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FINANCIAL ASSETS AS DRIVER OF THE EFFICIENCY OF VARIOUS DIRECTIONS OF BUSINESS ACTIVITY

Abstract. In this article, we examine the role of financial assets as a key instrument for improving enterprise management efficiency, with a particular focus on marketing activities under the conditions of globalization, digital transformation, and increasing competition. We substantiate the relationship between financial asset management and the effectiveness of marketing decision-making, emphasizing that strategically managed financial resources strengthen enterprise adaptability, stability, and innovation capacity. We compare approaches to financial asset evaluation according to NAS 13 and IFRS, identifying major differences in classification detail, valuation methodology, and disclosure requirements. We also analyze key risks – credit, liquidity, and market – and develop recommendations for incorporating risk assessment into marketing budget formation and resource planning.

In our analysis, we identify the main functions of financial assets in marketing, including ensuring liquidity, financing promotional campaigns, supporting pricing strategies, and fostering customer relationship management, brand development, and digital transformation. We critically review domestic and international research to reveal the absence of a unified methodological framework for classifying and assessing financial assets and to justify the need for integrating financial and marketing analytics. We propose directions for improving financial asset management systems that align liquidity, profitability, and risk indicators with marketing performance metrics such as ROI and CLV. Our findings show that rational financial asset management enhances the return on marketing investments, stabilizes communication cycles, minimizes underfunding risks, and supports the creation of sustainable competitive advantages.

We argue that companies can use these approaches to react more dynamically to market changes, maintain brand continuity, and allocate financial resources more effectively to achieve sustainable growth in both national and global markets. Ultimately, we demonstrate that strategic financial asset management serves as a catalyst for increasing marketing effectiveness and strengthening the overall competitiveness of enterprises.

Keywords: *Financial Assets, Marketing, Management, Enterprise Efficiency, Profitability.*

JEL Classification: G1; M0; M1; M2; M3.

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Introduction. In today's economy, shaped by globalization, digital transformation, and ongoing market fluctuations, the challenge of ensuring the efficiency of enterprise

marketing activities has become particularly pressing. Marketing, which just a few decades ago was perceived mainly as a tool for product promotion and customer communication,

has now evolved into a comprehensive system of strategic management. It encompasses demand generation, brand value creation, pricing optimization, customer experience management, and consumer behavior forecasting. Under these conditions, the effectiveness of marketing decisions is directly dependent on the availability and efficient use of financial resources and assets, which act as key drivers of enterprise growth.

The purpose of the study is to substantiate the role of financial assets as a key instrument for enhancing the efficiency of enterprises' marketing activities under the conditions of globalization, digital transformation, and increasing competition.

To achieve this goal, a number of objectives have been set, including: substantiating the impact of financial assets on effective enterprise management, particularly in the field of marketing; comparing definitions of the category «financial assets» used in national and international financial reporting standards; determining the role of financial assets in performing the key functions of marketing activities; examining the risks associated with enterprises' financial assets; analyzing the influence of individual elements of financial assets on different types of business activities; and conducting a critical review of domestic and foreign scientific research regarding the classification of specific enterprise assets as financial assets.

The object of the study is the processes of recognition and analysis of financial assets within the enterprise's operations.

The subject of the study is the set of theoretical, methodological, and practical issues concerning the role of financial assets in enterprises under modern economic conditions.

Literature Review. The theoretical and methodological foundations for the evaluation and management of a company's financial assets have been explored in the works of numerous foreign and domestic economists, including K. J. Wachowicz, J. Van Horne (Van Horne & Wachowicz, 2008), J. F. Marshall, V. K. Bansal (Marshall & Bansal, 1998), N. O. Piskunova (Piskunova, 2020), A. M. Podderohin (Podderoygin, 2009), J. Richard (Rischard, 2010), O. Sarapina (Sarapina & Kirilkina, 2019), J. Siegel (Shim & Siegel, 2000), O. O. Tereshchenko (Tereshchenko & Babiak, 2020), V. P. Unynets-Khodakivska (Uninets-Khodakivska, Kostyukevich, & Lyatambo, 2009), F. Fabozzi (Fabozzi, 1998).

In the works of both foreign and domestic economists (Van Horne & Wachowicz, 2008; Fabozzi, 1998; Marshall & Bansal, 1998;

Shim & Siegel, 2000; Podderoygin, 2009; Tereshchenko & Babiak, 2020; Piskunova, 2020; Sarapina & Kirilkina, 2019; Uninets-Khodakivska, Kostyukevich, & Lyatambo, 2009), financial assets are viewed as key instruments for managing a company's liquidity, risks, and overall value. In classical approaches (Van Horne & Wachowicz, 2008), they are considered part of working capital policy, while Fabozzi and Marshall emphasize portfolio and hedging strategies. Ukrainian scholars adapt these concepts to the realities of volatile markets, interpreting financial assets as a buffer for maintaining solvency and supporting sales growth.

However, there is no unified definition of the term «financial assets»: its interpretation ranges from a narrow view (cash, securities) to a broad one (accounts receivable, derivative instruments). In the marketing context, financial assets determine flexibility in budgeting, pricing, customer credit policy, and risk management, directly influencing demand stability and promotional efficiency. They provide financial resilience for marketing programs and enhance their investment attractiveness, though excessive financialization may hinder creativity and market adaptability. Despite the extensive research in this area, a unified methodological framework for evaluating the impact of financial assets on managerial and marketing performance remains underdeveloped, which highlights the need for further scholarly investigation.

However, despite the significant number of studies in this area, there remain several issues that require further investigation. In particular, scholars have not yet developed a unified approach to defining the category of «financial assets», and their content and essence are still insufficiently disclosed.

Research Methodology. The methodological basis of the study is based on the dialectical method of cognition of phenomena and processes. In the course of studying the theoretical aspects of this complex process, methods of analysis, synthesis and comparison were used to clarify the object of the study; historical and dialectical methods were used to study the essence of individual elements of financial assets, their management systems and determine the features of their development at the present stage; graphic and tabular methods were used to visually display and generalize individual aspects of the study; methods of generalization and implementation of results in the formation of conclusions and proposals.

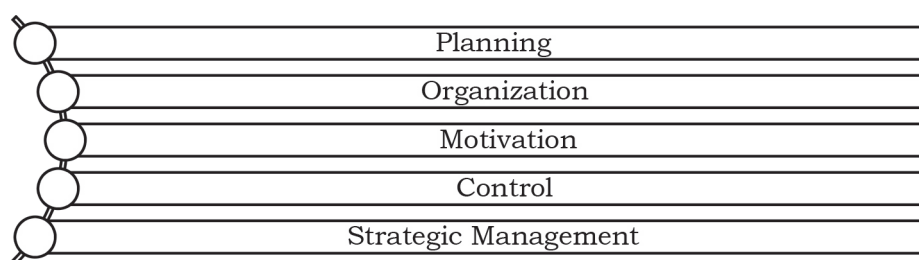


Fig. 1. Stages of financial asset management to increase the profitability of the enterprise

The information base of the study consists of legislative and regulatory acts, works of domestic and foreign economists, materials of specialized periodicals on analytical support of financial asset management, as well as relevant Internet resources.

Main Results. Financial assets play a crucial role in managing a company's overall operations, as they ensure liquidity, investment flexibility, and risk resilience. Their effective use enables enterprises to optimize capital allocation, stabilize cash flows, and enhance strategic decision-making. In particular, financial assets have a significant impact on managing marketing activities, as they provide the financial foundation for planning, budgeting, and implementing marketing strategies. Through the use of financial instruments and investment resources, companies can maintain stable financing of promotional campaigns, pricing policies, and customer relationship programs even under market uncertainty. Therefore, in this study, greater emphasis will be placed on examining the role of financial assets specifically in the management of marketing activities.

Financial assets represent a universal resource that not only supports the stability of business operations but also creates the foundation for innovation. The presence of liquid assets enables companies to quickly respond to shifts in market demand, finance advertising campaigns, enter new markets, and build long-term relationships with customers. At the same time, investments in marketing research, digital technologies, and analytics systems require sufficient financial backing, underlining the importance of competent asset management. Thus, in the modern economic environment, financial resources and assets are not merely an economic category but a strategic instrument for advancing marketing activities. They form the basis for effective enterprise management, enable the implementation of innovative projects, and create competitive advantages in both domestic and international markets.

Managing marketing activities is a complex, multifaceted process that includes planning, organization, motivation, control, and strategic oversight. In today's context, financial asset management plays a pivotal role in ensuring this process is efficient, as it provides the resource base necessary for implementing marketing decisions and directly influences a company's competitiveness in the marketplace (Kumar, 2024).

Financial assets play a decisive role in shaping the opportunities for planning and implementing marketing campaigns. When forming a marketing budget, companies must evaluate the risks associated with investments in advertising, digital promotion channels, and other communication tools. Proper allocation of financial assets enables cost optimization while achieving maximum coverage of the target audience, ensuring that each invested unit of capital generates measurable marketing impact.

Rational use of financial assets contributes to building an effective organizational structure for marketing management. Investments in software solutions, CRM systems, and automated analytics tools improve the coordination of team activities, reduce time losses, and enhance the efficiency of customer interactions. This, in turn, supports more data-driven decision-making, which is critical for aligning marketing efforts with corporate strategy.

Financial assets also provide the foundation for motivating marketing personnel. These may include performance-based bonuses, funding for training programs, and investments in corporate culture initiatives that foster creativity and innovation. Such measures improve employee engagement, stimulate the generation of new ideas, and ultimately enhance the effectiveness of marketing campaigns.

Moreover, the availability of financial resources makes it possible to implement real-time monitoring systems for key marketing indicators. Although business

Table 1. Relationship between financial assets and the main functions of the enterprise's marketing activities

Marketing function	The role of financial assets	Expected results
Planning	Budgeting of marketing campaigns, risk assessment of investments in advertising and promotion	Optimal allocation of resources, achieving goals with minimal costs
Organization	Financing CRM systems, automation programs, marketing infrastructure	Increasing team efficiency, reducing time spent, better interaction with customers
Motivation	Use of financial resources for bonuses, premiums, training and staff development	Increasing productivity, stimulating creativity, increasing employee engagement
Control	Investments in business analytics systems, dashboards and monitoring tools	Timely detection of deviations, quick decision-making, risk reduction
Strategic management	Long-term investments in branding, innovative technologies, entry into new markets	Sustainable growth, formation of competitive advantages, strengthening the company's position in the market

Source: compiled by the authors based on data (Basu, Aksoy, Kumar, et al., 2023)

intelligence tools and advanced analytics require substantial investments, they allow companies to promptly identify deviations from planned performance and quickly adjust marketing strategies. This ability to respond dynamically strengthens resilience and ensures that the company remains competitive under changing market conditions.

Finally, financial assets determine the enterprise's capacity to invest in new markets, innovative technologies, and long-term branding strategies. Strategic management of these assets allows companies to maintain the continuity of marketing initiatives and remain flexible in adapting to external economic shifts. As a result, enterprises can sustain brand visibility, ensure consistent communication with their audience, and secure a strong position in both domestic and international markets (Basu, Aksoy, Kumar, et al., 2023).

It is important to emphasize that financial asset management in marketing is not limited to budget formation; it represents a comprehensive process that includes investment optimization, risk assessment, and achieving a balance between costs and outcomes. The integration of financial management with marketing analytics provides the foundation for sustainable business growth, the development of competitive advantages, and the strengthening of market positions.

Managing financial assets plays a crucial role in marketing activities, as they determine the company's ability to effectively implement marketing strategies and programs. Financial assets encompass resources whose analysis and evaluation allow not only to assess the overall financial health of the enterprise but also to identify its marketing investment

potential, capacity to fund advertising campaigns, implement digital innovations, support brand development, and maintain competitiveness. Competent management of financial assets enhances the resilience of a company's marketing strategy and ensures long-term competitive advantages.

The diversity of approaches to defining «financial assets», the emergence of new financial instruments, and the limited experience of their application in marketing practice underscore the need for further research and methodological development. Understanding how to adapt modern financial tools to marketing decision-making remains an essential task for businesses seeking to remain competitive in dynamic and uncertain market conditions.

Financial assets, as a component of the marketing budget, are shaped in accordance with the company's mission and strategy. They include cash resources, investment instruments, and other financial components that ensure the implementation of marketing initiatives. Properly structured assets guarantee that enterprises can not only cover day-to-day marketing expenses but also invest in growth-oriented projects that expand market share and improve customer engagement.

A critical aspect of financial asset analysis is their classification and allocation. According to national accounting standards, assets are defined as resources controlled by the enterprise that are expected to generate future economic benefits. In the marketing context, this means that financial assets can be directed toward short-term objectives such as operational expenses, product promotion, and advertising campaigns, as well as long-term goals including branding, digital

transformation projects, and customer loyalty development. This dual perspective ensures that companies achieve both immediate market impact and sustainable growth over time.

In the process of analyzing marketing assets, their classification plays a crucial role. According to NAS 13 (Ukrainian National Accounting Standards), assets are defined as resources controlled by an enterprise, the use of which is expected to generate future economic benefits. In the marketing context, this means that financial assets can be allocated toward short-term objectives – such as operational marketing expenses, product promotion, and advertising campaigns – or toward long-term goals, including brand development, digital innovation projects, and customer loyalty programs¹ (National Accounting Regulation (Standard) 13 Financial Instruments, 2001).

Financial assets are an integral part of a company's marketing capital, and their recognition, valuation, and management are critical for the effective utilization of marketing resources. In the company's balance sheet, assets are divided into current assets (cash and equivalents used for ongoing marketing campaigns) and non-current assets (long-term investments in branding, patents, innovative technologies, and intangible assets that shape corporate reputation). An asset is recognized in the balance sheet if its value can be reliably measured and if it is expected to provide future marketing benefits – such as revenue growth, market expansion, or increased brand awareness.

Scholarly research reveals diverse approaches to interpreting the role of assets. Some authors view them solely as sources of future economic benefit, disregarding their marketing-specific implications. Others argue that assets are the financial foundation of a firm's operations, including marketing, and thus require continuous investment in advertising, promotion, and innovation. A third group links assets directly to the accounting balance sheet, incorporating financial instruments, intangible assets (brand, patents, corporate reputation), and cash flows that determine a company's marketing potential. Finally, many international scholars focus on the role of assets in profit maximization but often overlook their strategic importance for

marketing decision-making and competitive positioning.

Consequently, financial assets form the backbone of an enterprise's marketing activity, as their efficient use determines the ability to allocate budgets, run advertising campaigns, implement innovations, strengthen brand presence, and build long-term competitive advantages. Proper monitoring of asset sources, accurate risk assessment, and effective allocation of funds are essential for improving marketing performance and ensuring the enterprise's sustainable growth.

In today's dynamic business environment, the implementation of an effective financial asset management system has become a prerequisite for successful marketing strategy execution across industries. The rational use of marketing resources allows companies not only to optimize costs but also to increase the effectiveness of advertising campaigns, expand communication channels, and strengthen brand positions in a competitive market. Rising internal and external competition forces businesses to seek new approaches to financial management in marketing. Inefficient budget allocation, insufficient investment in promotion, or misalignment of marketing channel priorities often lead to lower profitability and declining market share, which in some cases may result in customer attrition or even threaten financial stability (Kravchenko, 2024).

In this context, the creation of a unified methodology for the evaluation and analysis of financial assets within marketing activities becomes especially significant. Such a methodology should provide tools for determining the efficiency of expenditures on advertising, PR, digital marketing, brand development, and other activities, while enabling the formation of an optimal structure for financing marketing programs. Its application would prevent inefficient use of resources, ensure the stability of marketing policy, and enhance a company's competitiveness.

Effective marketing management under market conditions requires the application of a set of analytical approaches and research methods. These include induction and deduction for the development of marketing strategies, comparative analysis to identify the most effective promotional channels, a systems-structural approach to evaluate the impact of financial assets on marketing performance, and logical-linguistic methods for shaping brand messaging. The use of abstraction and idealization allows for

¹ National Accounting Regulation (Standard) 13 Financial Instruments : Order № 559 of 11/30/2001. URL: <https://zakon.rada.gov.ua/laws/show/z1050-01#Text> (дата звернення: 15.07.2025).

modeling forward-looking scenarios for the evolution of marketing strategies.

The creation of an integrated financial asset management system in the marketing context would enable enterprises to allocate resources more effectively, minimize financial risks, and maintain sustainable growth in a competitive market. The analysis of financial assets in marketing is a vital component of the overall management system, as the efficiency of their use determines the enterprise's ability to implement communication strategies, maintain brand positioning, and sustain competitive advantages. This process goes beyond mere tracking of financial flows; it represents a comprehensive set of methods for collecting, processing, and interpreting data, which makes it possible to assess the efficiency of marketing decisions, determine the sufficiency of resources for their execution, explore untapped opportunities, and identify potential risks.

The analysis also plays a critical role in determining whether the chosen marketing strategy aligns with the external environment and whether it is capable of achieving the company's long-term objectives. When analyzing financial assets in the marketing context, several key tasks are addressed:

- assessing the company's financial capacity to support marketing activities;
- determining the optimal composition and structure of assets to finance marketing programs;
- analyzing the efficiency of resource allocation across promotion channels;
- studying the impact of internal and external factors on marketing budget formation;
- evaluating the dynamics of changes in marketing financing and identifying reserves for improving performance.

To achieve these objectives, a variety of analytical tools are applied. Among the most practical and effective are horizontal and vertical analyses. Horizontal analysis helps evaluate the dynamics of individual budget components, for instance, tracking how expenditures on digital advertising or PR campaigns have evolved over a certain period. Vertical analysis, in turn, focuses on the structural composition of financial assets used for marketing and makes it possible to identify which elements of the budget exert the greatest influence on overall marketing performance.

Trend analysis in marketing is applied to identify long-term tendencies, such as investments in social media, SEO,

or e-commerce development. Although this method is still used rather limitedly in Ukrainian business practice, it holds substantial potential for forecasting future needs for marketing investments and shaping proactive strategies. Its adoption enables enterprises to anticipate market shifts, adjust budget allocations in advance, and respond effectively to evolving consumer behavior.

Factor analysis, while being one of the most labor-intensive methods, is also among the most informative. Marketing performance is inherently influenced by a variety of internal and external factors – market fluctuations, competitor activity, shifts in consumer preferences, and macroeconomic conditions all affect the level and direction of advertising and promotional investments. Identifying the strength and nature of these relationships helps managers make data-driven decisions and improve the efficiency of marketing resource allocation.

Modern research increasingly employs logic-deductive systems that combine empirical data with analytical generalizations. The use of such systems in marketing analytics allows not only for the evaluation of financial asset efficiency based on statistical data but also for the formulation of hypotheses regarding future campaign results. This is particularly important in the era of digital transformation, where marketing tools are becoming increasingly technological, and managerial decisions must be based on measurable evidence rather than intuition (Agag, El-Masry, & Elshaer, 2024).

Thus, financial asset analysis in marketing plays a dual role: it is both a tool for evaluating the efficiency of resource utilization and a foundation for shaping strategic managerial decisions.

The financial market of Ukraine and operations with financial assets occupy one of the leading positions in the structure of the national economy, as they facilitate capital mobilization, finance investment projects, and create conditions for optimal enterprise resource management. For businesses, the effective use of financial assets is not only a means of maintaining liquidity and financial stability but also a driver of business expansion, modernization of production capacities, and strengthening of competitive advantages. In the marketing domain, financial assets serve as a crucial resource for executing advertising campaigns, supporting brand development, and implementing innovative communication strategies that ensure a strong market presence.

At the same time, the regulatory and legal framework of Ukraine still lacks a sufficiently unified and comprehensive definition of financial assets. Different sources offer varying interpretations of their composition and classification, which complicates the formation of a standardized approach to their management and evaluation. The development of a consistent methodology is therefore an essential step toward improving marketing efficiency, ensuring rational use of resources, and enhancing enterprise competitiveness in a dynamic economic environment.

According to the glossary of the National Bank of Ukraine, financial assets include cash and cash equivalents, contracts that establish a right to receive cash or other assets from another company, agreements that provide the right to exchange financial instruments under favorable conditions, and equity instruments of other enterprises¹ (Glossary of the National Bank of Ukraine).

The valuation of financial assets holds particular importance for both accounting and marketing purposes. Asset valuation is directly linked to the assessment of financial instruments, which can be measured either at their initial (historical) cost – including the fair value of assets, liabilities, or equity instruments received along with acquisition or disposal expenses – or at fair value at the balance sheet date. Exceptions apply for receivables not intended for resale, held-to-maturity investments, or assets whose value cannot be reliably measured.

In international practice, particularly under IFRS 7 «Financial Instruments: Disclosures»² (IFRS 7) and IFRS 9 «Financial Instruments»³ (IFRS 9), the definition of financial assets is broader. It encompasses securities, foreign currency resources, interest rate instruments, commodity contracts, precious metals, stock indices, and other tools. This approach reflects the global evolution of financial markets and highlights the increasing importance of financial assets in shaping long-term investment and marketing strategies.

For Ukraine, one of the most pressing challenges is the adaptation of international

standards for the recognition and measurement of financial assets. Aligning national regulations with IFRS would enable enterprises to manage their resources more efficiently, direct them towards financing marketing programs, and enhance competitiveness on both domestic and global markets.

Among financial assets, held-to-maturity investments occupy a special place. These include non-derivative assets with fixed maturities and predetermined payments that an enterprise intends to hold until maturity. Their classification depends on the company's behavior – if such investments are sold within one or two financial years, they lose their held-to-maturity status and are reclassified as «assets available for sale».

These assets are recorded at amortized cost using the effective interest rate method. In a marketing context, they are a reliable source of long-term funding for brand development programs, corporate reputation management, and other strategic initiatives (Shaheen, 2025).

The second group is loans and receivables – assets with fixed terms and amounts that are not actively traded. They arise from commercial relationships with counterparties and are often linked to trade credit. From a marketing perspective, flexible credit terms can strengthen client loyalty and improve long-term relationships. These assets are initially recognized at fair value and subsequently measured at amortized cost using the effective interest method.

The third category comprises assets available for sale, which include investments not classified in other groups or directly designated as such. They are measured at fair value, with revaluation results reflected in financial statements. An exception is made for non-marketable equity securities, which are measured at cost. For marketing practice, these assets represent a potential source of funding for innovative projects, promotional campaigns, and digital transformation initiatives (Cioppi, Curina, Francioni, & Savelli, 2023).

The key distinction between national (NAS) and international (IFRS) approaches lies in the level of detail applied to valuation methodologies. NAS provides a more generalized framework, focusing on exceptions and general valuation rules, whereas IFRS offers a more comprehensive classification system with explicit guidance for accounting each asset group, including securities, foreign currency, interest rate

1 Glossary of the National Bank of Ukraine. Banking Terminology. URL: https://old.bank.gov.ua/control/uk/publish/article?art_id=124734 (дата звернення: 15.07.2025).

2 International Financial Reporting Standard 7 (IFRS 7) Financial Instruments: Disclosures, dated 01.01.2012. URL: https://zakon.rada.gov.ua/laws/show/929_007#Text (дата звернення: 15.07.2025).

3 International Financial Reporting Standard 9 (IFRS 9). Financial Instruments, dated 01.01.2012. URL: https://zakon.rada.gov.ua/laws/show/929_016#Text (дата звернення: 15.07.2025).

instruments, commodity contracts, and stock indices (Paananen & Lin, 2019).

For Ukrainian enterprises seeking to attract foreign investors and enter international markets, the adoption of International Financial Reporting Standards (IFRS) has become a critical prerequisite. A unified reporting format not only builds trust among potential partners but also facilitates integration into the global business environment. This, in turn, opens additional opportunities for expanding marketing activities, as access to external capital allows financing large-scale advertising campaigns, digital transformation initiatives, and brand development programs.

One of the key distinctions between Ukraine's National Accounting Standards (NAS) and IFRS lies in the treatment of risks associated with financial assets. Unlike NAS, which lacks a comprehensive framework for risk analysis, IFRS explicitly defines major categories of risk linked to financial instruments and establishes standardized methods for their measurement and disclosure. These include credit risk, liquidity risk, and market risk, each of which directly affects a company's ability to fund and sustain marketing operations (Paul, 2024).

Credit risk arises when a company's counterparties fail to meet their financial obligations. Its sources include cash placed in banks, purchased securities, customer receivables, and loans granted to other entities. An essential task in credit risk analysis is forecasting expected credit losses, which represent probable future losses during the holding period of a financial asset. To mitigate this risk, enterprises are advised to create provisions for doubtful receivables. In marketing practice, credit risk becomes particularly relevant when businesses offer deferred payment options to customers – late payments can limit available funds for campaigns, product launches, and other strategic initiatives.

Liquidity risk refers to potential difficulties in meeting financial obligations when due. This situation can jeopardize the continuity of operations. Effective liquidity management involves maintaining sufficient cash reserves, monitoring the maturity structure of assets and liabilities, and ensuring financial flexibility. In the marketing context, liquidity constraints can delay advertising campaigns, hinder the introduction of new products, or slow down brand promotion, all of which directly impact competitiveness.

Market risk represents the potential variability in the fair value or cash flows of

financial assets due to changing market conditions. It consists of three components (Fader & Hardie, 2022):

1. Foreign exchange risk – driven by fluctuations in exchange rates, particularly relevant for firms engaged in import/export operations.

2. Interest rate risk – caused by changes in interest rates that affect the returns on investments and the cost of borrowing.

3. Other price risk – capturing shifts in market prices unrelated to exchange rates or interest rates, such as commodity price movements or stock index volatility.

These risks collectively shape a company's financial resilience and its ability to invest in marketing initiatives. For instance, sharp currency fluctuations can increase the cost of imported advertising materials or IT solutions for digital marketing, while stock market volatility may erode investment income earmarked for promotional activities. In light of the above, it is advisable to improve the national accounting standards by incorporating provisions for the analysis and assessment of risks related to financial assets. Such an enhancement would align Ukrainian practice more closely with international standards and strengthen the analytical basis for decision-making. For enterprises, this would translate into more predictable and stable funding of marketing initiatives, reduced exposure to unforeseen losses, and more efficient use of financial resources in strategic communication programs.

To illustrate these relationships, Table 2 summarizes the impact of different categories of financial assets – cash and cash equivalents, receivables, short-term and long-term investments – on the planning, implementation, and evaluation of marketing activities. The table highlights how each type of asset supports specific marketing functions, from financing promotional campaigns and developing digital platforms to sustaining long-term brand-building efforts and market expansion initiatives.

Since each component of financial assets contributes to the overall resource potential of the enterprise, it is essential to conduct a detailed analysis of their impact on the effectiveness of marketing activities. The most significant and fundamental element is cash and cash equivalents, as they serve as the primary source of funding for advertising campaigns, the development of communication channels, digital innovation projects, and brand-building initiatives.

To evaluate the efficiency of using cash

Table 2. The impact of financial asset elements on the marketing activities of the enterprise

Elements of financial assets	Scope of application in marketing	Implementation results
Cash and cash equivalents	Financing of advertising campaigns, PR activities, digital promotion	Growing brand awareness, increasing sales, expanding market share
Long-term financial investments	Investing in branding, developing innovative technologies, creating marketing platforms	Formation of long-term competitive advantages, strengthening market positions
Intangible assets (brand, patents, reputation)	Creating and maintaining the company's image, developing customer loyalty	Increased consumer trust, increased brand value, long-term stability
Accounts receivable	Loyalty program management, encouraging repeat sales	Improving customer relationships, increasing customer lifetime value (CLV)
Short-term investments	Launching experimental marketing projects, testing new communication channels	Identifying effective channels, reducing risks when scaling
Deferred tax assets	Using tax benefits to increase your marketing budget	Cost optimization, increased financial flexibility in the allocation of marketing funds

Source: compiled by the authors based on data (Paananen & Lin, 2019; Paul, 2024; Fader & Hardie, 2022).

resources in marketing, it is advisable to apply indicators that reflect the performance of cash flows. These indicators provide a comprehensive understanding of how effectively an enterprise manages its resources, whether it can maintain financial stability, and whether it is capable of fulfilling its marketing and communication commitments. This is particularly important for companies operating in highly competitive markets, where the ability to adapt advertising strategies quickly can determine their market position.

Researchers such as Frank J. Fabozzi and Pamela Peterson Drake emphasize the absence of a unified definition of «cash flows» in economic literature. In different studies, cash flows are interpreted as inflows of financial resources, outflows, or the difference between the two, forming the net cash flow. In the marketing context, this means that the evaluation of cash flow should not be limited to tracking expenditures but must also account for the effectiveness of returns generated by these investments. This includes measuring outcomes such as increased sales, improved customer loyalty, and expanded market share resulting from marketing efforts (Fabozzi J. Frank., 1998).

A critical stage in the analysis involves examining indicators that reflect the quality of cash flow management. Such metrics help identify the strengths and weaknesses of resource allocation within marketing programs. For example, comparing the expenditures on promotion with the achieved

financial outcomes allows businesses to assess the profitability of marketing campaigns. This approach enables budget optimization, the identification of underperforming channels, and the reallocation of resources toward the most productive activities.

Unlike many foreign researchers who view cash flows in a broad financial management context, Ukrainian scholars often focus specifically on analyzing cash as an individual component. They propose methods that are simple to apply yet effective for assessing the state and performance of cash flow management. This perspective is particularly relevant in marketing because it allows companies to measure how efficiently financial assets are being used to achieve promotional, branding, and customer relationship development goals.

N. O. Piskunova identifies three primary stages in the analysis of cash and cash equivalents: horizontal, vertical, and ratio analysis (Piskunova, 2020). She considers trend analysis to be a derivative tool of these previous methods and of secondary importance. However, this view seems somewhat limited, as trend analysis should be regarded as an independent and valuable method. It plays a crucial role in identifying long-term patterns in the financing of marketing campaigns, shifts in advertising and digital marketing investments, and forecasting the future cash needs of the enterprise. By capturing these trends, management can plan ahead and align marketing strategies with expected financial capacities.

Other Ukrainian scholars, such as O. O. Osadcha and N. B. Savina, emphasize the significance of ratio analysis in studying cash flows (Osadcha & Savina, 2020). In their opinion, this method is among the most practical, as it allows for the determination of liquidity, solvency, and the overall financial health of a company. Within the marketing context, ratio analysis becomes an effective tool for evaluating the efficiency of advertising budgets, the profitability of marketing expenses, and the financial stability of the company's promotional strategies.

Each analytical method offers unique advantages and serves a specific function. Horizontal analysis enables tracking the dynamics of changes in marketing financing over time, vertical analysis reveals the structure of funds allocation by activity type (advertising, PR, digital channels, brand development), ratio analysis provides a quantitative evaluation of cost efficiency, while trend analysis allows the enterprise to forecast future investment needs in marketing. Combined, these approaches create a robust framework for informed decision-making and strategic optimization of marketing resource allocation.

Equally important is the analysis of accounts receivable, as it directly affects financial stability and the ability to fund marketing activities. Evaluating its efficiency requires a detailed study of the sources of receivables, their structure, dynamics, management methods, and timeliness of collection. This is particularly relevant for companies that actively implement marketing tools for customer relationship management and provide goods or services on credit.

To ensure effective management of accounts receivable, researchers propose several key measures: systematic monitoring of overdue receivables, incorporating the cost of goods and services sold on credit when planning the marketing budget, and creating provisions for doubtful debts based on the financial reliability of counterparties and the aging of receivables. Implementing these measures strengthens the company's liquidity, stabilizes marketing funding, and reduces the risk of cash shortages that could disrupt advertising campaigns or promotional programs.

A more advanced approach is proposed by O. Sarapina, who argues for the use of EVA (Economic Value Added) analysis as a meaningful tool for assessing the profitability of a company from the perspective of its owners (Sarapina & Kirilkina, 2019). This

method is particularly valuable for analyzing the effectiveness of accounts receivable management, as it measures whether client credit policies and receivable collection strategies actually contribute to an increase in the firm's market value. In the marketing context, EVA analysis becomes a strategic indicator: it helps determine whether investments in customer loyalty programs, deferred payment schemes, or promotional credit terms are generating sufficient shareholder value and supporting long-term business growth.

Nevertheless, EVA analysis has its limitations. Its results do not always capture industry-specific nuances. For instance, in the service sector, where client relationships are the core revenue driver, accounts receivable play a much greater role than in manufacturing, where cash flows tend to be more predictable. Thus, the impact of receivables management on marketing activities is sector-dependent and may be less critical for industrial firms compared to service-oriented businesses.

Another key component of financial assets is financial investments, which remain underutilized in many Ukrainian companies. This limited adoption explains why national academic literature pays less attention to investment performance analysis compared to international studies. Yet, global practice demonstrates the critical role of financial investments in marketing development – from brand-building initiatives to the implementation of cutting-edge digital technologies.

Internationally, investment appraisal methods are generally divided into two groups (Danaher, Gray, & Simester, 2022):

- non-discounting methods, which focus on simple payback periods or accounting returns;
- discounting methods, which incorporate the time value of money and therefore provide a more realistic picture of project viability.

Among the latter, the most widely used approaches in Western Europe and the United States include Net Present Value (NPV), Internal Rate of Return (IRR), Discounted Payback Period (DPP), Profitability Index (PI), and the annuity method. These methods are highly relevant for marketing decision-making, as they allow managers to forecast future cash inflows from advertising campaigns, digital initiatives, and brand-building efforts, ultimately supporting sustainable profit growth and brand value enhancement.

However, the application of these techniques in Ukraine is challenged by macroeconomic instability, exchange rate volatility, and limited availability of reliable market data. From a practical standpoint, we argue that the Profitability Index (PI) and Discounted Payback Period (DPP) are the most suitable tools for marketing-related investment analysis. PI is relatively simple to calculate and easy to interpret, offering a clear measure of the return per monetary unit invested, while DPP enables decision-makers to evaluate investment liquidity and determine how quickly funds will return to the company to finance subsequent marketing initiatives.

In today's era of global economic integration and digital transformation, the role of financial resources and assets in ensuring the effectiveness of marketing activities has become paramount. Marketing is no longer just a communication or sales function but a comprehensive strategic management system. Its success depends heavily on the ability of the enterprise to mobilize, allocate, and manage financial assets in a way that supports market adaptation, brand development, and sustainable growth. Financial assets thus act not only as the material foundation of marketing programs but as a strategic enabler that determines whether a business can respond to market shifts, invest in innovation, and build long-term competitive advantages.

Firstly, the synthesis of theoretical and practical approaches to defining the essence of financial assets shows that both domestic and international scholars interpret them from different perspectives: as resources for generating future economic benefits, as a component of the balance sheet, as property values, or as tools for profit generation. Despite these differences, most researchers agree that financial assets constitute an integral part of a company's strategic potential. In the context of marketing activities, this means that effective management of financial assets forms the foundation for planning and implementing advertising campaigns, developing new products, introducing digital technologies, and strengthening brand equity.

Secondly, the analysis revealed that the classification of financial assets under national accounting standards (NAS) and International Financial Reporting Standards (IFRS) differs significantly. NAS provides a more generalized definition, whereas IFRS offers a detailed classification that includes securities, currency instruments, commodity contracts, and indices. This allows globally oriented companies to more accurately assess

their financial assets, consider risk factors, and prepare reports that are transparent and understandable to foreign investors. For marketing, such harmonization is crucial as it enables access to external funding sources, builds investor trust, and supports the implementation of large-scale communication programs at the international level.

Thirdly, the study of methods for analyzing financial assets indicates that horizontal, vertical, ratio, trend, and factor analyses are the most widely applied. Horizontal analysis tracks the dynamics of marketing funding over time, while vertical analysis helps to determine the structure of expenses across advertising, PR, digital marketing, and other areas. Ratio analysis provides quantitative metrics of efficiency, whereas trend analysis makes it possible to forecast future funding needs. Factor analysis, though more complex, reveals interdependencies between financial assets and marketing performance. Together, these methods create a solid basis for evidence-based managerial decision-making.

Fourthly, special attention should be given to accounts receivable, which are a key component of financial assets and have a significant impact on marketing performance. Offering trade credit builds customer loyalty and stimulates demand but also carries the risk of delayed payments and reduced liquidity. The use of EVA (Economic Value Added) analysis enables companies to evaluate whether receivables management supports strategic objectives and contributes to an increase in market value.

Fifthly, financial investments represent another crucial element, albeit underutilized in Ukraine. International practice shows that investments are the cornerstone of marketing innovation, enabling the deployment of digital platforms and large-scale promotional campaigns. Investment appraisal methods such as NPV, IRR, PI, and DPP allow businesses to make more informed decisions about allocating funds to marketing initiatives. The profitability index and discounted payback period are particularly valuable because they combine ease of calculation with strong decision-making relevance.

Sixthly, IFRS places significant emphasis on risk analysis, addressing credit, liquidity, and market risks. These risks have direct implications for marketing: they can lead to underfunding of campaigns, delays in project implementation, or unexpected losses due to exchange rate and interest rate fluctuations. National standards currently lack such comprehensive risk assessment, creating gaps in management practice. Aligning with IFRS-

based risk management approaches would allow businesses to minimize losses and secure stable funding for marketing programs.

Seventhly, financial resources and assets act as the main drivers of marketing effectiveness, enabling the financing of core elements of the marketing mix: product development, pricing strategies, communications (advertising, PR, digital), and distribution channels (logistics, e-commerce). Without adequate financial resources, none of these components can operate effectively.

Finally, to improve the efficiency of financial asset management in marketing, companies should: implement end-to-end analytics for assessing asset utilization; adapt international accounting and valuation standards to local practice; create internal risk monitoring systems; establish reserves for doubtful debts; actively apply discounted cash flow methods for investment appraisal; and expand the use of external funding sources for marketing programs.

Conclusion. In conclusion, the study has confirmed that financial assets play a decisive role in strengthening the efficiency and stability of enterprise management, particularly in the field of marketing. Achieving the research purpose required analyzing how financial assets influence liquidity, investment decisions, and risk management, which together form the financial basis for sustainable marketing

strategies. The comparison of definitions used in national and international standards demonstrated significant differences in the interpretation of the term «financial assets», emphasizing the need for harmonization and methodological clarity. The study also identified that financial assets perform essential functions in marketing activities by ensuring flexible budgeting, supporting pricing strategies, and enabling effective customer relationship management. An examination of risks revealed that improper valuation or management of financial assets may negatively affect marketing financing and brand positioning. The analysis of individual asset elements – such as cash equivalents, marketable securities, and receivables – showed their diverse influence on operational, investment, and marketing decisions. The critical review of domestic and foreign research highlighted the absence of a unified approach to classifying and managing financial assets within enterprises. It also revealed a growing trend toward integrating financial management and marketing analytics for strategic competitiveness. Consequently, the study underscores the necessity of developing a comprehensive methodology for assessing the impact of financial assets on marketing performance. Further research should focus on creating practical models for optimizing financial asset management to enhance marketing efficiency and overall enterprise value.

References

1. Van Horne, J., & Wachowicz, M. J. (2008). *Fundamentals of Financial Management* (13th Edition).
2. Marshall, J. F., & Bansal, V. K. (1998). *Financial Engineering. A complete guide to financial innovation*. New York Institute of Finance.
3. Piskunova, N. O. (2020). Improving the scientific and methodological substantiation of the analysis of cash flows of enterprises. *Economic analysis*, 2(25), 122–131. (in Ukrainian)
4. Podderiyogin, A. M. (2009). *Financial management: textbook*. K.: KNEU, 2006. (in Ukrainian)
5. Rischard, F. (2010). International Baccalaureate Organization. Retrieved from <http://ibnaconference.org/en/node/29>
6. Sarapina, O., & Kirilkina, O. (2019). Methodological foundations of the analysis of receivables. *Global and national problems of economy*, 3, 865–868. (in Ukrainian)
7. Shim, J. K., & Siegel, J. G. (2000). *Financial Management*. Third Edition. Barron's business library.
8. Tereshchenko, O., & Babiak, N. (2020). Causality of risks, cost of equity and shading of the enterprise income. *Baltic Journal of Economic Studies*, 6 (2), 61–68.
9. Uninets-Khodakivska, V. P., Kostyukevich, O. I., & Lyatambo, O. A. (2009). *Financial Services Market: Theory and Practice: Textbook*. Kyiv: TsNL.

Список використаної літератури

1. Van Horne J., Wachowicz M. J. *Fundamentals of Financial Management* (13th Edition). 2008. P. 741–742.
2. Marshall J. F., Bansal V. K. *Financial Engineering. A complete guide to financial innovation*. New York Institute of Finance, 1998. 784 p.
3. Піскунова Н. О. Удосконалення науково-методичного обґрунтування аналізу грошових потоків підприємств. *Економічний аналіз*. 2020. № 2, т. 25. С. 122–131.
4. Поддєрьогін А. М. *Фінансовий менеджмент : підручник*. К.: КНЕУ, 2006. 535 с.
5. Rischard F. (speaker). International Baccalaureate Organization. Retrieved 18 May 2010. URL: <http://ibnaconference.org/en/node/29> (дата звернення: 15.07.2025).
6. Сарапіна О., Кірілкіна О. Методологічні основи аналізу дебіторської заборгованості. *Глобальні та національні проблеми економіки*. 2019. Вип. 3. С. 865–868.
7. Shim J. K., Siegel J. G. *Financial Management*. Third Edition. Barron's business library, 2000. 400 p.
8. Tereshchenko O., Babiak N. Causality of risks, cost of equity and shading of the enterprise income. *Baltic Journal of Economic Studies*. 2020. Vol. 6 (2). P. 61–68.
9. Uninets-Khodakivska V. P., Kostyukevich O. I., Lyatambo O. A. *Financial Services Market: Theory and Practice: Textbook*. Kyiv : TsNL, 2009. 392 p.

10. Fabozzi, J. F. (1998). Financial instruments. Investment management. 1998. 932 p.
11. Kumar, V. (2024). AI-powered marketing: What, where, and how? *Information & Management*, 61 (6). DOI: <https://doi.org/10.1016/j.im.2024.103922>
12. Basu, R., Aksoy, L., Kumar, V., et al. (2023). Marketing analytics: The bridge between customer insights and firm performance. *Journal of the Academy of Marketing Science*, 40 (12). DOI: <https://doi.org/10.1002/mar.21908>
13. Kravchenko, V. (2024). Efficiency of enterprise: content, types and role in modern conditions. *Economy and Society*, 65. DOI: <https://doi.org/10.32782/2524-0072/2024-65-93> (in Ukrainian)
14. Agag, G., El-Masry, A. A., & Elshaer, I. A. (2024). Understanding the relationship between marketing analytics use, customer agility, and customer satisfaction. *Journal of Business Research*, 77. DOI: <https://doi.org/10.1016/j.jretconser.2023.103663>
15. Shaheen, H. (2025). Social media marketing research: A bibliometric analysis from Scopus. *Future Business Journal*, 11, 41. DOI: <https://doi.org/10.1186/s43093-025-00465-2>
16. Cioppi, M., Curina, I., Francioni, B., & Savelli, E. (2023). Digital Transformation and marketing: A systematic and thematic literature review. *Journal of the Academy of Marketing Science*, 2023, 207–288. DOI: <https://doi.org/10.1007/s43039-023-00067-2>
17. Paananen, M., & Lin, H. (2019). The development of accounting quality of IAS and IFRS over time. *Journal of International accounting research*, 8, 31–55. Retrieved from <https://uhra.herts.ac.uk/bitstream/handle/2299/2693/903019.pdf?isAllowed=y&sequence=1> (дата звернення: 15.07.2025).
18. Paul, J. (2024). Digital transformation: A multidisciplinary perspective and challenges. *International Journal of Consumer Studies*, 48 (2). DOI: <https://doi.org/10.1111/ijcs.13015>
19. Fader, P. S., & Hardie, B. G. S. (2022). Customer-base analysis in the era of big data. *Marketing Science*, 41 (5), 903–922. DOI: <https://doi.org/10.1287/mksc.2022.1369>
20. Osadcha, O. O., & Savina, N. B. (2020). Methodological aspects of analyzing the cash flows of an enterprise. *Bulletin of the Ukrainian State University of Economics. Ser. Economic Sciences*, 4 (92), 219–226. DOI: <https://doi.org/10.31713/ve4202021> (in Ukrainian)
21. Danaher, P. J., Gray, J., M., & Simester, D. (2022). Marketing mix modeling: A state-of-the-art review and directions for the future. *Foundations and Trends in Marketing*, 15 (3), 151–283. DOI: <https://doi.org/10.1561/17000000069>
10. Fabozzi J. F. Financial instruments. Investment management. 1998. 932 p.
11. Kumar V. AI-powered marketing: What, where, and how? *Information & Management*. 2024. № 61 (6). DOI: <https://doi.org/10.1016/j.im.2024.103922>
12. Basu R., Aksoy L., Kumar V., et al. Marketing analytics: The bridge between customer insights and firm performance. *Journal of the Academy of Marketing Science*. 2023. № 40 (12). DOI: <https://doi.org/10.1002/mar.21908>
13. Kravchenko V. Efficiency of enterprise: content, types and role in modern conditions. *Economy and Society*. 2024. № 65. DOI: <https://doi.org/10.32782/2524-0072/2024-65-93>
14. Agag G., El-Masry A. A., Elshaer I. A. Understanding the relationship between marketing analytics use, customer agility, and customer satisfaction. *Journal of Business Research*. 2024. № 77. DOI: <https://doi.org/10.1016/j.jretconser.2023.103663>
15. Shaheen H. Social media marketing research: A bibliometric analysis from Scopus. *Future Business Journal*. 2025. № 11, Art. 41. DOI: <https://doi.org/10.1186/s43093-025-00465-2>
16. Cioppi M., Curina I., Francioni B., Savelli E. Digital Transformation and marketing: A systematic and thematic literature review. *Journal of the Academy of Marketing Science*. 2023. № 2023. Pp. 207–288. DOI: <https://doi.org/10.1007/s43039-023-00067-2>
17. Paananen M., Lin H. The development of accounting quality of IAS and IFRS over time. *Journal of International accounting research*. 2019. № 8. Pp. 31–55. URL: <https://uhra.herts.ac.uk/bitstream/handle/2299/2693/903019.pdf?isAllowed=y&sequence=1> (дата звернення: 15.07.2025).
18. Paul J. Digital transformation: A multidisciplinary perspective and challenges. *International Journal of Consumer Studies*. 2024. № 48 (2). DOI: <https://doi.org/10.1111/ijcs.13015>
19. Fader P. S., Hardie B. G. S. Customer-base analysis in the era of big data. *Marketing Science*. 2022. № 41(5). Pp. 903–922. DOI: <https://doi.org/10.1287/mksc.2022.1369>
20. Осадча О. О., Савіна Н. Б. Методичні аспекти аналізу грошових потоків підприємства. *Вісник НУБГП. Сер. Економічні науки*. 2020. № 4 (92). С. 219–226. DOI: <https://doi.org/10.31713/ve4202021>
21. Danaher P. J., Gray J., M., Simester D. Marketing mix modeling: A state-of-the-art review and directions for the future. *Foundations and Trends in Marketing*. 2022. № 15(3). Pp. 151–283. DOI: <https://doi.org/10.1561/17000000069>

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ФІНАНСОВІ АКТИВИ ЯК ДРАЙВЕР ЕФЕКТИВНОСТІ РІЗНИХ НАПРЯМІВ ДІЯЛЬНОСТІ ПІДПРИЄМСТВА

У статті досліджено роль фінансових активів як ключового інструменту підвищення ефективності управління підприємством, зокрема його маркетингової діяльності в умовах

глобалізації, цифрової трансформації та зростання конкуренції. Обґрунтовано взаємозв'язок між управлінням фінансовими активами та результативністю маркетингових рішень. Проведено порівняння підходів до оцінки фінансових активів відповідно до НП(С)БО 13 та МСФЗ, виявлено ключові відмінності між ними, зокрема глибину класифікації та вимоги до розкриття інформації у звітності. Особливу увагу приділено аналізу ризиків – кредитного, ліквідного та ринкового – та розроблено рекомендації щодо їх врахування при формуванні маркетингових бюджетів.

Визначено основні функції фінансових активів у маркетингу – забезпечення ліквідності, фінансування рекламних кампаній, підтримка цінової політики, розвиток клієнтських програм і бренду.

Проведено критичний огляд наукових підходів до класифікації активів і обґрунтовано потребу у формуванні єдиної методології оцінювання їх впливу на маркетингову ефективність. Запропоновано напрями вдосконалення системи управління фінансовими активами з метою підвищення конкурентоспроможності підприємств.

Результати дослідження показали, що раціональне управління фінансовими активами підвищує ROI маркетингових кампаній, стабілізує ритм комунікаційної діяльності, мінімізує ризики недофінансування та формує довгострокові конкурентні переваги підприємства. Запропоновані підходи дозволяють підприємствам швидше реагувати на зміни ринкового середовища, забезпечувати сталість брендових ініціатив та ефективно використовувати ресурси для підтримки зростання на національному й міжнародному ринках. Подальші дослідження повинні бути спрямовані на створення практичних моделей оптимізації управління фінансовими активами з метою підвищення ефективності маркетингу та загальної вартості підприємства.

Ключові слова: фінансові активи, маркетинг, управління, ефективність підприємства, рентабельність діяльності.

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