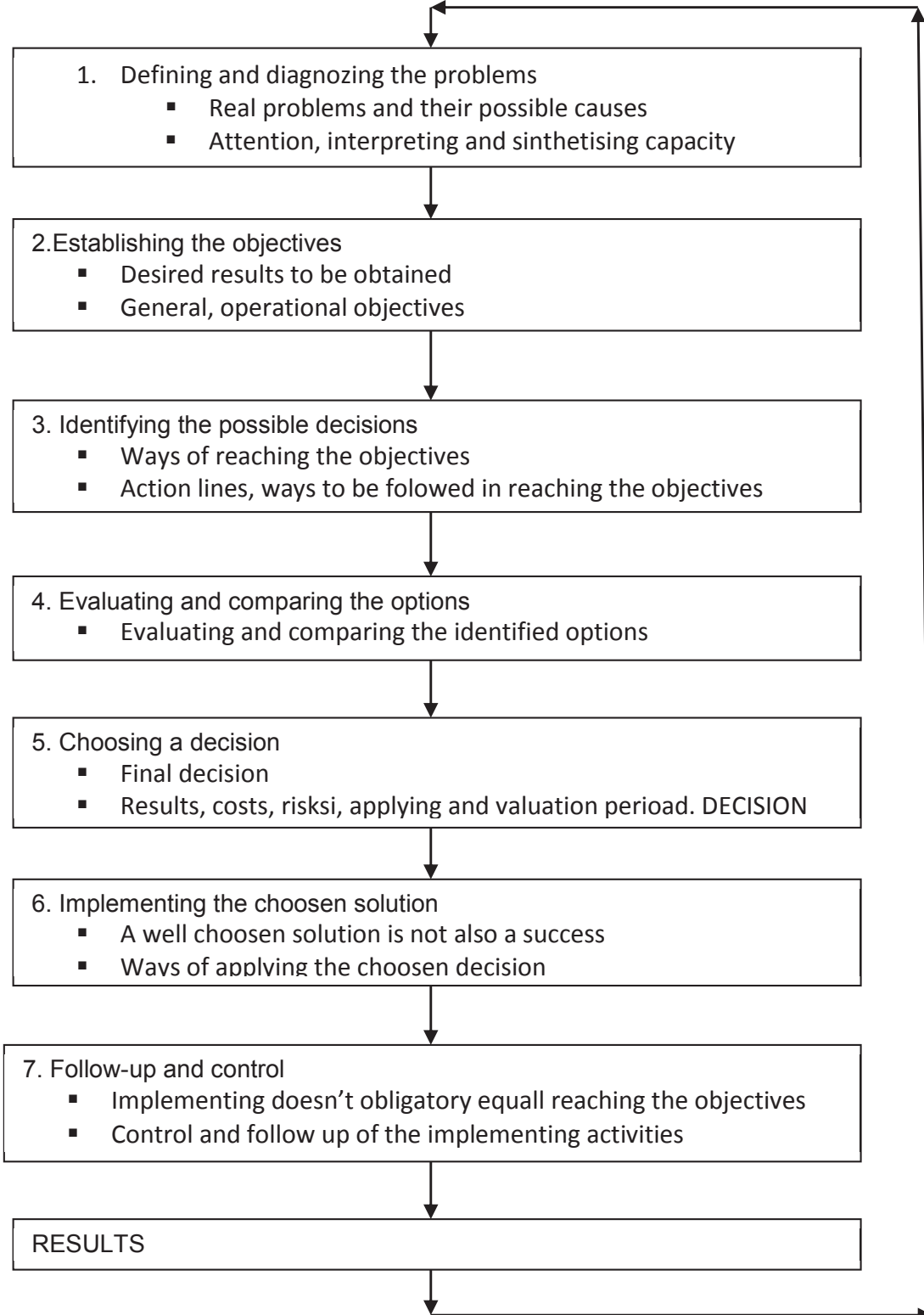
## CONCLUSIONS

Models are drawn up in order to examine both past and future events.

Designing and drawing up a model is a learning process. The model cannot show all reality and this leads to a certain degree of uncertainty for the predictions made.

The model's results have a certain degree of liberty and therefore should be treated with care. It should identify the problems, establish the objectives, identify the options, choose the right decision, apply the solution, monitor the results, use the correcting feed-back, adjust and improve the financial activities dedicated to fulfilling the objectives.

The decision taking model (the rational model) becomes:



**Figure 3.** The decision taking model  
Source: own processing of information

The use of one model or another highly depends on the expected results.

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