Financial Risk Management of Transport Industry

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Abstract. Many organizations attract borrowed sources of financing, use various financial instruments, use a commercial loan, carry out operations in foreign currency, etc. The management of financial risks is necessary because of their enormous influence on the results of the entire activity of the organization. The article analyzes the financial risks arising from the organizations of the transport industry, as well as put forward ways to minimize their negative impact.

1. Introduction
Effective management of financial risks in a commercial organization is the management in which the goal is achieved - minimizing the impact of financial risk on the final result.

Effective financial risk management must meet certain conditions:

- The presence in the financial management system of an enterprise of a certain structure responsible for risk management, with the relevant functions and responsibility for their implementation;
- Identification and accounting of all types of risks inherent in the organization, as well as the combination of internal and external factors affecting the level of financial risks;
- Timely use of appropriate methods and mechanisms to neutralize financial risks, etc. It should be noted that financial risks are the likelihood of adverse financial consequences in the form of loss of income and capital in a situation of uncertainty about the conditions of its financial activities.

They are characterized by the following features that need to be taken into account in management:

- the need for monitoring due to the fact that the level of financial risk is a variable that requires constant monitoring and adjustment;
- a subtle relationship with economic activity, because the degree of risk in practice is determined by the size of economic damage - the loss of part of the proceeds or profits, fixed capital, and the prospect of bankruptcy;
- availability of formalization opportunities, because the financial risk is characterized by the probability and size of potential damage that can be described using statistical models;
- a combination of formal and informal approaches, as the quantitative assessment is determined by
the availability of reliable information and effective, reliable methods (for example, in market or credit
risks).

Consequently, effective financial risk management, which allows one to achieve the goal set —
minimizing the impact of financial risk on the final result — is possible only with a fairly complete
and accurate risk assessment.

2. Relevance of the problem
By the opinion of N.N. Muraveva, financial risk management is an important part of an organization’s
financial management system, which serves as an effective tool for increasing financial stability,
reducing unforeseen expenses, optimizing costs, and also preventing loss-making and bankruptcy. In
this article, based on the analysis of existing approaches to the determination of financial risks, a
system of quantitative indicators (criteria) is substantiated, whose compliance indicates the
effectiveness of risk management in commercial organizations [6].

The article of E.Y. Davydova discusses the main approaches to assessing and managing financial
risks. The characteristic of these methods is given, considers the principles of financial risk
management. Thus, the risk management system is a system of interrelated and interdependent
elements based on the principles considered. This system is the basis for the formation of a risk
management policy, which includes the development of measures to minimize them [11].

O.Antipina, A. Prokopeva think, that financial risks significantly affect the activities and
organization of production processes of an economic entity. Risks generate financial results and have
an adverse effect on the enterprise as a whole, the allocation of financial risks to an autonomous group
shows the importance in the enterprise’s overall “risk portfolio”.

The result of financial risk uncertainty is an unpredictable financial result and the level of income
from financial transactions. Consequently, financial risks can be associated with significant financial
costs for the enterprise, as well as additional income.

The results of experimental studies in financial risk management are given. Various classifications
and types of financial risks were investigated. Based on the analysis carried out, the author’s
classification of financial risks has been refined, the characteristics of common types of financial risks
have been described, and methods of managing financial risks have been systematized [1].

The study of financial risks in different spheres is carried out by such authors as Berdnikova L.F,
Vokina E. B, Yankina I., Ferova I., Makarova S., Khaletskaya S.A, Solskaya I. Yu. and other
[2;3;4;5;7;8;9;10].

3. Statement of the theoretical problem
Many organizations attract borrowed sources of financing, use various financial instruments, apply
commercial loans, carry out operations in foreign currency, etc. It is this that is the source of the
emergence of financial risks, the management of which is necessary because of their enormous
influence on the results of the entire activity of the organization.

In the framework of this study, under financial risks we will understand the possible actualization
of the uncertain results of the financial activities and financial activity of the organization, resulting in
additional losses. We believe that financial risks are a group of risks that include individual types of
risks, each of which has a direct impact on the financial results. Financial risks include the following
types: credit, interest, currency, market and liquidity risks. One of the most basic sources of financial risks affecting the entire activity of an organization is the attraction of borrowed capital. In recent years, the amount of financial resources issued to organizations in the form of loans is increasing at a rapid pace (Figure 1). Some decrease in this indicator was observed only during the crisis period in the domestic economy. Transport industry organizations also actively use borrowed capital in their activities, which directly affects the existence of interest and liquidity risks.
Along with the growth in the volume of loans issued, the overdue debt on them is also growing (Figure 2). Particularly sharply overdue indebtedness increased during the period 2014-2015, which was a consequence of the difficult conditions in which organizations found themselves as a result of various sanctions. Against the background of the growth of total overdue debts, the organizations of the transport industry demonstrate a decrease in this indicator. This characterizes them on the positive side and indicates a lower impact of financial risks on their activities.

The main source of credit risk in an organization is the use of a commercial loan. As a result, this accounts receivable is formed in the assets of the organization, which in itself is a risky asset. As a result of various factors, debtor debt may not be repaid, which will bring additional losses to the organization. The dynamics of aggregate and overdue receivables is presented in Figure 3.
Despite the fact that the share of overdue debts in the aggregate amount is insignificant, it is still an indicator of potential credit risks for all organizations. Currency risks of organizations are caused by the need to use currency in settlements with foreign counterparties. Considering that the volatility of the main currencies (euro and dollar) is quite high, it can be said that potentially any organization, cooperating with foreign partners, faces currency risks. The dynamics of the ruble against the dollar and the euro is shown in Figure 4.

The emergence of market risk for organizations is associated with a constant effect of inflation. As a result, there is a change in prices for various resources and materials, as well as for services sold. Since 2015, a significant drop in inflation has been observed (Figure 5). But despite all the efforts of the Central Bank to target inflation, this figure rose again in the last year, which suggests that organizations must still take into account the effect of market risk in their activities.
Given the data presented, there is no need to talk a lot about the relevance of the chosen topic. The constant presence of various factors affecting financial risks indicates the need to manage them for the effective operation of any organization.

4. Practical importance
The emergence and realization of financial risks are interdependent, therefore, they should be managed, in our opinion, along a single channel. Financial risk management is a process in which a phased implementation of certain actions aimed at reducing the negative consequences of the possible realization of risks on the financial activities of an organization takes place. As a rule, management of any risks of organizations is carried out by the main methods: refusal; Adoption; reduction; broadcast.

When managing financial risks, the choice of methods and methods for managing these risks comes in first place. Their list may differ significantly from the set used in managing other risks (they can be either repeated or individual).

In its most general form, the choice of specific actions of exposure to risk has three levels. At the first level, the control method is selected. In the second stage, the method is determined. At the third stage - risk management tools.

The ratio of the types of financial risks and ways of managing them is presented in Figure 6.
Figure 6. The ratio of types of financial risks and ways to manage them.

A very important point in financial risk management is the evaluation of the effectiveness of the methods and tools chosen. Evaluation of the effectiveness allows the organization to assess the correctness of management decisions or adjust their actions in case of not entirely successful choice.

To assess the effectiveness of each method of risk management, there are different approaches. By itself, the effectiveness of financial risk management is monitored through certain financial indicators of financial activity. Each of the approaches highlights specific indicators that can act as indicators of the effectiveness of the financial risk management process.

Consider them in order. When considering financial risks through raising borrowed capital, the presence of which significantly increases the financial risks of an organization, the main criterion is the effect of financial leverage. The effect of financial leverage reflects an increase in the return on equity at the expense of borrowing. If the return on equity increases, it is believed that the use of borrowed capital is fully justified.

Indicators of the effectiveness of the use of financial leverage is interpreted as an indicator of the effectiveness of managing financial risks when they are understood through the prism of literacy in raising and using borrowed capital. In this case, the effectiveness of financial risk management is assessed by indicators: the level of leverage of financial leverage; the value of the differential of financial leverage and the strength of the impact of financial leverage (Table 1).
Table 1. The formulas for analysis.

| Formula   | Legend | Regulatory               |
|-----------|--------|--------------------------|
| FIU = \( \frac{ZK}{SK} \) | where the FIU - the shoulder of financial leverage; ZK - borrowed capital; SK - equity. | 0-0.5 - low risk; 0.5-0.8 - average level of risk; 0.8 - high level of risk. |
| DFR = \( (Ra - rp) - rni \) | where DFR- is the differential of financial leverage; Ra- is the return on assets; rp - interest rate on borrowed capital attributable to expenses; rni - interest rate on borrowed capital attributable to financial results. | more than 5% - low risk; from 2.5 to 5% - moderate risk; from 0 to 2.5% - moderately high risk; \( \leq 0 \) - high risk. |
| SVFR = \( \frac{\Delta CP}{\Delta Pp} \) | where SVFR - the impact of financial leverage \( \Delta CP \) - the rate of change in net profit for the period (%); \( \Delta Pp \) - the rate of change in profit from sales for the period (%). | 1-1.3 - low risk; 1.3-1.7 - average risk level; \( > 1.7 \) is a high level of risk. |
| RI = \( \frac{Rcf + CAP}{S_{r_{cf}}} \) | where RI - the index of financial risk; Rcf - cash flow profitability; CAP- is the ratio of cash and cash equivalents to the size of assets; \( S_{r_{cf}} \) - is the standard deviation of cash flow profitability. | - |
| \( P(RI) = \frac{1}{2 \times RI^2} \times 100 \) | P (PI) - the probability of financial risk | - |

Thus, the effectiveness of financial risk management is determined by minimizing this index and the likelihood of its implementation.

Also, to assess the effectiveness of financial risk management, statistical methods are used, which consist in calculating the coefficient of variation. The coefficient of variation demonstrates the level of financial risk for each area of financial activity. To evaluate this indicator, internal data of the organization itself is needed, which is not always accessible.

Because of this, the widespread use of this indicator by outsiders is difficult. Criteria for determining the level of financial risk by the value of the coefficient of variation are presented in Table 2.
Table 2. The main criteria for determining the level of financial risk by the value of the coefficient of variation.

| Value of the coefficient of variation | Level of financial risk |
|--------------------------------------|-------------------------|
| 0-0.1                                | Minimum                 |
| 0.1-0.3                              | Small                   |
| 0.3-0.4                              | Average                 |
| 0.4-0.6                              | Tall                    |
| 0.6-0.8                              | Maximum                 |
| 0.8-1.0                              | Critical                |

The criterion for the effectiveness of financial risk management in this case is to minimize the coefficient of variation.

Which indicator to choose to assess the effectiveness of financial risk management, each organization chooses independently. In our opinion, the most convenient is the financial risk index, calculated on the basis of the profitability of cash flows. Its use allows you to assess the stability of the organization to the influence of financial risks.

As part of this study, we will study the experience of financial risk management by organizations of the transport industry and evaluate its effectiveness. Appeal to the experience of financial risk management is precisely the organizations of the transport industry associated with the strategic importance of this sector of the economy for the development of the whole country.

The study of the process of financial risk management by organizations of the transport industry was carried out by us on the basis of data on this area of activity of the following organizations:
- railway transport: Russian Railways OJSC, Federal Passenger Company JSC, Federal Freight Company JSC;
- air transport: PJSC "Aeroflot", PJSC "Siberia Airlines" (brand S7), JSC AK "Ural Airlines";
- water transport: Far Eastern Shipping Company PJSC, Northern Shipping Company OJSC, Volga Shipping Company OJSC.

All these organizations have been operating for quite some time, they have stable performance indicators and occupy a stable position in the market.

Each of these organizations allocate financial risks in their activities. Some share various types of financial risks, some simply talk about aggregate financial risk in their own activities. The indicated risks are indicated in table 3.

As can be seen from the presented data, the full list of financial risks that we identified in the first chapter is distinguished by OJSC Russian Railways, Federal Passenger Company JSC and Ural Airlines OJSC (the organization's market risk is defined as the risk of appreciation consumed resources and services). Federal Passenger Company JSC does not share financial risk into types, which, in our opinion, significantly limits the possibility of applying various methods and tools for financial risk management.

PJSC "Aeroflot" among financial risks does not allocate interest and currency risks, but highlights the risk of availability of capital. In the organization’s understanding, this risk is disclosed in the occurrence of losses that may arise as a result of the inability to attract borrowed capital to finance operating activities, including due to unacceptable conditions for the organization. PJSC “Siberia Airlines”, PJSC “Far Eastern Shipping Company” and OJSC Shipping Company “Volga Shipping Company” do not single out some important types of financial risks that they manage, which affects the entire process of financial risk management.

OJSC Northern Shipping Company does not single out market risk, but speaks of the risks associated with the purchasing power of money.
Table 3. The list of financial risks of enterprises of the transport industry.

| Organization                        | Types of financial risks                                                                 |
|-------------------------------------|------------------------------------------------------------------------------------------|
| OJSC "Russian Railways"             | Credit risk; liquidity risk; market risk; currency risk; interest risk                    |
| JSC "Federal Passenger Company"     | Market risk; interest risk; currency risk; credit risk; liquidity risk                    |
| JSC "Federal Freight Company"       | Total financial risk                                                                      |
| PJSC "Aeroflot"                     | Market risk; credit risk; liquidity risk; capital risk                                    |
| PJSC "Siberia Airlines"             | Currency risk; interest risk; credit risk                                                 |
| PJSC "Ural Airlines"                | Currency risk; interest risk; credit risk; the risk of appreciation of consumed resources and services; risk of default to shareholders |
| PJSC "Far Eastern Shipping Company" | Liquidity risk; currency risk                                                             |
| OJSC "Northern Shipping Company"    | The risks associated with the purchasing power of money; currency risk; interest risk; credit risk; liquidity risk |
| OJSC "Shipping Company Volga"       | Interest risk, inflation risk, currency risk                                              |

At its core, it is precisely the change in the purchasing power of money that is the main reason for the change in the price of various goods, works, or services, which is a source of market risk. Therefore, with a certain assumption we can say that this organization takes into account all types of financial risks in its financial activities.

Different views on the composition of financial risks in each organization are due to individual views on their composition. At the same time, highlighting these risks, as well as disclosing the methods and tools for managing them in annual reports, speaks of their importance for these organizations.

The presence of financial risks in the activities of these organizations is explained by the following factors.

First and foremost, the attraction of borrowed sources of financing for the activity (some of which are attracted at floating interest rates) causes the presence of interest and liquidity risks. In addition, a small share of working capital, which acts as a source for repayment of obligations to counterparties, can affect the amount of liquidity risk. In favor of the assumption about the presence of these risks in the analyzed organizations are evidence of data on their activities (Table 4).
The presented data allow us to draw some conclusions. The overwhelming share of own sources of financing activities of railway organizations indicates a high financial independence from changes in financial markets, which has a positive effect on the financial activities of the organization. In other organizations, the share of own sources of financing activities is much lower.

At PJSC "Aeroflot" this is due to the active use of leasing tools for the development of its own activities (most of the transport from the organization was acquired under leasing programs, which is due to the specifics of its activities). For airlines, this situation is standard in world practice. PJSC “Far Eastern Shipping Company” abuses borrowed capital and payables, which puts it in a difficult financial situation. As a result, the company is exposed to liquidity and interest rate risks.

Almost all organizations (with the exception of Aeroflot PJSC) have a rather low share of working capital, which determines the presence of liquidity risk in the activities of organizations.

**Table 4.** Dynamics of the share of borrowed sources of financing and the share of working capital in the assets of organizations of the transport industry.

| Organization                        | Share of borrowed sources of financing,% | | | | Share of working capital in assets,% | | | |
|-------------------------------------|------------------------------------------|---|---|---|---|---|---|---|---|---|
|                                     | 2014| 2015| 2016| 2017| 2014| 2015| 2016| 2017| 2014| 2015| 2016| 2017|
| OJSC "Russian Railways"             | 27,4| 29,4| 25,7| 27,9| 8,0 | 7,2 | 5,4 | 5,5 |
| JSC Federal Passenger Company"      | 22,1| 21,5| 21,1| 22,6| 10,8| 10,2| 11,3| 11,7|
| JSC "Federal Freight Company"       | 2,5 | 2,7 | 2,5 | 2,4 | 13,0| 9,5 | 19,0| 13,7|
| PJSC "Aeroflot"                     | 56,6| 63,6| 31,8| 52,5| 58,5| 61,2| 85,7| 60,9|
| PJSC "Siberia Airlines"             | 7,8 | 6,6 | 6,5 | 3,5 | 92,7| 93,5| 79,4| 83,2|
| PJSC "Ural Airlines"                | 87,8| 86,1| 65,0| 61,2| 71,2| 73,9| 71,0| 73,8|
| PJSC "Far Eastern Shipping Company" | 15,9| 20,8| 23,4| 56,5| 5,4 | 5,5 | 18,0| 11,9|


OJSC "Northern Shipping Company" 22.9 35.9 35.4 43.3 41.0 37.3 34.3 26.8

OJSC" Shipping Company Volga " 37.9 39.9 25.9 14.5 19.0 25.9 18.1 12.7

All companies cooperate with foreign partners, which affects the presence of currency risk in the activity.

Next, we estimate the efficiency of the financial risk management process of organizations of the transport industry using the indicators described above. Immediately it should be noted that we do not have data for calculating the variation coefficients for the financial transactions of selected organizations due to the lack of access to their internal data.

First of all, we turn to such indicators as the leverage of financial leverage. The evaluation results are presented in table 5 respectively.

### Table 5. Dynamics of financial leverage of the transport industry organizations.

| Organization                  | 2014 | 2015 | 2016 | 2017 | Interpretation of the result |
|-------------------------------|------|------|------|------|-----------------------------|
| OJSC "Russian Railways"       | 0.38 | 0.42 | 0.35 | 0.39 | Low risk                   |
| JSC "Federal Passenger Company" | 0.28 | 0.27 | 0.27 | 0.29 | Low risk                   |
| JSC "Federal Freight Company" | 0.24 | 0.17 | 0.16 | 0.3  | Low risk                   |
| PJSC "Aeroflot"               | 1.3  | 1.7  | 0.57 | 1.1  | High risk                  |
| PJSC "Siberia Airlines"       | 6.1  | 6.3  | 4.5  | 5.7  | High risk                  |
| PJSC "Ural Airlines"          | 7.2  | 6.2  | 1.9  | 1.6  | High risk                  |
| PJSC "Far Eastern Shipping Company" | 0.19 | 0.26 | 0.31 | 1.3  | High risk                  |
According to the data presented, a group of railway organizations have a low level of risk. In our opinion, this situation is due to the low share of borrowed capital in the aggregate sources of financing activities. This situation is typical for domestic organizations. Abroad, the financial situation of railway organizations is completely different. A high level of financial risk according to this indicator is observed in aviation organizations. This is due to the fact that they actively use leasing in their activities to maintain the appropriate quality of their own air fleet.

In our opinion, the use of the analyzed indicator to determine the level of the entire aggregate of financial risks is not entirely correct, since it does not take into account the whole range of factors affecting the financial activities of an organization. We believe that with the help of this indicator it is possible to adequately assess the risk of liquidity, which is realized in case of a lack of financial resources to repay borrowed sources of financing.

5. Conclusion
As a result of the study, the following conclusions can be drawn:

1. Modern economic conditions affect the availability and continuous development of sources of financial risks. High currency volatility, gradually increasing credit burden, inflation effect, etc. are ideal conditions for the occurrence and possible realization of financial risks. In turn, this places all organizations (in particular, organizations of the transport industry) in terms of the need to manage financial risks. Despite the rather wide list of possible ways and tools to manage these risks, organizations often ignore them, carrying out routine activities in the field of financial activities.

2. The most accurate indicator of the assessment of the effectiveness of the financial risk management process is the financial risk index, on the basis of which the probability of its realization is calculated. This conclusion was made by us on the basis that other indicators reflect the effect of financial risk management to a limited extent, focusing only on the area of attracting borrowed capital and its management. In such a framework, only interest rate risk and balance liquidity risk can be estimated.

3. Among the organizations of the transport industry at the present stage of development, organizations engaged in air and water transport are most exposed to the financial risks. In our opinion, this is due to the need for the constant use of bank loans or leasing in its activities, which is necessary for the renewal of fixed assets represented by aircraft and ships. Organizations of railway transport have avoided this only because of constant state support, which saves them from the need to constantly use significant amounts of borrowed funds in their activities. Thus, it can be concluded that transport organizations as a whole will always be exposed to significant financial risks.

4. At the same time, they do not use all the opportunities to manage financial risks, since their existing systems do not fit the definition of effective ones. As a rule, organizations use limiting, diversification and hedging. In our opinion, more attention should be paid to risk-oriented budgeting.

This tool allows you not only to keep under control the structural characteristics of financial risks, but also allows you to take into account possible losses and plan future possible results of activity in accordance with them.
Domestic organizations need to improve their approaches to financial risk management, improve their own knowledge and skills, learn more foreign experience. In our opinion, this can significantly improve the quality of their financial activities.

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