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allocation of risk, surety, advanced payment lump sum, quantity survey, managing risk in construction projects

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ALLOCATION OF RISK IN THE INVESTMENT PROCESS

One of the problem in allocation of risk in the investment process is the need to determine the sources of risk. The next step is to find the method to reduce the risk cost effectively.

This paper examines possible methods of risk allocation and considers the information needed for a proper assessment of importance. The paper offers some practical suggestions for dealing with this problem.

ALOKACJA RYZYKA W PROCESIE INWESTYCYJNYM

Jednym z problemów przeniesienia ryzyka w procesie inwestycyjnym jest konieczność wcześniejszego zdefiniowania źródła ryzyka. Kolejnym krokiem jest znalezienie sposobu obniżenia poziomu ryzyka w sposób efektywny kosztowo.

W artykule przedstawione zostały możliwe sposoby podziału ryzyka, analizie poddano także czynniki wpływające na właściwą ocenę ryzyka. Przedstawiono praktyczne wskazówki dotyczące zarządzania ryzykiem w zakresie jego właściwego przeniesienia.

1. INTRODUCTION

Risks will happen during the lifetime of a project and some of these can seriously damage the project. Allocation of risk allow to avoid, reduce, absorb or and exploit potential opportunities. Projects evolve in rapidly changing environments because of the pace of technological development, increasing complexity, new methods and
tools, new markets, increased competition, novel business opportunities and demanding customers [1,2].

Among the investigated types of risks are: business risk, investment risk, economic risk, social, political, etc. Risk can mean many different phenomena, we have different definitions of risk and it can be approached in different ways [3]. Even just look at the problem from a different perspective affects the perception of risk. Investor commencing construction of a new supermarket is concerned that expenses associated with this project fit in their budget, and in opening in the stipulated time limit. The aim is to gain profit from this investment. The risk from his point of view manifests itself in such a project

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management to achieve the estimated earnings. Each party perceives a risk from a different point of view.
The success of risk allocation in practice is about human and organizational factors such as understanding, motivation, attitude, culture and experience [4,5]. The increasing awareness of the need to allocate risk effectively in the beginning of the project may ease the potential future problems with unexpected situations.
The article discusses the most important method of risk allocation that can be applied to avoid uncertain situations but which are often undervalued by entrepreneurs.

2. METHODS OF RISK ALLOCATION

Legally the guarantor is the party which accepts responsibility for the debt or default by another party. The surety is not an insurance policy, it is an agreement that sets conditions and obligations. Insurance protects against the risk of loss and surety guarantees the performance of a specific contractual obligation [6].
Surety are tripartite agreements, ensuring the implementation of works in accordance with the contract for construction works and payment of all costs associated with construction works. If the contractor or subcontractor which were guaranteed would not implement the commitments, regardless of the reason, the guarantor must fulfill contractual obligations and pay all costs to the border of the nominal amount of the guarantee.
In the U.S. surety of contracts are required by law for public works contracts for projects worth more than $ 25,000, while a significant part of the private sector is not covered by sureties. In Poland and in many European countries, the surety of construction contracts are not common, but have been increasing their application in relations between the general contractor and subcontractors.
The surety is not intended to replace honesty, integrity and competence of subcontractors. Worse contractor shall mean the problems irrespective he has the surety or has not. The surety provides a general contractor, certain measures to protect against financial loss, which can be directly attributable to the subcontractor.

Surety requirement is a way to transfer the financial risk of failure on the guarantor. Surety company is usually an insurance company, bank or company that specializes in providing sureties [7]. The following types of sureties are applied:
- surety of the offer - ensures that the contractor will keep the bid,
- surety of performance - ensure that in the event of default by the contractor that the project will be executed in accordance with the terms of the contract. The sureties include a nominal sum, which represents the upper limit of expenditure to be charged to the guarantor;
- surety payment of the cost of labor and material - to protect the investor in the labor and materials used or supplied for the project. Protects against the establishment of a lien on the project for a party which is not paid for the work.

Figure 2 shows in simplified form, who is charged in the risk of various types of contracts used in the construction industry. It reflects the author's observations referring to the volume of risk of the investor and contractor.

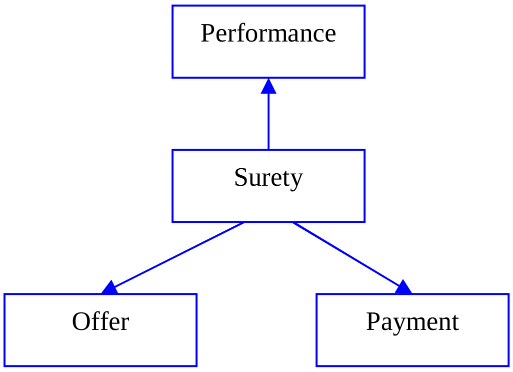

Fig. 1. Type of sureties

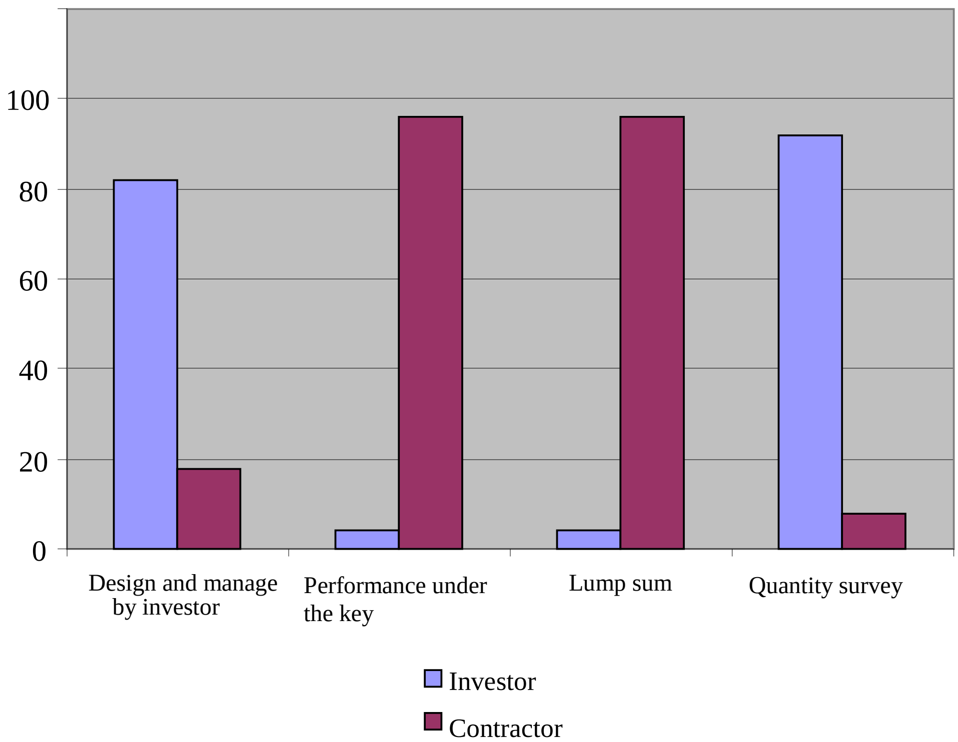

Fig. 2. Sharing the risk depending on type of contract.

The professional team selects such a construction contract, which offers the most benefits to the investor. In the case of commercial projects of high value the tendency of contract with provisions as to remuneration for management with the active participation of the general contractor as a member of the project team is concluded [8,9].

Under the agreement, the remuneration for the management of the contractor guarantees that the project is implemented in accordance with drawings and specifications and costs will not exceed the maximum total price, sometimes defined as the starting price. If the costs exceed the agreed maximum, the excess is covered by the contractor. Incentive for the contractor to reduce costs below the maximum is sometimes a bonus clause, providing that the contractor and the investor share any savings.

The establishment of a guaranteed maximum price contract for remuneration for the management of the contractor puts the situation back in the flat-wage contract, but without the same degree of control. The risks and benefits go hand in hand, but in this case the contractor is exposed to high risk in exchange for a relatively small advantage. Remuneration for management must reflect the degree of risk.
Figure 3 shows the sources of risk during the investment process. The purpose of the list is to identify risks and take steps necessary to ensure adequate compensation for risk.

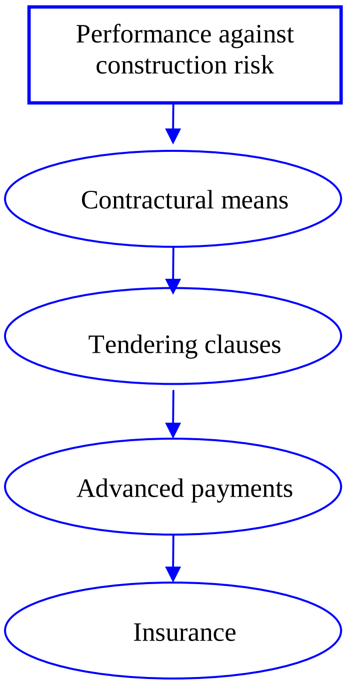

Fig.3. Protection against risk

1.Security in the contract protects against:
a / withdrawal of the investor
b / denial of payment by the investor
c / suspension of work due to the Investor
d / force majeure
e / contractor’s withdrawal from the investment
f / delay the launch of the investment as the Investor's fault
g / delay of suppliers
h/ delays resulting from external conditions (the opinions of the authorities issuing construction and occupancy permits, situation not foreseen in the project schedule)
i / extension of the term of the investment due to the investor
j / extension of the term of the investment due to the contractor
k / extension of the term of the investment due to the supplier
2. Tendering documents protect against:
a / delay in acceptance of the offer by the investor
b / delays resulting from external conditions
c / delay in the implementation of the offer by the contractor
3.Advanced payments by the investor and the contractor shall protect against:
a / withdrawal from the investment by the Investor
b / denial of payment by the Investor
c / contractor’s withdrawal from the investment
d / extension of the term of the investment due to the investor
4.Insurances protect against:
a / withdrawal from the investment by the investor
b / denial of payment by the investor
c / force majeure
d / delay the launch of the investment due to the investor
e / delay of suppliers
f/ delays resulting from external conditions (the opinions of the authorities issuing construction and occupancy permits, situation not foreseen in the project schedule)
g / extension of the term of the investment due to the investor
h / extension of the term of the investment due to the contractor
l / extension of the term of the investment due to the supplier
The contractor must at all times be aware of the degree of risk, not to be exposed to surprises.

The main factors relating to the risk in the contracts concern the following issues:
- what is the source of risk in the contract
- who has the greatest capacity to cope with this risk
- who is responsible for the risk
- who is able to ensure enforcement of responsibility
- what has been done towards the account of the uncontrolled risks
- level of transferring the risk.

3. CONCLUSIONS

Construction projects consist of hundreds or even thousands of interacting activities. Each of them is associated with the problem of cost, time, quality, order. Costs and duration are uncertain. There is still surprisingly common approach, namely to ignore the existence of uncertainty in the hope that all goes as well. Another attitude is based on consultation with experts and experience and intuitive approach to the problem.

The only approach that will ensure the safe conduct of the project is aware identification of any risks and attempt to assign each of them to the most motivated players to transfer and minimize risk. The article presents several ways to allocate risk according to the certainty of its occurrence. The analysis carried out and supported by the practice confirmed the effectiveness of solutions proposed in the paper - the allocation of risk between the selected entities.

4. REFERENCES

[1] Flanagan R, Norman G. Risk management and construction. Oxford: Blackwell Scientific Publications, 1993.
[2] Chapman CB, Ward SC, Project risk management: processes, techniques and insights, John Wiley and Sons, Chichester, 1997.
[3] Edwards P.J, Bowen P.A. Risk and risk management in construction: a review and future directions for research. Eng Construct Archit. Manag. 1998;5(4):339–49.
[4] Greenspan A., Era zawirowań: krok w nowy wiek, Warszawa, Warszawskie Wydawnictwo Literackie Muza, 2008
[5] Baloi D, Price ADF. Modelling global risk factors affecting construction cost performance. Int J Project Manage 2003;21: 261–9.
[6] Ward S. Assessing and managing important risks. International Journal of Project Management 1999;17:331–6.
[7] Dutkiewicz M.: Odpowiedzialność za szkody na budowie. Materiały Budowlane nr 12/2008, s. 84-85
[8] Huseby AB, Skogen S. Dynamic risk analysis: The Dyn. Risk concept. Int J Project Manage 1992;10(3):160–4.
[9] Zhi H. Risk management for overseas construction projects. Int J Project Manage 1995;13(4):231–7.