Creation of a Reserve Fund as a Tool for Ensuring the Financial Security of an Enterprise

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Abstract

The paper substantiates the need to study the level of financial security of an enterprise. To study the dynamics of financial security of an enterprise it is considered a system-dynamic model and simulation of distributed financial flows of an industrial enterprise under impact of random factors, which reflect the threats affecting the financial security of enterprise. Information on the financial statements of firms is often confidential, which leads to the need to develop a simulation model of the firm’s activities and to conduct experimental research based on size of an enterprise’s reserve fund, which guarantees its financial security. During simulation experiments for industrial enterprise three scenarios (pessimistic scenario, optimistic scenario and most probable scenario) were considered and it was established that for at least half of the cases, an enterprise needs to form a reserve fund to maintain an autonomous operation and ensure the necessary level of financial security.

Keywords: Financial Security, Financial Stability, Current Assets, Cash Flow, Simulation Model of Enterprise.

Introduction

Ensuring sustainable growth of the enterprise’s activity, stability of its performance, achievement of goals that meet the interests of owners and society as a whole, is achieved by forming the enterprise’s strategy, which in the global economy is determined by the availability of a reliable system of its financial and legal security (Rudensky, 2002; Starinets, 2018; Slizkaya, 2007).

Financial security is the object of research in the works of Ukrainian researchers (Baranovsky, 2004; Bilyiy, 2018; Solomin, 2018; Epiphanov, 2009). The need to ensure sustainable long-run development, especially under crisis, requires further study of approaches to assessing and analyzing the level of financial security of an enterprise.

In the field of financial security of an enterprise there are problems associated not so much with the inefficiency of the financial activity of the enterprise, the impossibility of payments, the appearance of arrears, which reduces the level of financial security of the enterprise (Thompson, 2006; Bagrov, 2008), as with a systematic analysis of the dynamics of the financial condition of the enterprise, causing both administrative and criminal liability. This kind of problem requires a research using a systems approach and dynamic analysis of the system.

Innovation Management and Information Technology impact on Global Economy in the Era of Pandemic

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The results of the simulation experiment in table 5 demonstrate that in 49.6% of cases there is no need for metallurgical enterprises to form a reserve fund, while in 50.4% of cases it becomes necessary to form a reserve fund to maintain the autonomous operation of the enterprise (Fig. 4).

![Histogram](image)

**Fig. 4: Histogram of the Share of the Reserve Fund \( R/TC \) Distribution in the Structure of Current Assets (Most Probable Scenario)**

The average value of the \( R/TC \) ratio as a result of simulation experiments for the initial actual data was -3.96% with a standard deviation of 77.4%. With a 95% probability, the reserve for a metallurgical company should be at least 11% of its return capital.

**Conclusions**

Thus, the use of the proposed simulation model made it possible to evaluate the complex effect of various factors on the financial security of an enterprise and its structure, investigate the dynamics of the integrated assessment of the financial security of an enterprise.

For statistically valid parameters for the operation of a metallurgical enterprise, three scenarios were considered for its operation and during simulation modeling it was determined with a 95% probability that the reserve of a representative industrial enterprise should be up to 11% of its return capital. Moreover, in 50.4% of cases of production activities, representative enterprise will explore these reserves using either equity or debt capital to ensure own financial security. This simulation model can be implemented in any other industries for decision-making of practitioners about size of reserve fund for initial parameters of representative industrial enterprise using different scenarios.

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