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Financial Logistics and Its Application in Cash Flow Management

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ABSTRACT
The article deals with such an aspect of enterprise management as financial flow management. The purpose of the study is to build such an algorithm for managing financial flows in the enterprise, so that the company avoids problems with liquidity on the one hand and problems with excess cash on the other.
Financial flow management is an important part of financial policy in every company, as this process has a great impact on the final financial result: profitability and efficiency of the enterprise.
The research also examines the movement of accounts receivable and accounts payable as one of the sources of cash inflows and outflows. It is important to focus on the management of these objects of financial activity of the enterprise, as inefficient management can lead to a number of negative consequences. An unbalanced state of these flows can lead to an excess or shortage of cash in the enterprise. An excess of cash leads to idle working capital, and a shortage can negatively affect the production process, the company's liquidity, and its image. For more efficient management of accounts payable and receivables, an algorithm for managing these flows is presented.
For a more accurate assessment of the situation with the balance of funds on the company's accounts in the process of inflows and outflows of payables and receivables, it is suggested to use mathematical tools. Calculations were made to confirm the effectiveness of the use of this mathematical tool in the analysis of the situation with the balance of working capital. The article also provides recommendations on how to eliminate the current situation with the cash balance in order to improve the company's performance and, as a result, increase its profitability and competitiveness.

Keywords: *Accounts receivable, Cash flows, Accounts payable, Logistics, Working capital, Payment calendar, Finance.*

1. INTRODUCTION

One of the priority areas in the management of each enterprise is the management of financial flows. Financial flows are present in all companies, regardless of the type of activity, size, strategic goals, and legal form. Moreover, due to the rapidly developing market, both international and domestic, financial management in the enterprise is becoming increasingly popular.

For sustainable development and increasing the profitability of the company, it is necessary to make optimal use of the resources available to it, including financial resources: both a working capital deficit and a surplus should be avoided. In both cases, this can lead to certain negative consequences, which we will consider later.

Thus, one of the company's goals is to introduce a financial management system that will keep the company in balance, thereby ensuring the possibility of its development. It follows that the right choice of tools and methods for managing financial flows and creating a balanced system of financial flows and maintaining it up-to-date in the organization will allow the enterprise to avoid financial problems and maximize profits [5].

2. RESEARCH METHODOLOGY

To achieve the purpose of the study, the authors considered the principles and methods of managing financial flows at the enterprise, as well as the principles and methods of logistics as a science, through qualitative analysis. As a result, a comparative analysis was conducted to identify similarities and differences.

To build a scheme for managing the company's financial flows, systematization and modeling methods were used. Also, as part of the quantitative study, the company's data were analyzed to identify cash gaps and confirm the effectiveness of using mathematical tools.

3. RESEARCH RESULTS AND DISCUSSION

One of the ways to create a balanced system of financial flows in an enterprise is to implement an effective cash flow management system. In this case, the company faces the question of how to most effectively organize this system, what approach to use and how to exercise control. After all, in the event of a violation of this system, the company's cash flows may become unbalanced. Due to unbalanced cash flows, enterprises lack working capital, which can lead to bankruptcy [7].

For more accurate balancing and management of financial flows, we can use science, which is located at the intersection of two sciences – logistics and financial management. This is the so-called financial logistics.

Financial logistics can help in the correct construction and balancing of the system of financial flows, this will avoid problems with the liquidity of the enterprise. However, financial logistics is practically not used in practice. The question arises, why is it not applied and how can financial logistics tools and methods be effectively applied to balance financial flows?

But can we call this science a separate science, and is it not just a substitute for the name "financial management"? Let's consider this question in more detail.

Financial management is one of the ways to manage the financial flows of a company. Financial logistics is a narrower concept, which includes a system of tools, methods and tools that together contribute to the increase in the efficiency of cash flows in the enterprise. There are similar points in these definitions. In addition, logistics and financial management have similar principles of work. For example, both in logistics and in financial management, one of the basic principles is the desire to build an integrated holistic balanced system in order to manage logistics flows in one case and finances in the other with the greatest efficiency. In both sciences, an integrated approach to managing financial and material flows is necessary for more effective enterprise management.

But, despite the similarity of these definitions, it cannot be said that financial logistics is another name for financial management. Financial management treats financial flow more broadly than financial logistics, and other similarities and differences can be seen in table 1.

This is confirmed by the researches of other authors. V.I. Sergeev [10], Yu.S. Svatalova [11] wrote in their works that in financial logistics, financial flow is considered as a directed cash flow within the logistics system, that is, in financial logistics, the cash flow is narrower than in financial management. J. K. Van Horn, J.M. Wachowicz [15], P. Etrill [14], V.I. Sergeev [10], in turn, noted that financial management treats financial flow as working capital. At the same time, it is not associated with material and information flows as in financial logistics.

Thus, we can conclude that financial logistics is a separate science that combines the principles of two sciences – finance and logistics. And we can use the principles and methods of financial logistics to manage and balance financial flows.

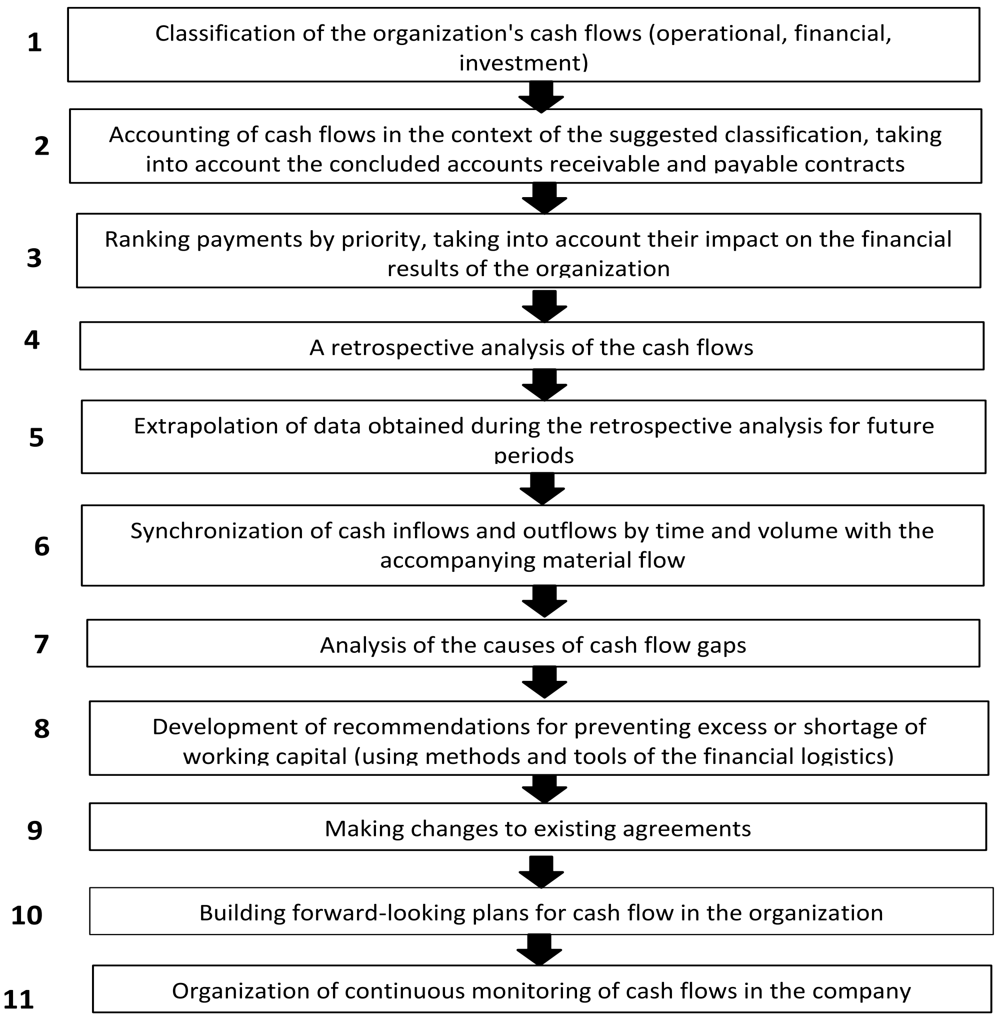
Financial logistics implies in this case the synchronization of material and financial flows in the enterprise, namely the management of receivables and payables. It is the close connection of material flows with financial flows that is the key factor by which we can refer this process to financial logistics.

Effective management of accounts payable and receivables, and as a result, cash flows will allow the company to achieve more effective management of its own business. Too large a balance of funds in the company's accounts can lead to the fact that these funds will be idle. In this case, the company may miss the potential profit that it could earn by investing these excess funds in securities, in expanding production, in investments, etc. A deficit can also lead to negative

Table 1. Similarities and differences between financial logistics and financial management

Financial logistics	Financial management
Similarities	
The desire to build an integrated holistic balanced system.	
A comprehensive approach to managing financial and material flows is needed.	
Differences	
A narrower concept that includes a set of methods, and tools aimed at improving the efficiency of financial flows.	A system aimed at managing the company's finances.
Already treats the financial flow	Treats the financial flow more broadly

Source: compiled by the authors on the basis of [1], [2], [6]



Source: compiled by the authors on the basis of [4], [13]

Figure 1 Diagram of the algorithm of financial flow control.

consequences: the company may face a liquidity risk, lose loyal suppliers, and there may also be a risk of disruption to the production process [9]. Therefore, the company must constantly balance between inflows and outflows of funds, maintaining solvency or investing excess cash. To solve the problem of managing financial flows, a management algorithm was developed, shown in figure 1.

This algorithm for managing cash at the enterprise consists of a sequential chain of procedures, starting with the classification of the organization's cash flows (operational, financial, investment) and ending with the organization of constant monitoring of cash flows in the organization.

In many companies, there is a situation when, in general, at the end of the period, the company has everything in order with money, but on a particular day there is no necessary amount to pay the counterparty or transfer taxes, which leads to some financial problems that affect the company's activities. This situation characterizes the existence of a cash gap in the organization's activities [8].

As a rule, a cash gap occurs when the maturity of accounts payable is longer than the maturity of accounts receivable, that is, the company needs to pay the debts before the receivables are received.

In our country, the economy is built on the principle of lending (the performance of services occurs with deferred payment, that is, the service is performed first, then it is paid), companies have such types of debt as accounts payable and receivables [12]. The share of such enterprises, in which all revenue consists of accounts payable and receivables, which in the process of cash flow repay each other, is close to 100%. And, often, they are the source of formation of current assets of enterprises, therefore, companies, in addition to all of the above, are forced to manage considering the terms and amounts of receivables and payables [3]. Thus, the company should introduce a tool for controlling and regulating cash flows, one of the options is to maintain a payment calendar.

One of the key goals of using the payment calendar is to balance incoming and outgoing financial flows in such a way that the dates of receipt of funds are ahead of the dates of payment for accounts payable, which will avoid cash gaps.

Therefore, based on data on receivables and payables, each company can build a payment calendar for the upcoming period in the whole company for up to a year. As an example, a payment calendar that includes receivables and payables related to the accounting direction of the company's activities, and reflects the presence or absence of free funds in circulation, is presented in table 2.

Thus, creating a graph of cash receipts and outflows in such a visual form can allow managers to more accurately study the dynamics and trends of financial flows.

From this calendar, we can see that at the end of each quarter, the company has free funds, however, during each quarter there is a lack of funds in turnover. This situation can be resolved by reorganizing financial discipline with clients. For example, renegotiating a contract that takes into account all the wishes of customers can be a good way to solve problems. And even if all the wishes turn out to be impossible due to limited financial flows, the most important goals will definitely be achieved.

The company should address this issue in the near

Table 2. Payment calendar for the provision of accounting services for the upcoming period up to a year

Serial number of the payment day	Receipt of debtors' payments	Payments to creditors	Available funds	
January: 1	21444		21444	1 quarter
10	2000		23444	
15		37000	-13556	
20	54000		40444	
February: 41	2000		42444	
46		37000	5444	
51	25000		30444	
March: 70	2000		32444	
75		37000	-4556	
80	25000		20444	
90	0	0	20444	
April: 101	2000		22444	2 quarter
106		37000	-14556	
112	54000		39444	
May: 122	4000		43444	
131	2000		45444	
136		37000	8444	
141	25000		33444	
June: 162	2000		35444	
167		37000	-1556	
172	25000		23444	
180	0	0	23444	
July: 192	2000		25444	3 quarter
197		37000	-11556	
202	54000		42444	
August: 223	2000		44444	
228		37000	7444	
233	25000		32444	
September:254	2000		34444	
259		37000	-2556	
264	25000		22444	
270	0	0	22444	
October: 284	2000		24444	4 quarter
289		37000	-12556	
295	54000		41444	
November: 315	2000		43444	
320		37000	6444	
325	25000		31444	
December: 345	2000		33444	
350		37000	-3556	
355	25000		21444	
Year			21444	

Source: compiled by the authors

future in order to plan calmly its activities, and not solve issues related to the constant search for funds to close the gaps in the management of financial flows.

It is also worth noting that a microenterprise was given as an example. The construction and analysis of the payment calendar did not take much time, since the problem with managing cash flows, according to the customer, is observed only in the field of providing financial consulting, namely accounting. However, there are also multi-product companies that provide a huge range of services and have many regular and new customers. In this case, the construction of a payment calendar for such companies will take a long time, and also will not always be effective for certain reasons.

In this regard, we can use mathematical tools that will help us, focusing only on the data of the financial statements, to assume how the company can improve the situation with the cash flows of the enterprise, for a specific forecast period. The balance of working capital in the enterprise can be calculated using the formula PD * OD-PK*OK, where:

PD — amount of receivables received;

PK— amount of receipt of accounts payable;

OD — number of turns of accounts receivable:

$$\frac{\text{Serial number of the payment day}}{\text{Turnover for receivables}} \qquad (1);$$

OK — number of turns of accounts payable:

$$\frac{\text{Serial number of the payment day}}{\text{Turnover for payables}} \qquad (2).$$

If, as a result of calculations, we come to a situation where PD * OD < PK * OK, then we can conclude that there is a lack of working capital at this date.

We use this formula to confirm the results obtained according to a pre-made payment calendar. To do this, we will find the average turnover period for payables and receivables, as well as the average amount of these payments (table 3).

For example, we see that on the 90th day:

OD = 90/29 = 3.10345 = 3

OK = 90/32 = 2.8125 = 2

The amount of available funds in circulation for 90 days is:

261 * 3 — 318 * 2 = +147 thousand rubles.

Thus, on the 90th day, there is an excess of working capital in the amount of 147 thousand rubles.

The amount of available funds in circulation on the 128th day is:

PD * *KD* – *PK* * *OK* = (128/29) * 261 - (128/32) * 318 = 4 * 261 – 4 * 318 = -228 thousand rubles.

Also, according to the same principle as above, we will make a calculation for 174 days:

PD * *KD* – *PK* * *OK*= (174/29)*261 - (174/32) *318 = 6*261 - 5*318=-24 thousand rubles.

Thus, according to the obtained values, we can see that they absolutely coincide with the values for identical dates in the payment calendar. Therefore, this formula can be used as a tool for planning cash flows and making certain management decisions.

4. CONCLUSION

The correct determination of the company's working capital needs is considered one of the key conditions for its successful economic activity.

Lack of cash can negatively affect the production process. If there is a shortage of working capital, the company needs to take measures to reduce costs, which may include: reduction of labor costs for employees, analysis of the organizational structure, analysis of management decisions, analysis of accounts receivable and payable, etc. By applying these measures, the company will be able to optimize costs, which will

Table 3. Cash flow, thousand rubles

Serial number of the payment day	Receipt of payments from debtors	Payments to creditors	Balance of current assets
29	261	–	261
32	–	318	-57
58	261	–	204
64	–	318	-114
87	261	–	147
90	–	–	147
96	–	318	-171
116	261	–	90
128	–	318	-228
145	261	–	33
160	–	318	-285
174	261	–	-24
180	–	–	-24

Source: compiled by the authors

increase the efficiency and profitability of the company.

Excess cash leads to the fact that the working capital is inactive and, therefore, does not bring profit. The company should invest excess funds in the production of additional goods (services), in real estate, in inventory, in deposits, etc.

To build a balanced system of financial flows, the authors suggest to use the algorithm they developed. The authors also tested the suggested mathematical tools based on the data, which will allow more accurately balancing financial flows in the enterprise.

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