AG Publishing House

Emerging Trends in Commerce and Management: A Multi-Disciplinary Approach (VOLUME-1)

Volume 1
Year: 2024

AG PH | Books

A Technology-Driven Approach in Financial Management

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Abstract

The planning, procurement, deployment, and control of a company's financial resources are all included in the management function known as financial management. Financial management is often mistaken with accounting since it is commonly nested within the accounts and finance function in many organizations, and vice versa. In this article it is tried to present different approaches to financial management and focused on the reviewing various literature’s study on technology-driven approach in financial management. It concluded that the digital era has revolutionized financial management by enhancing efficiency through virtual payments, automation, and AI-driven decision- making. Machine learning strengthens risk management and regulatory oversight, optimizing financial resilience. However, evolving business models and skill requirements necessitate adaptive management. While digitalization and datafication offer immense economic benefits, they also introduce financial risks that require mitigation. The companies which adopts and practice the ever-changing technologies and embrace these transformations will dictate the future of business and the rest eventually exit from business.

Keywords: Financial Management, Decision-making, Machine learning, Artificial intelligence (AI), Information technology (IT), etc.

1 Introduction

Businesses are built up and operated on the basis of finance. Access to capital may help a business develop and flourish. Likewise, a shortage of capital may result in limited operations or, in the worst

* ISBN No. - 978-81-983155-7-1

situations, the complete financial collapse of the company. For businesses and markets to function smoothly and successfully, money is a vital resource that must be handled well, regardless of the kind of firm [1]. The process by which a company develops and puts into place a financial system that helps it accomplish its objectives and increase shareholder value via the best possible use and allocation of resources across a range of asset classes is known as financial management. Unprecedented developments are occurring in the realm of financial management as a result of the rapid growth of information technology [2]. The application of cutting-edge technologies like big data, cloud computing, artificial intelligence, and other cutting-edge technologies in financial management is the result of the deep integration of financial management and modern information technology [3]. As a result, intelligent financial management is progressively emerging as a major force in fostering innovation and transformation in corporate finance. The enterprise's decision support, risk management, and value creation have all been significantly impacted, in addition to the way financial data is gathered, processed, and analysed [4]. The sharing economy is driving an increase in the frequency of resource integration and information exchange across businesses, as well as the growing significance of smart financial management. Consequently, the study and use of prudent financial management are exhibiting novel growth patterns and traits [5], [6].

A. Financial management

The decision areas of company that deals with profitability, costs, cash, and credit for maximising the firm's worth for investors, they are often bundled together. The "efficient acquisition and deployment" of both short- and long-term financial resources is thus the discipline's responsibility in order to guarantee that the enterprise's goals are met [7]. In general, financial management focusses on current assets and current liabilities, manages short-term working capital, and often uses hedging to control product cycle and foreign exchange variations. The role overlaps with treasury management as it also involves efficiently and effectively managing money on a daily basis [8]. In addition, it is involved in long-term strategic financial management, with a focus on capital structure management, which includes capital raising, capital budgeting (allocating capital among business units or products), and dividend policy. In large corporations, the latter two areas are more within the purview of "corporate finance” [9].

B. Financial Decisions in Financial Management

One way to describe the need of financial management is the requirement to determine the financial decision areas or goals that must be achieved; the best decision is the one that advances the goals of the business; typically, the goal of financial management decisions is to maximise the company's benefits. If a firm were to be sold, the price a buyer would pay for it is known as enterprise value. The more valuable the trader's business is, the more money he earns [10]. Although managing a business's value is not the same as maximising profits in economics, the latter refers to the quantity of wealth that is often spent without increasing the owner's wealth. The objective of financial management is to raise the company's worth. There are a number of methods to raise a company's worth, including asset management, fundraising, and investment choices [11]. The most crucial business choices are those involving investments; the first stage is figuring out how much money the organisation needs in total.

Financial managers should search for fixed assets (equity) on the left side of the balance sheet and liabilities (long-term debt and current obligations) on the right. Typically, the formula Assets = Assets - Capital (Liabilities) is used to make investment choices [12].

The second big decision is financing, where the finance manager makes choices on the passive side, or right side, of the balance sheet. The finance manager still has to assess the requirement for the cash after choosing the combination financing [13]. It is important to completely comprehend the procedures for securing short-term financing, signing long-term leases, and negotiating the sale of bonds or stock. The asset management choice is the next financial management choice to boost funds for the business [14]. Effective management is still necessary when assets are purchased and sufficient funding is secured. When it comes to managing current assets, financial managers are tasked with varying degrees of accountability. Because of this obligation, financial managers must focus more on fixed asset management than on other areas [15]. After planning requirements of funds and sources to finance required funds and making investment in long-term and short term assets, the manager think on the decision to distribute earnings generated from the assets and business operations in such a way to maximize the value of the firm as well as investors wealth.

C. Roles of Financial Management

Financial Planning: An essential component of financial management is the organization's planning of its financial operations and resources. In order to do this, they prepare plans and budgets by using the data that is currently accessible to comprehend the establishment's requirements and goals as well as the state of the economy as a whole.

Utilising and Allocating Financial Resources: The goal of financial management is to ensure that all of an organization's financial resources are used, invested in, and managed in a way that is profitable, sustainable, and feasible over the long run. Finance directors are required to ensure that their money is being spent as effectively as possible because of the fierce rivalry among firms.

Financial Reporting: The Company's financial management maintains a database of all pertinent financial records, which they utilise to anticipate and plan financial actions. Reporting is an important duty for all companies. It gives information on the financial situation and performance of the business. This is usually done once a year or once every three months.

Management of Risk: A company that adheres to sound financial management is optimally equipped to identify risks, execute mitigation strategies, and address emergencies and unforeseen risks. All businesses are subject to dangers. For instance, businesses may encounter difficulties as a result of market conditions, government policies that increase taxes, or internal issues such as equipment malfunctions. Risks must be identified, assessed, and action plans must be devised in accordance with their severity.

2 Literature Review

(Kou & Lu, 2025) [16] This study focuses on five intriguing new financial technologies: block chain, augmented reality (AR)/virtual reality (VR), artificial intelligence (AI), machine learning, and quantum mechanics. Innovative approaches to accomplishing these goals are offered by emerging technology. This academic article discusses the development of new technologies in the financial industry and considers how these technologies could be used in financial systems in the future. Due to both technological and operational benefits, improving financial performance becomes a significant issue given the early stage of development that these new technologies are characterized by. One crucial path for influencing the direction of finance in the future is technology-oriented financing.

(Huang, 2024) [17] Evaluates several algorithms designed to reduce the risk of loan default in order to investigate how machine learning may improve financial risk management for non-profit organizations. Based on the results, non-profits may better manage financial risk since ensemble learning models like LightGBM and random forest greatly increase prediction accuracy. In order to overcome constraints including stress testing, data analysis rule formation, and regulatory cooperation, this work promotes multidisciplinary approaches, highlighting the significance of privacy and adaptable solutions. Furthermore, it draws attention to the need of precisely identifying the types of data and the ways in which machine learning may improve financial risk management in the face of uncertainty. This encourages multidisciplinary initiatives that tackle more general concerns such as economic growth and environmental sustainability.

(Budiasih, 2024) [18] Systematically reviews the literature to examine how digital technology affects financial management. Digital payments, artificial intelligence, and big data analysis are becoming the new standard in the field of financial management. This comprehensive study of the literature outlines the advantages of digital technology for routine business transactions and strategic decision-making, while also pointing out drawbacks including data security and evolving business models. These results show that there is a knowledge gap in the literature and that further study is necessary. In the age of digital change, these findings provide profound insights for academics and practitioners that direct the modification of strategies and policies.

(Bahoo et al., 2024) [19] A study to offer a comprehensive overview of the current research on this subject and to pinpoint the research directions that require additional investigation. In addition, demonstrate that the chosen articles are categorized into ten primary research streams, including the application of AI to the "stock market, trading models, volatility forecasting, portfolio management, performance, risk and default evaluation, crypto currencies, derivatives, credit risk in banks, investor sentiment analysis, and foreign exchange management". Our comprehension of the influence of recent disruptive technological advancements on finance should be enhanced by conducting future research that addresses the partially unanswered research questions.

(Jouhki, 2024) [20] Focuses on the relationship and impact of technology on personal financial management (PFM). The major objective of this research is to determine if financial literacy and disparities in financial management across Finland's different demographic groups are related to the integration of technology into PFM. The findings indicate a perceived partial increase in financial literacy; nonetheless, there were obstacles to drawing reliable conclusions in a number of areas. The research gives people and policymakers insight into the advantages and disadvantages of technology advancements in personal money management, notwithstanding its limits.

(Judijanto et al., 2023) [21] Examines prevalent terms, identifies influential authors, and clusters works into thematic groupings, thereby investigating the landscape of scholarly publications. The term occurrences underscore the principal function of "data" and the methodological diversity encapsulated by "approach" and "model." The multidimensional nature of data-driven financial management is emphasized by the synthesis of findings, which encourages future research to incorporate interdisciplinary collaboration, address ethical considerations, and promote explainable AI in finance. Insights into the current state and prospective orientations of data-driven financial management research are provided by the abstract, which provides a concise overview of the bibliometric analysis.

(Meena, 2023) [22] An overview of the future prognosis in financial services, key actors, challenges and opportunities, and the evolution of financial technology is described. It underscores the influence of financial technology on financial services, which entails competition, cost reduction, innovation, consumer experience, and access to financial services. In addition, it discusses the potential for further growth and development, as well as the regulatory and cyber security challenges that financial technology company's encounter. In general, the paper underscores that financial technology has initiated a revolution in the financial services sector, thereby generating novel opportunities for both consumers and businesses.

(Abad-Segura et al., 2020) [23] An analysis of this research topic globally from 1975 to 2019 is the study's objective. Computer science, engineering, social sciences, management and accounting, and business were the primary topic areas. Future research directions should focus on banking, the trade of financial services, management, legal issues, geographical growth, research methods, and the sustainability of financial technology. It has been shown that there is a thriving and expanding global interest in financial technology research. The results acquired may be used to guide decision-making, establish the link between science and technology, and supplement existing understanding of financial technologies.

(Lech Gąsiorkiewicz, Jan Monkiewicz, 2020) [24] Some technical solutions also allow for the partial or complete disintermediation of financial services, which eliminates some of the expenses associated with transactions and allows economic actors to match directly. Artificial intelligence in conjunction with digitisation and datafication is creating new, enormous operational and financial potential. However, they are also the cause of new threats to the economic and financial systems, as well as to consumer welfare, national security, and financial stability, all of which need appropriate attention. In this article, we examine the key elements and forces behind the present wave of technologically driven financial innovations. We also talk about the key strategic concerns and effects that we are dealing with in this field.

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3 Approaches in Financial Management

Finance function relates to all financial activities, operations, and decisions. The nature and scope of finance manager has been shifted from post mortem analysis of financial statements approach to proactive approach in today's data driven era. Over a period of time approaches to study financial management got drastic change in nature, scope and importance in corporate finance decisions. The approaches to understand financial management are traditional approach, strategic or modern approach and technology driven approach.

Traditional approach in Financial Management: Finance function has been viewed as financial reporting and accounting, preparation of budgeting and control, analysis of cash flows and fund flows statements, mitigation of business risk, financial risk, market risk and credit risks. The traditional style highlighted financial concerns from the perspective of outsiders rather than internal management and lacked analytical information and placed too much emphasis on long-term investment decision.

Strategic Approach/ Modern approach in Financial Management: Management prioritized the most efficient use of the company's resources due to combination of economic and environmental factors, including technical developments, industrialization, fierce competition, government involvement, and population growth and forced for efficient and effective financial resource management. With the new approach, the focus has shifted from episodic finance to managerial financial difficulties and from fundraising to efficient and effective fund management. Further, aligning financial decisions with the organization's strategic objectives. The finance manager plays crucial role in financial planning and alysis, evaluating investment opportunities, conducting financial forecasting, financial modeling to support strategic decision making. Moreover, focused on capital structure optimization, proactively identifying and managing risks by integrating risk management into the strategic decision-making process.

Technology Driven Approach in Financial Management: Companies has been growing horizontally and vertically, globalized business operations and robust advancement in technology particularly in financial services, instruments, and markets has clearly showcased the limitations in traditional approach and the need to redesign, reshape fiancé function under strategic approach. This has pulled and pushed the financial management over recent decades towards data driven decision in all major financial decisions viz., acquiring, financing and distribution of profits. Businesses needed faster access to reliable data, produce timely reports and insights with scalable solutions that could manage complex financial data and integrate seamlessly with other systems, ushering in a new era where technology became central to financial management. Business are increasingly leveraging AI, Automation and process optimization using robotic process automation (RPA) for efficiency, machine learning, deep learning empowers finance professionals to unlock the true potential of data and hidden insights which creates value to the business, data analytics and business intelligence, cyber security and data privacy, block chain application for sharing ledgers and transparent financial transactions, , cloud- based financial services for collaboration and accessibility; reduce wastage of resources to enhance optimality in financial decision-making. Implementing and practicing these advanced technologies would bring sustainable financial management and thrives on resource optimization ensuring minimizing inefficiencies, and maximizing value of the firm which ultimately creates wealth to investors.

4 Conclusion

The integration of data driven technology and digital technology has significantly transformed financial management, enhancing efficiency, decision-making, and risk control. Virtual payments and process automation streamline daily transactions, though concerns over security and infrastructure persist. Artificial intelligence and big data analytics have improved strategic financial planning, enabling businesses to respond swiftly to market changes. However, evolving business models and the demand for new skill sets highlight the necessity of adaptive management. Machine learning optimizes financial oversight, risk assessment, and regulatory compliance by aligning data with appropriate algorithms, reinforcing financial resilience. Moreover, technological advancements in both individual finance (personal finance) and corporate financial sectors, including regulatory frameworks and tax collection systems, necessitate continuous innovation. While digitalization and datafication unlock immense economic opportunities, they also introduce new financial risks that must be effectively managed. Data driven technologies not only changing the businesses structures and operations, but also fundamentally altering companies how value is created, delivered and sustained. The companies which adopts and practice the ever-changing technologies and embrace these transformations will dictate the future of business and the rest eventually exit from business.

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