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Scientific article

Integration of ESG factors and non-financial data into the managerial accounting system

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Abstract. In light of growing demands for compliance with the global climate agenda and business transparency, non-financial data are becoming increasingly important in corporate governance and investment analysis. Established managerial accounting models, focused primarily on financial indicators, are no longer sufficient for effective management decision-making. In the context of digitalization, the growing scale of non-financial risks, and the expanding range of stakeholders, the adequacy of accounting information is becoming increasingly important. This study aims to theoretically substantiate approaches to integrating ESG parameters and non-financial data into managerial accounting.

The research methods used include systems and institutional approaches, content analysis of scientific papers, a comparative analysis of classical and ESG-oriented accounting, and structural and logical modeling methods. The presented methods made it possible to substantiate the validity of proposals for the integration of ESG criteria into management accounting. *Results.* A closer look was made at the managerial accounting transformation, influenced by ESG factors. The main methodological and organizational barriers for implementing non-financial information were defined, including the issues of measurements, data reliability, and their report inclusion. *The originality* of this work is expressed in its presentation of management accounting, taking into account ESG factors, as a unified information environment. This environment unites management accounting, management analysis, and investment analysis. The *practical value* of the results is based on the potential application in developing accounting systems adapted to ESG criteria. Furthermore, the findings are applicable in the development of management KPIs and sustainability reporting for companies. The recommendations made are useful for revising the functions of financial services to ensure that decisions in the area of sustainable development and investment management are justified.

Keywords: sustainable development, managerial accounting, ESG, non-financial indicators, investment analysis

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Introduction

The relevance of this study stems from the growing importance of ESG indicators as a factor in assessing the investment attractiveness and stability of enterprises. Transparent reporting on company activities and their impact on ESG issues is currently gaining increasing importance, which is important both for the companies and their stakeholders. Many experts point to the ineffectiveness of traditional accounting systems focused solely on financial indicators (Ascani et al., 2021). At the same time, there is a growing demand from investors, government agencies, and the public for the integration of non-financial information into decision-making (Piartrini & Putri, 2024). However, there are no uniform approaches to integrating ESG data into managerial accounting and reporting. This lack of uniform reporting approaches creates significant challenges both in reporting itself and in conducting research. The study showed that some companies, while demonstrating social responsibility in many of their business processes, are unaware of this and fail to reflect it. Other companies, holding a single small event, promote it as something of great social significance. However, both groups do not always understand that informing the public about a company's commitment to ESG principles allows stakeholders to obtain non-financial information about the company's activities. Given the development of digital technologies, the expansion of artificial intelligence and analytical solutions capable of analyzing non-financial information, the issue of its inclusion is becoming especially important. The combination of these factors requires a rethinking of the role of managerial accounting as a key source of data to support sustainability and investment analysis.

The relevance of the chosen research topic is supported by the need to integrate ESG factors and non-financial indicators into the managerial accounting system. This is due not only to the desire of organizations to demonstrate their ESG commitment. The growing interest of investors and other stakeholders in data on the degree of business sustainability and its impact on the environment and society has become a crucial element of modern corporate practice. The **aim** of this study is to develop and theoretically substantiate methodological approaches to the inclusion of ESG parameters and non-financial information in the managerial accounting system to improve the effectiveness of management and investment decisions. To achieve this goal, the following **objectives** were formulated:

- Analysis and systematization of existing scientific concepts of ESG and non-financial indicators in managerial accounting;
- Determination of the role of ESG data in the managerial accounting system;
- Identification of the main difficulties arising in the collection and processing of non-financial information in financial departments;
- Development of an ESG-KPI model for integration into managerial accounting;
- Formulation of practical recommendations for the implementation of ESG indicators in the managerial accounting process.

The **object** of the study is the managerial accounting system of companies. The **subject** of the study is non-financial indicators characterizing the environmental, social, and management responsibility of the company, as well as issues of their integration into the managerial accounting and analysis system.

The practical value of this work lies in the potential application of its results by organizations to create a managerial accounting system focused on ESG factors. The proposed recommendations enable accounting and finance departments to expand the range of management reporting elements. This enables investors and experts to more comprehensively analyze the sustainability of a company's operations. In the absence of uniform sustainability reporting standards, this

material may be useful in the development of regulatory and methodological materials for ESG reporting by government agencies. The study also contributes to the professional development of specialists in this field and expands the scientific potential of studying sustainability issues.

Literature Review

Bibliometric analysis of data obtained through the analytical tools of the SCOPUS database demonstrates growing interest in this topic over the past decades and is presented in Figure 1.

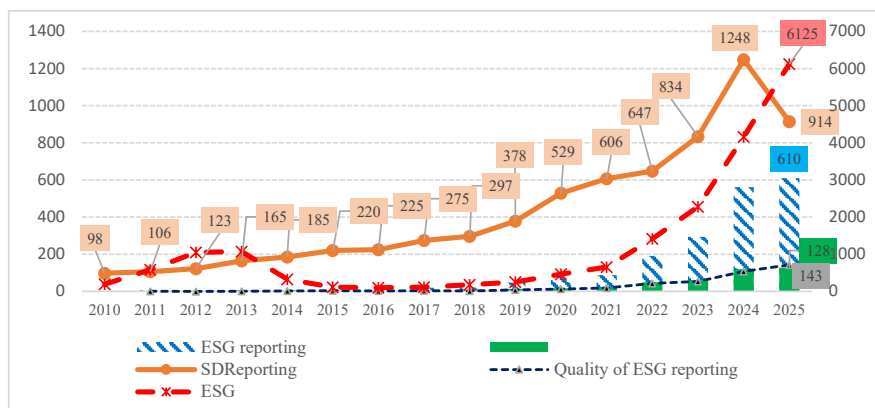


Figure 1 – Publication activity in the "ESG reporting" category by year, as listed in the Scopus database

Note: Compiled by the authors based on data from Clarivate Analytics

Moreover, if we look specifically at publications on the topic of "ESG/SDR reporting," we see that publications started primarily in 2011. It should be noted that a roughly similar growth trend is observed in related areas, and the volume of publications in the first two months of 2025 already exceeds the average value for the studied period. Meanwhile, for the basic ESG topic, publications in the first two months of this year only reached half the average level. It is worth noting that the topic of "ESG reporting" is experiencing stable dynamics of discussion of issues at a level of 151 articles per month throughout 2024. A review of studies posted in the Scopus database in the field of "ESG reporting" by keywords allows them to be grouped by research content into three groups (presented in Figure 2).

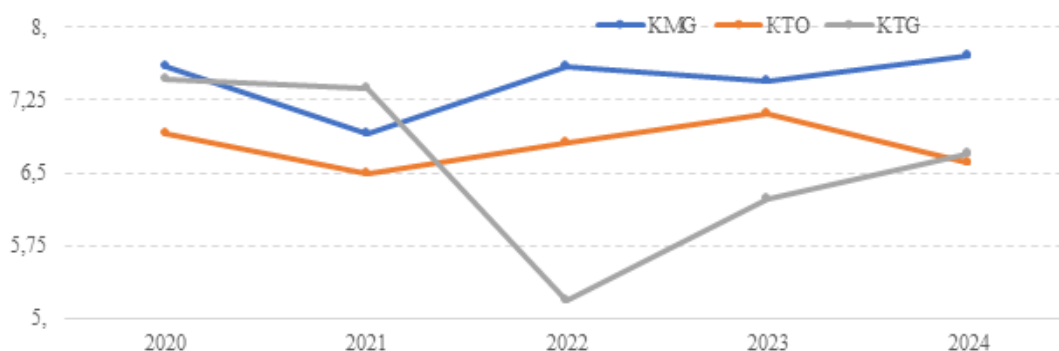


Figure 2 – Bibliometric map of publications in the subject area "ESG reporting" by keywords and their grouping by research content

Note: Compiled by the authors based on Clarivate Analytics data using VoSviewer (method: Keyword: Co-occurrence/Network)

The red group includes studies by keyword grouping: ESG, sustainability reporting, ESG performance, risk assessment, sustainable finance, environmental protection, and economic development. The green group is dedicated to scientific papers grouped by research methods and tools: comparative analysis, cost-effectiveness analysis, sensitivity analysis, review, machine learning, and quality control. The blue group includes papers grouped by research objects and industries.

Transparent reporting on corporate activities and their impact on ESG topics is becoming increasingly important for companies and stakeholders. Using a text mining approach, creating ESG dictionaries and time references, the authors (Heichl & Hirsch, 2023) examined how accurately ESG topics are disclosed in sustainability reports. By examining the emergence of ESG topics over time in non-financial reports, a trend toward increasing report length was identified across all countries and over many years. The issue of report quality, studied by scholars (Biju et al., 2023) in the context of ESG reporting, is examined through companies' masking of unreliable environmental information — a phenomenon known as "greenwashing" — and a formal approach to ratings. Furthermore, separate studies (Meng et al., 2023) draw our attention to the need to consider the fact that individual companies demonstrate one or two of the three ESG components through the prism of their business profile. For example, when the entire report is reduced to an eco-friendly/green office, individual elements of social responsibility towards customers and employees, but issues of differences in remuneration of top management and staff, and many others, are hidden.

The paper (Lee et al., 2023) explores the role of ESG as a disclosure tool for both retaining current investors and attracting new ones. The paper's originality lies in its use of the MCDA method with the ESG framework, which offers a combination of qualitative and quantitative criteria, allowing experienced and/or inexperienced analysts to avoid manipulating business information methods. Presenting financial and annual reports in accordance with ESG criteria has become an important confirmation of management quality not only for businesses (Luo et al., 2023). The authors propose an "accounting channel" mediated by earnings management, demonstrating that ESG disclosure can reduce opacity and increase transparency to limit financial irregularities. The labor-intensive nature of preparing and publishing ESG reports explains the need for significant modifications to management reporting. This also requires a revision of the range of management analysis indicators. E. Bazrafshan (2023) in his work studies the impact of disclosure processing costs in the use of ESG information by retail and institutional investors, in which the assessment of the environmental, social and governance activities of each company is associated with two problems: (1) the high cost of data processing costs for retail investors and (2) the use of this disadvantage as an advantage for institutional investors.

A study by other scholars (Wu et al., 2023) found that sustainability reporting allows companies to present a holistic picture of their activities, including the impact of ESG practices on financial performance. Furthermore, the authors, drawing on similar earlier studies, suggested that sustainability reporting can lead to increased revenues and reduced costs for companies.

A study by Jackson & Allen (2024) focuses on the transformation of managerial accounting functions in the context of the introduction of digital technologies, including artificial intelligence and ESG data, which is leading to a redistribution of attention from the execution of routine procedures to solving strategic and analytical tasks. The emphasis is on the empirical justification for the shift in the role of the accounting specialist, from an executor to the status of a strategic partner and business analyst.

The issue of ESG data has been the subject of much research, primarily because ESG data provides all users with a lot of meaningful non-financial information related not only to assessing the investment attractiveness of companies. These data can be used to assess lessons learned in both labor dispute resolution and approaches to implementing planned strategies. According to a KPMG study, while in 2017, 75% of the largest companies in the Global Fortune 250 (G250) and 63% of the 100 largest companies (GF500) reported using the GRI reporting system, by 2022, this figure has risen to 96% of the top 100 companies and 71% of the GF500 (*KPMG Named One of Fortune Magazine's 100 Best Companies to Work For, n.d.; Fortune Global 500 – The Largest Companies in the World by Revenue | Fortune, n.d.*).

ESG data allows economic entities to provide more comprehensive information about their operations to direct and indirect stakeholders. This information helps to evaluate the company's values, mission, and strategy without going deep into the company's daily operations. The pandemic and geopolitics showed the importance of non-financial data, such as readiness for disasters and employee well-being. These data are important for ESG-oriented investors and are significant for building long-term organizational sustainability. The number of successful practices incorporating ESG principles into management is growing, driven by the increasing importance of ESG in professional circles.

Research methods

Based on generally accepted international scientific approaches to research, a review of relevant publications was conducted using Scopus and Web of Science databases, as well as a content analysis of business reviews by experts (CIMA, CMA, PwC, E&Y). The study utilized a comparative analysis of traditional and ESG-focused managerial accounting, as well as a structural-logical method for constructing a conceptual model. The reliability of the study is ensured by a systematic approach to studying the relationships between accounting data, analysis, and investment decisions. Visualization tools, such as diagrams and tables, are used to clearly present the results, enhancing the information content and comprehensiveness of perception. The substantiation of the proposed recommendations is built in **stages**:

- 1) Using content analysis, synthesis, and comparative research methods, key areas of ESG data generation and their role in managerial accounting are identified;
- 2) Based on content analysis, the main problems associated with the collection and processing of non-financial reporting are identified;
- 3) An ESG-KPI model is developed for integration into managerial accounting;
- 4) Proposals for integrating ESG indicators into managerial accounting are formulated based on the collected data.

The research question raised is how the introduction of ESG indicators into the managerial accounting system will contribute to the deepening of the analytical component of investment analysis and increase the validity of management decisions.

Results and discussion

In this article, a search and analysis of sustainability reports of Kazakhstani companies was conducted in order to establish a list of relevant ESG data by which stakeholders assess the investment attractiveness of companies. A content analysis of the official websites of both those that publish ESG reports and those that do not was also conducted. It was found that some companies declare their commitment to ESG through news feeds, dedicated website sections, and social media (Facebook, Telegram, Instagram). Overall, business awareness of ESG principles in Kazakhstan remains limited to entities in the quasi-public sector (Adambekova et al., 2024).

The study examined reports from large, systemically important companies in the national economy of Kazakhstan: KazMunayGas (KMG 2024 Sustainability Report, n.d.), KazTransOil («KazTransOil» JSC - Annual Reports, n.d.), and KazTransGas (KTG(2019-2023)). The main challenge identified in the study was the lack of a unified approach to reporting ESG data. While it is generally understood that non-financial data is compiled across three categories: environmental, social, and corporate responsibility, the indicators used to capture these aspects vary greatly. It should be noted that the differences lie not only in the names of the indicators but also in the calculation methods (some use absolute values, others relative, and others proportional indicators). Consequently, these differences, or the lack of systematic year-to-year indicators, preclude an analysis of the dynamics and comparison of data across different companies. Moreover, this indicates a lack of systematic integration of ESG data into managerial accounting. For the selected companies, 10 indicators were identified for each ESG component. Comparison of the indicators yielded between four and eight unified indicators. The environmental responsibility indicators were more comparable. In our opinion, this is due to the fact that companies in this area generally use unified standards, such as TCFD, GRI, SASB, and other climate standards. While there is an understanding of that in social responsibility, there is a need to reflect the share of local content in products, and in corporate governance, it is important to reveal the proportion of women and independent directors, all other indicators for these components vary greatly. For example, in social responsibility for personnel development, various criteria are used, such as the number of programs; the number of academic hours per year per employee; the number of hours of training completed; the number of employees trained; and the amount of funds allocated for personnel development. Some companies present data for the group as a whole (as part of consolidation), while others report it individually. Therefore, when compared, we obtain indicators that are difficult to compare (Figure 3).

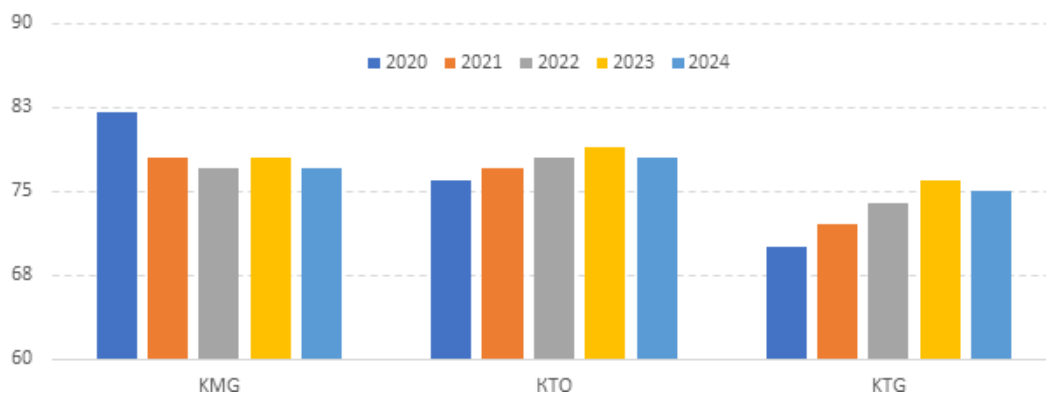


Figure 3 - Environmental Responsibility of Kazakhstani Companies: Decarbonization Criteria, CO2 Emissions

Note: Compiled by the authors based on reporting data (KMG, KTO, KTG, 2025)

The presented decarbonization data for Kazakhstan's largest systemically important companies showed that, in terms of direct CO2 emissions (Figure 3), the main polluters are KMG, KTO, and KTG. While KTG has shown a slight decrease in emissions, the emissions of the first two remain roughly the same. This is due to the fact that the main significant reduction in emissions was achieved before 2020.

The data presented in Figure 4 shows that KMG, KTO, and KTG all have a roughly similar level of Kazakhstani content in their procurement – 75%. Disclosing this type of information enables

stakeholders to adjust their decisions and understand the operating environment. It should be noted, however, that the companies once again demonstrated a lack of uniform approaches to managerial accounting within the company. For example, in terms of personnel development expenses, the average annual allocation for KMG was 630.0 million tenge for the period from 2020 to 2023. However, in the reporting, this indicator is reflected only in terms of expenses for personnel training in environmental management. However, in its 2024 report, KMG already includes an investment indicator for training, with average annual expenses for the period 2022-2024 amounting to 4,695 million tenge. However, data on environmental management training expenses for 2024 is no longer provided. The disparity in these indicators makes it impossible to assess changes in the company's social responsibility policy.

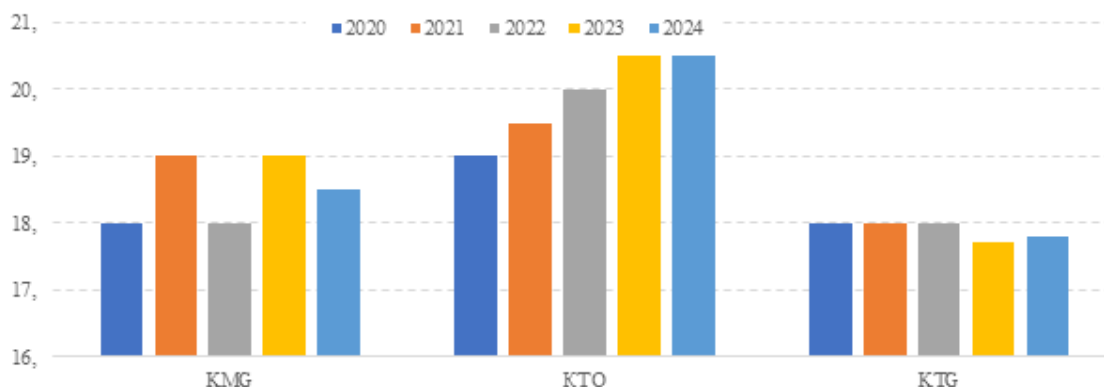


Figure 4 – Social Responsibility of Kazakhstani Companies – Criteria. Share of Local Content in Procurement, %

Note: Compiled by the authors based on reporting data (KMG, KTO, KTG, 2025)

Considering that almost all of the companies presented are in the industrial sector, where the majority of employees are men, the gender indicator does not exceed 20% (Figure 5). By comparison, at MangistauMunaiGaz, the proportion of women is quite high – 63%.

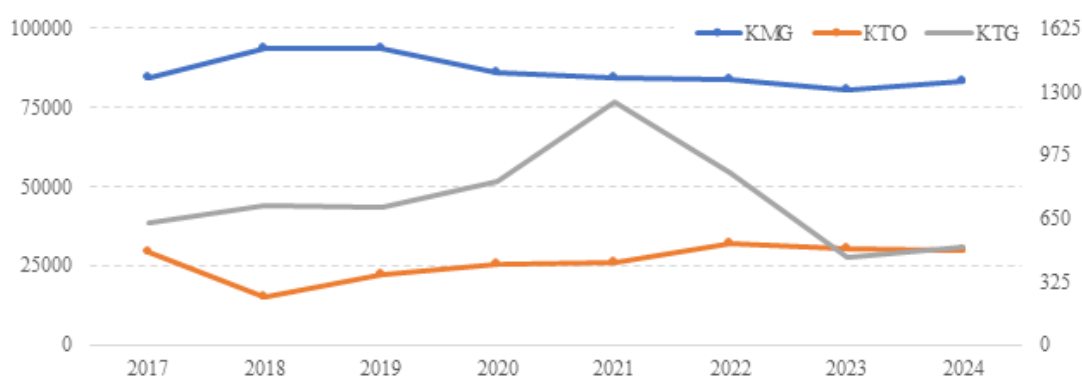


Figure 5 – Corporate Governance Responsibility Criteria for Kazakhstani Companies – Gender Structure

Note: Compiled by the authors based on reporting data (KMG, KTO, KTG, 2025)

The data presented in Figure 6 indicate that only Kaztransgaz (Qazaqgaz) is implementing significant environmental protection measures. Meanwhile, water consumption at KMG and

KTO remains generally stable. It should be noted that data analysis is complicated by the fact that Kaztransgaz and Kaztransoil report water consumption data in megaliters. In contrast, KMG reports it in thousands of cubic meters. This complicates the process of data systematization and its use in factor and investment analysis.

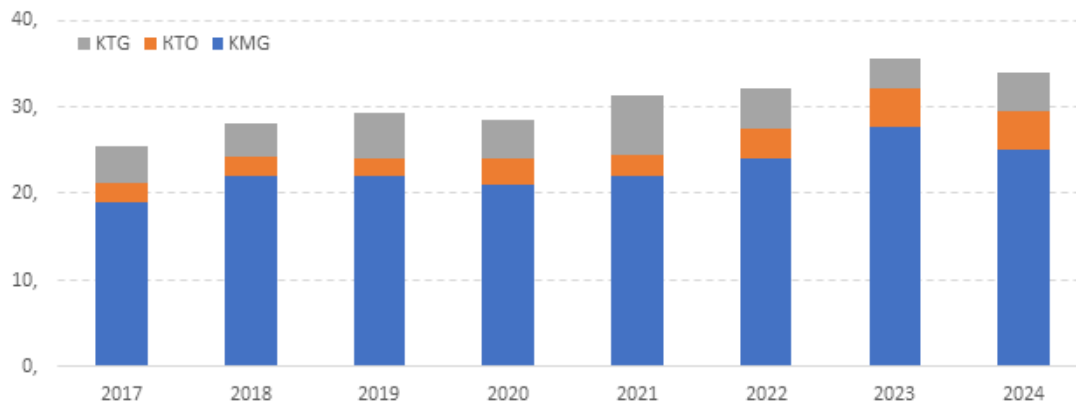


Figure 6 – Environmental Responsibility of Kazakhstani Companies: Criterion – Water Consumption, thousand m3

Note: Compiled by the authors based on reporting data (KMG, KTO, KTG, 2025)

The significance of social support for company employees reflects the level of the business's social responsibility to internal stakeholders. The data presented (Figure 7) indicate that KMG, as the largest oil and gas company in Central Asia, is a leader in this indicator. The level of social support exceeds KTG's data by almost three times, and KTO's by five to seven times. In this case, the information is primarily collected by the finance and HR departments.

The analysis revealed significant difficulties in collecting ESG data, which are primarily explained by the lack of a systematic managerial accounting system for non-financial indicators in companies, or by the fact that this task is not included in the functions of financial departments. A review of scientific and expert publications revealed that the main challenges in integrating non-financial information can be concentrated in three main areas.

1) Methodological problems:

- Lack of generally accepted standards for ESG indicators in managerial accounting systems;
- Difficulties in the transition to quantitative measurement of social and corporate governance indicators;
- Companies in the non-industrial sector experience difficulties in calculating environmental indicators, especially those based on Level 3 criteria.

2) Organizational Barriers:

- There are no departments responsible for ESG-data collection;
- Silos between finance, ESG, and strategy teams;
- Insufficient qualifications of accountants.

3) Database Issues:

- Fragmented data sources;
- No unified digital infrastructure for information consolidation;
- Low level of non-financial indicators comparability;
- Need to ensure data safety and protection.

Today, managerial accounting is not just post-factum reporting: it is becoming an investment management system. In the reality of the modern economy, from a tool for internal control, it is turning into a base for investment analysis. Therefore, solving the mentioned problems has to be done in order to combine financial and non-financial information, especially ESG data. The use of advanced digital technologies will help the integration process to be completed with minimal resource expenditure, both time and labor. This will contribute to improved management and investment decisions.

An analysis of scientific and expert opinions and discussion of problematic aspects of the topic under study at various expert forums led to the development of the following recommendations. The proposed methodology for incorporating ESG factors into KPIs through management accounting requires:

1. Integrating environmental, social, and governance (ESG) criteria into key performance indicators (KPIs) through the management accounting system. For example, the paper proposes collecting data on "CO2 emissions," "water consumption," "company gender structure," "share of local content in procurement," and "employee social support" at the finance department level. This will not only improve the quality of management information and ensure its consistency, but also engage a broad range of company employees.

2. Expanding the functionality of accounting departments through in-depth analytical work will increase their interest in improving their skills and contribute to the expansion of these departments' role within the company, especially in the context of the widespread outsourcing of accounting functions.

3. Integrating ESG indicators into management reporting using interactive dashboards and rating maps will improve the quality of source and resulting information, thereby ensuring more timely and informed management and investment decisions.

4. Using digital solutions and artificial intelligence technologies to collect and verify information will improve the coherence of business processes, increase data reliability, and reduce the impact of human error on information and technical risks. For these purposes, it is necessary to develop instructions for collecting, processing, and storing data through digital platforms.

5. The transition from mandatory one-time ESG reporting to the development of an operational managerial accounting system in these areas contributes to a company's readiness

Table 1 – Integration of ESG into KPIs through Managerial accounting

ESG	KPI / Indicator Block	Economic Description (for Managerial Accounting)	Application in Management Analysis	Application in Investment Analysis	
E – Environment	Carbon intensity (CO ₂ /revenue)	Environmental efficiency of the business model	Cost analysis, carbon cost	ESG-adjusted cash flows	
	Energy intensity (kWh/unit of production)	Resource intensity of production	Cost control, benchmarking	NPV adjustment	
	Share of renewable energy in the energy mix (%)	Resilience to energy risks	Long-term risk analysis	ESG-risk premium	
	Environmental fines/revenue	Environmental risks	Operational risk assessment	WACC adjustment	
	Investments in green technologies/CAPEX	Strategic sustainability	Strategic control	Growth assumptions	
	S – Social	Employee turnover (%)	Quality of human capital	Performance analysis	Risk-adjusted growth
		Injury rate (LTIFR)	Production and reputational risks	Operational risks	ESG-risk discount
Training (hours/employee)		Investment in human capital	HR performance analysis	Long-term value	
Average salary/Median		Social sustainability	Motivation analysis	Sustainability premium	
Gender diversity (%)		Inclusive governance	Management quality	Governance factor	
G – Governance	Percentage of independent directors	Quality of corporate control	Risk management	Governance discount	
	Link between KPIs and ESG goals	Strategic alignment	Performance management	ESG-driven valuation	
	Anti-corruption incidents	Regulatory risks	Compliance monitoring	Risk premium	
	ESG KPIs in the incentive system	Integration of ESG into management	Efficiency	Sustainable value	
	Digital accounting maturity	Quality of management information	Decision-making speed	Forecast accuracy	

Note: compiled by the authors

Table 1 presents the key findings of the study, which can be applied by various stakeholders depending on their objectives. ESG indicators are considered not only within the framework of financial reporting but also as an integral part of managerial accounting. A direct correlation is demonstrated between key ESG indicators and investment attractiveness metrics. Recommendations for integrating ESG indicators into management and investment analysis are particularly significant for the near future. They are useful for both companies and academic researchers. The obtained results can be used by organizations in developing ESG-focused managerial accounting systems, by CFOs and management units, and in preparing for public offerings and capital raising.

A comparative analysis of the sustainability reports of JSC KazMunayGas, JSC KazTransGas, and JSC KazTransOil defined that ESG indicators are basically a component of external reports, and as a rule, they are not often integrated into managerial accounting systems. Even if all three organizations publish data on environmental, social, and governance (ESG) aspects in detail, their overtime comparability is quite low. This defines a lack of correlation between ESG metrics and internal planning, investment evaluation, and performance monitoring.

The proposed ESG-KPI model aims to transform ESG reporting into an integral part of managerial accounting. It can be achieved by integrating sustainability metrics into investment evaluation processes. Specifically, this includes the use of metrics such as net present value (NPV) and internal rate of return (IRR). ESG factors are also used in risk analysis, for example, through the weighted average cost of capital (WACC). Furthermore, ESG KPI metrics are included in the strategic management system through performance evaluation. This provides a deeper analytical foundation for investment decisions, increasing investor confidence in companies' claims of compliance with ESG standards.

The results of this study are consistent with the results of other world research on the influence of ESG factors on companies' investment attractiveness. It can be easily found in high-tech and nature-dependent industries, including the oil and gas sector. However, the main contribution of the presented approach is based on the role of managerial accounting. It is emphasized that the influence of ESG on investment decisions is significantly increasing when integrated into the accounting system. Otherwise, ESG remains a formal tool for public disclosure.

Managerial accounting is confirmed to serve as a bridge between sustainability performance and investment analysis. An integrated ESG approach to managerial accounting can transform non-financial data into information blocks applicable to management decision-making. The use of such data is essential for developing investment budgets, assessing probabilistic risks, and constructing financial models. Thus, classical investment analysis methods — NPV, IRR, EVA, and WACC — are being transformed from purely financial instruments into tools adapted to ESG principles. As the study showed, most authors consider ESG data and its application potential for investment analysis from the perspective of its impact on share price movements. Shakil's (Shakil, 2021) study established mediating effects, suggesting that ESG can both directly and indirectly reduce the cost of equity capital by reducing companies' market risk and increasing the diversification of their equity capital. The novelty of our study lies in the fact that, for the first time, non-financial data is simultaneously linked to both management accounting and investment analysis. The study substantiates the potential to integrate ESG into KPIs using management accounting methods and tools.

At the same time, the results of the thematic analysis point to a gap between ESG reporting and actual management decisions. This gap is due to the incomplete integration of ESG practices

into operational activities. Despite the growth of public sustainability reporting, this data is rarely used in budgeting. It is rarely used in analyzing investment projects and assessing business performance, meaning that the strategic significance of ESG stays the same – limited, which negatively impacts investor perceptions of ESG initiatives.

Thus, the analysis reveals that ESG integration is not just a way to expand managerial accounting scope, but a serious transformation of the managerial accounting system. It is necessary to improve the methodology of management analysis, thereby expanding its functionality and effectiveness. The key goal is to ensure the creation of sustainable corporate value.

Conclusion

The results of the study are important for the corporate governance system. They have a significant role in the organization of managerial accounting and its application in the professional community.

First, organizations, especially in the industrial sector, have to do more than just a superficial disclosure of ESG information. Integrated ESG accounting systems have to be implemented. ESG indicators should be used in internal planning processes, investment analysis, and performance measurement. ESG indicators should directly affect resource allocation, be taken into account when setting risk-based compensation, and be used while defining a long-term development strategy.

Secondly, regulators and policymakers should reach consistency in sustainability reporting standards and managerial accounting. ESG data should be used not only for information disclosure for external stakeholders but also in internal management decision-making processes. This is especially important in countries with emerging economies, where institutional investors are increasingly considering ESG as a risk factor for a country and a specific company.

Third, professional associations, such as CIMA and CFA Institute, as well as major consulting firms like the Big 4, should prepare practical guidelines based on ESG. Special attention should be paid to evaluation models based on environmental, social, and governance (ESG) aspects. An internal CO₂ pricing system should be developed, and sustainability-focused budgeting should be implemented. Such approaches increase the analytical potential of accounting experts and facilitate more comprehensive integration of ESG into organizations' financial policies.

However, it has also been defined that existing investment analysis models still have a limited value in their formalization capabilities. The most significant problem is the lack of a clear correlation between ESG indicators and management decisions. This creates a separate area of research that defines the direction of future research.

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Интеграция ESG факторов и нефинансовых данных в систему управленческого учета

Аннотация. В свете растущих требований к соблюдению глобальной климатической повестки дня и прозрачности бизнеса, нефинансовые данные приобретают все большее значение в корпоративном управлении и инвестиционном анализе. Устоявшиеся модели управленческого учета, ориентированные в основном на финансовые показатели, уже недостаточны для эффективного принятия управленческих решений. В условиях цифровизации, растущего масштаба нефинансовых рисков и расширения круга стейкхолдеров достаточность учетной информации становится важной. *Цель работы* – теоретически обосновать подходы к интеграции ESG параметров и нефинансовых данных в управленческий учет.

В качестве *методов исследования* применены системный и институциональный подходы, контент-анализ научных работ, сравнительный анализ классического и ESG-ориентированного учета, а также методы структурного и логического моделирования. *Результаты.* Был проведен обзор вопросов трансформации управленческого учета, подверженных влиянию ESG факторов. Выявлены основные методологические и организационные барьеры на пути внедрения нефинансовой информации. В их числе вопросы измерения, согласованности данных и интеграции в отчетность. Оригинальность работы выражается в представлении управленческого учета с учетом ESG-факторов как единой информационной среды. Эта среда объединяет управленческий учет, управленческий и инвестиционный анализ. *Практическая ценность результатов* заключается в их потенциальном применении при разработке систем учета, адаптированных к ESG-критериям. Наряду с этим, полученные выводы применимы при разработке управленческих KPI и отчетности об устойчивом развитии компаний. Внесенные рекомендации полезны для пересмотра функций финансовых служб в сторону обеспечения обоснованности решений в области устойчивого развития и управления инвестициями.

Ключевые слова: устойчивое развитие, управленческий учет, ESG, нефинансовые показатели, инвестиционный анализ.

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ESG факторларын және қаржылық емес деректерді басқарушылық есебі жүйесіне интеграциялау

Андатпа. Жаһандық климаттық күн тәртібін сақтау және бизнестің ашықтығын арттыруға қойылатын талаптардың күшеюі жағдайында қаржылық емес деректер корпоративтік басқару мен инвестициялық талдауда барған сайын маңызды рөл атқаруда. Негізінен қаржылық көрсеткіштерге сүйенетін дәстүрлі басқару есебі модельдері басқарушылық шешімдерді тиімді қабылдау үшін жеткіліксіз болып отыр. Цифрландыру үдерісінің жеделдеуі, қаржылық емес

тәуекелдердің ауқымының өсуі және стейкхолдерлер шеңберінің кеңеюі жағдайында есептік ақпараттың жеткіліктілігі айрықша мәнге ие болуда.

Зерттеу жұмысының мақсаты – ESG параметрлері мен қаржылық емес деректерді басқару есебіне интеграциялаудың теориялық тәсілдерін негіздеу.

Зерттеу әдістері ретінде жүйелік және институционалдық тәсілдер, ғылыми еңбектерге контент-талдау, классикалық және ESG-бағдарланған есепті салыстырмалы талдау, сондай-ақ құрылымдық және логикалық модельдеу әдістері қолданылды.

Нәтижелер. ESG факторларының ықпалына ұшыраған басқару есебін трансформациялау мәселелеріне шолу жасалды. Қаржылық емес ақпаратты енгізу жолындағы негізгі әдіснамалық және ұйымдастырушылық кедергілер айқындалды. Олардың қатарына өлшеу мәселелері, деректердің үйлесімділігі мен сапасын қамтамасыз ету, сондай-ақ оларды есептілік жүйесіне кіріктіру қиындықтары жатады.

Зерттеудің жаңашылдығы ESG факторларын ескере отырып басқару есебін бірыңғай ақпараттық орта ретінде ұсынуында көрініс табады. Аталған орта басқару есебін, басқарушылық талдауды және инвестициялық талдауды өзара байланыстыра біріктіреді.

Алынған нәтижелердің практикалық маңызы – оларды ESG критерийлеріне бейімделген есеп жүйелерін әзірлеу барысында қолдану мүмкіндігінде. Сонымен қатар, қорытындылар компаниялардың тұрақты даму жөніндегі есептілігі мен басқарушылық КРІ көрсеткіштерін әзірлеу кезінде де тиімді пайдаланылуы мүмкін. Ұсынылған ұсынымдар қаржы қызметтерінің функцияларын қайта қарастыруға, яғни тұрақты даму және инвестицияларды басқару саласындағы шешімдердің негізділігін қамтамасыз етуге бағытталған.

Түйін сөздер: тұрақты даму, басқарушылық есеп, ESG, қаржылық емес көрсеткіштер, инвестициялық талдау

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