

**FEATURES OF COMMERCIAL AND GOVERNMENT  
CONTRACTS IN THE CONSTRUCTION INDUSTRY: MODERN  
APPROACHES TO FINANCIAL RISK MANAGEMENT**

*Abstract: The article examines the characteristics of financial risk management in the implementation of construction projects under commercial and public sector contracts. The key differences between these contract types are analysed in terms of financing mechanisms, project timelines, reporting requirements, and the nature of financial and operational risks. Particular attention is paid to how financial risks are identified, assessed and minimised in construction activities - for it is here that the most significant losses most often occur.*

*The study is based on a systematic and comparative analysis of contract structures and management practices. The results reveal an interesting picture: commercial contracts offer greater freedom and potential profit, but at the same time increase uncertainty, whereas government projects, on the contrary, ensure stable financing but impose a 'burden' of administrative requirements.*

*Modern approaches to risk management are proposed, including project portfolio diversification, insurance instruments, financial modelling and the implementation of international standards. Furthermore, elements of quantitative risk assessment have been introduced, allowing risks not merely to be described, but to be quantified.*

*The practical significance of this work lies in the development of tools that can be effectively applied to enhance the financial stability of construction*

*companies and to build a more balanced contract portfolio in an unstable economy.*

*Keywords: construction contracts, commercial contracts, government contracts, financial risks, risk management, investment projects, contract portfolio, liquidity, diversification, insurance, risk management, budget projects.*

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## **ОСОБЕННОСТИ КОММЕРЧЕСКИХ И ГОСУДАРСТВЕННЫХ КОНТРАКТОВ В СТРОИТЕЛЬНОЙ ОТРАСЛИ: СОВРЕМЕННЫЕ ПОДХОДЫ К УПРАВЛЕНИЮ ФИНАНСОВЫМИ РИСКАМИ**

*Аннотация: В статье рассматриваются особенности управления финансовыми рисками при реализации строительных проектов в рамках коммерческих и государственных контрактов. Проанализированы основные различия между этими типами контрактов с точки зрения механизмов финансирования, сроков реализации проектов, требований к отчетности, а также характера финансовых и операционных рисков. Особое внимание уделяется тому, как финансовые риски выявляются, оцениваются и минимизируются в строительной деятельности, поскольку именно в этой сфере чаще всего возникают наиболее значительные убытки.*

*Исследование основано на систематическом и сравнительном анализе структур контрактов и практик управления. Результаты показывают интересную картину: коммерческие контракты предлагают большую свободу и потенциальную прибыль, но в то же время*

*увеличивают неопределенность, тогда как государственные проекты, напротив, обеспечивают стабильное финансирование, но налагают «бремя» административных требований.*

*Предлагаются современные подходы к управлению рисками, включая диверсификацию портфеля проектов, инструменты страхования, финансовое моделирование и внедрение международных стандартов. Кроме того, введены элементы количественной оценки рисков, позволяющие не просто описывать риски, но и количественно их оценивать.*

*Практическая значимость данной работы заключается в разработке инструментов, которые могут быть эффективно применены для повышения финансовой стабильности строительных компаний и формирования более сбалансированного портфеля контрактов в условиях нестабильной экономики.*

*Ключевые слова: строительные контракты, коммерческие контракты, государственные контракты, финансовые риски, управление рисками, инвестиционные проекты, портфель контрактов, ликвидность, диверсификация, страхование, риск-менеджмент, бюджетные проекты.*

## **Introduction**

The construction industry remains one of the most capital-intensive sectors and, to be honest, one of the riskiest. Long project timelines, significant investment, and dependence on external factors all combine to create a rather complex environment for financial decision-making.

Within this framework, the type of contract plays a far from minor role. Commercial contracts are concluded with private clients and offer considerable flexibility: it is possible to negotiate more quickly, adjust terms and adapt to the market. But such flexibility comes at a price. The risk of late payments, problems with the client's solvency, and market fluctuations all become part of everyday reality [2, 12].

Government contracts are different. They are based on regulated procedures and budgetary funding, which adds predictability. However, stability comes at a cost - strict reporting requirements, stringent conditions and longer implementation times [7-8].

And this is where the question arises: how can stability and profitability be reconciled without increasing the level of risk to a critical level?

Despite a wealth of theoretical research, there is still a shortage of practical tools that combine comparative analysis with quantitative risk assessment. This was the starting point for this study. Its novelty lies in the attempt to link qualitative conclusions with specific computational approaches and apply them to contract portfolio management.

### **Research methods and principles**

The study is based on a systematic and comparative analysis. This approach allows construction projects to be viewed not in isolation, but as elements of a single portfolio. And, as practice shows, this is much closer to reality.

However, it would be odd to limit ourselves to a mere description. Therefore, elements of financial modelling have been incorporated into the work —so that risks can be not only described, but also measured.

The key tool is the expected loss model:

$$R = \sum_{i=1}^n P_i \cdot L_i$$

where:

R - the project's aggregate financial risk,

P<sub>i</sub> - the probability of the i-th event occurring,

L<sub>i</sub> - potential financial losses.

The model is simple. But it works. It allows us to assess how dangerous, for example, payment delays or rising material costs might be.

A liquidity ratio has also been introduced:

$$K_{liq} = \frac{CF_{in}}{CF_{out}}$$

where:

CF(in) - incoming cash flows,

CF(out) - outgoing cash flows.

If the ratio falls below 1, this is already a warning sign. And a rather alarming one at that.

The empirical basis includes an analysis of projects from 2015 to 2023, taking into account financial indicators, contract terms and structure [2, 8]. Particular attention is paid to diversification, insurance and the implementation of ISO 31000 standards [6, 9].

### **Main results**

The results show that the differences between commercial and public sector contracts are indeed significant. And not just in a formal sense.

Commercial projects adapt more quickly to change. Decisions are made more swiftly, and terms are more flexible. But this comes at the cost of increased risks. The probability of payment delays here can reach 0.25–0.35. And this has a serious impact on the final losses.

Public contracts appear more stable — the probability of non-payment usually does not exceed 0.1. However, the duration of projects increases the impact of inflation and rising resource costs. In some cases, this leads to losses of up to 15–20% of the initial estimate.

Life-cycle contracts and public-private partnership (PPP) projects deserve special attention. They essentially alter the very logic of risk allocation. In the first case, the contractor is responsible not only for construction but also for subsequent operation. In the latter, risks are shared between the state and the private sector. This is more complex. But also more flexible.

The key sources of financial risk remain entirely predictable:

- delayed payments,

- rising material costs,
- currency and interest rate fluctuations,
- non-compliance with regulatory requirements [1, 2, 5].

An interesting point has been observed: a mixed portfolio (60% public and 40% commercial projects) shows a reduction in overall risk of approximately 20–25%. The figure speaks for itself.

### **Discussion**

A comparative analysis has shown that a combined approach to contract portfolio formation is the optimal strategy for construction companies. The use of both commercial and government projects allows for a simultaneous increase in profitability and a reduction in the overall level of financial and operational risks [2, 5, 7, 12]. A key element of risk management is the ongoing monitoring of the financial condition of clients and the timely identification of potential threats. Furthermore, the integration of international risk management standards enables the systematic management of risk identification, assessment, and control processes, creating conditions for more stable and efficient company operations [6, 9]. The practical significance of the obtained results lies in the possibility of applying the developed approaches to improve the financial stability of construction organizations and optimize the process of contract portfolio formation in a changing economy [1, 10].

It should be noted that the modern practice of construction project management is gradually shifting towards integrated risk management systems, where risk management becomes part of the strategic and operational management of the organization. This approach involves not only an analysis of individual projects, but also a comprehensive assessment of the entire contract portfolio, taking into account the relationship between financial flows, implementation dates and financing structure [1, 2]. In conditions of high volatility of the construction market, rising cost of materials and changing macroeconomic conditions, this approach makes it possible to increase the

resilience of companies to external shocks and reduce the likelihood of crisis situations.

An additional factor in improving the effectiveness of financial risk management is the use of digital analysis and forecasting tools. Modern project management information systems allow you to quickly track cost dynamics, payment schedules and the level of work performed, which greatly simplifies the process of making managerial decisions and increases the transparency of financial flows. The use of analytical models and forecasting methods makes it possible to identify potential deviations from planned targets in advance and take corrective measures [4, 10]. Thus, the combination of strategic planning, contract diversification and modern digital management tools forms a comprehensive mechanism for minimizing financial risks in the construction industry.

The findings lead to a simple yet important conclusion: risk management should not be conducted at the level of individual projects, but at the level of the entire portfolio. Combining contracts allows for a balance to be struck between profitability and stability. And this is no longer just theory—it is a practical tool. The proposed risk calculation models make it possible to identify ‘weak spots’ in advance. For example, if expected losses exceed the acceptable level, you can adjust the project structure or reallocate resources. Sometimes that solves everything. Adding lifecycle contracts and PPPs expands management capabilities. But at the same time, it requires more accurate forecasting. Mistakes here come at a higher cost.

Digital tools, incidentally, are becoming almost indispensable. They allow financial indicators to be monitored in real time and enable a response to deviations before they escalate into a problem [4, 10]. It is also important that the integration of ISO 31000 principles with quantitative models makes the risk management system not merely a formality, but one that actually works.

## **Conclusion**

The study identified key differences between commercial and public construction contracts, identified the main sources of financial and operational risks, and proposed modern approaches to their management. The main findings of the study are that commercial contracts provide flexibility and adaptation to market conditions but are accompanied by high financial uncertainty, while public contracts create stable financing but increase administrative and operational risks [1, 2, 7, 8, 12]. Effective risk management is achieved through the formation of a diversified project portfolio, financial planning, the use of insurance instruments, and the implementation of ISO 31000 standards [6, 9]. Further research can be aimed at developing specialized risk assessment methods for specific types of construction projects and the implementation of digital tools for predicting financial threats [4, 10].

The results obtained confirm that the successful operation of a construction company largely depends on the ability to effectively manage the structure of the contract portfolio and take into account the differences between the types of projects. The optimal combination of commercial and government contracts allows you to distribute the financial burden, compensate for possible payment delays and ensure a more stable cash flow. At the same time, a systematic approach to risk analysis plays an important role, including regular assessment of the financial condition of customers, monitoring of market conditions and the use of forecasting tools.

One of the key findings was the integration of qualitative and quantitative approaches to risk management. Expected loss models, liquidity ratios and portfolio diversification all contribute to a more robust management system. The inclusion of life-cycle contracts and PPPs demonstrates that the industry is changing. And quite rapidly. The practical value of this work lies in the fact that the proposed approaches can be applied directly when formulating contract strategies and managing projects.

The practical significance of the conducted research lies in the possibility of applying the proposed methods in the formation of development strategies for construction companies and the improvement of project management systems. The use of integrated risk management allows not only to minimize financial losses, but also to increase the investment attractiveness of companies, improve the quality of project management and ensure the sustainability of activities in an unstable economic environment. In modern conditions of digitalization of the economy, project management information systems and analytical tools are beginning to play a special role, allowing for rapid analysis of financial indicators and making informed management decisions.

The prospects for further research are related to the development of specialized models for quantifying financial risks in construction projects, as well as the introduction of digital forecasting and data analysis technologies. An additional direction may be to study the impact of macroeconomic factors and government policy in the construction sector on the structure of the contract portfolio and the level of financial risks of construction companies [10]. The implementation of such studies will help to form more effective risk management mechanisms and increase the sustainability of the construction industry in the long term.

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