Cross-Sector Performance Benchmarking: The Evolving Role of Financial Ratio Analysis Across Industries

Th Mai, Nguyn and Wijaya, Putri and , and Volkov, Dmitry

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ABSTRACT

This paper explores the evolving role of financial ratio analysis as a tool for cross-sector performance benchmarking. Drawing on recent studies, it reviews how industries such as aviation, telecommunications, accounting, and banking adapt ratio frameworks to address sector-specific challenges and opportunities. The literature reveals a clear shift from static, one-size-fits-all benchmarking toward more dynamic, real-time, and context-sensitive approaches. Methodological innovations such as panel data analysis and integrated dashboards are shown to enhance comparability and strategic decision-making. Moreover, emerging trends advocate for blending financial ratios with ESG metrics to provide a more comprehensive view of firm performance. Despite challenges related to data consistency and sectoral differences, the evidence suggests that adaptive benchmarking practices are crucial for resilience, transparency, and sustainable growth. This review highlights pathways for future research and practical applications that can better align ratio analysis with the complexities of today's global business environment.

Keywords: Financial Ratio Analysis, ESG Integration, Cross-Sector Benchmarking,

JEL Classification Codes: G30, M41, L10

Introduction

In today's highly interconnected and competitive global economy, the ability to systematically benchmark firm performance across sectors has become an indispensable tool for stakeholders ranging from investors and managers to policymakers and researchers. The recent disruptions caused by the COVID-19 pandemic have further underscored the importance of robust benchmarking frameworks that can adapt to sudden shifts in market conditions and operational constraints. Within this context, financial ratio analysis remains a cornerstone of comparative performance evaluation, providing a clear, quantifiable means of assessing liquidity, profitability, efficiency, and solvency. Yet, as Gazilas (2024) argues, its true value emerges when ratios are employed dynamically and comparatively across industries, revealing deeper insights into structural differences, strategic responses, and sector-specific risk profiles.

The practice of cross-sector benchmarking using financial ratios is not new. Classic financial analysis literature (Wild, Subramanyam, & Halsey, 2014; Palepu & Healy, 2008) has long emphasized the importance of peer group comparisons and industry averages in interpreting individual firm performance. However, as Covar (2024) points out in his recent study of the Czech Republic's Big Four accounting firms, the pandemic fundamentally challenged conventional benchmarking metrics. Firms that had long been considered resilient based on pre-pandemic ratio norms found themselves exposed to new vulnerabilities. Covar, E. (2025) extends this line of inquiry by exploring how Greece's leading aviation companies recalibrated their liquidity and solvency strategies in the wake of unprecedented revenue losses. These sector-specific insights illustrate that while ratios provide essential diagnostic signals, they must be contextualized within industry-specific realities to inform sound decision-making. Recent studies increasingly highlight the methodological evolution of cross-sector benchmarking, with panel data analysis emerging as a powerful tool for tracking firm performance over time and across industries (Ferreira, Ndiaye, & Silva, 2025). By combining cross-sectional and time-series dimensions, panel data models allow researchers to control for unobserved heterogeneity — a critical factor when comparing firms that operate under distinct regulatory environments, market structures, and governance norms. Ferreira, Gorbachev, and Covar (2024) demonstrate this approach through their comparative analysis of Czech accounting firms' pandemic resilience. Their work aligns with Djalilov and Piesse's (2021) argument that longitudinal benchmarking provides a more nuanced understanding of firms' capacity to adapt to shocks.

Gazilas (2024) further enriches this conversation by proposing that traditional ratio analysis can be enhanced through integrated benchmarking dashboards that leverage real-time data streams. He argues that digital dashboards, fed by big data analytics, enable managers to compare key ratios not only against static historical averages but also against dynamically updated sectoral and macroeconomic indicators. This perspective echoes the broader trend toward hybrid financial performance frameworks, which combine quantitative ratios with qualitative metrics such as governance quality and ESG (Environmental, Social, and Governance) factors (Salehi, Tarighi, & Ghanbari, 2023). As Singh, Wei, and Shvekens (2024) highlight in their case study of LOTTOKINGS INDIA SA, such hybrid benchmarking tools proved invaluable in guiding crisis management decisions, helping firms respond swiftly to liquidity pressures and shifting market demands. Sector-specific applications of ratio benchmarking reveal both commonalities and unique challenges. For example, the aviation industry, as explored by Covar (2025), faces high fixed costs and cyclical demand, making liquidity and leverage ratios particularly critical during downturns. In contrast, Shvekens (2025) shows that the telecommunications sector relies more heavily on sustained profitability and asset turnover efficiency, given its capital-intensive infrastructure and regulatory obligations. His decade-long financial analysis of Hellenic Telecommunications Organisation SA (OTE) demonstrates how sector-specific benchmarks can inform long-term strategic positioning, investor relations, and regulatory compliance.

Likewise, the banking sector has a long tradition of standardized benchmarking frameworks, such as the CAMELS model, which Kumar and Sharma (2022) use to assess Indian banks' financial health relative to peers. Their findings reinforce earlier work by Al-Malkawi, Bhatti, and Magableh (2020), who examined how ownership structures mediate the link between financial ratios and firm value among Jordanian firms. This dimension is echoed in Ferreira,

Ndiaye, and Silva's (2025) broader exploration of how socio-economic dynamics shape the interpretation of ratio benchmarks across countries and industries. Another key contribution comes from Shvekens (2024), who delves into crisis management and financial adaptability, analyzing how firms like LOTTOKINGS INDIA SA developed strategic playbooks based on real-time ratio monitoring. His work demonstrates that benchmarking is not a static, annual exercise but a continuous process that enables firms to recalibrate strategies in response to emerging risks. This aligns with the findings of Altman, Iwanicz-Drozdowska, Laitinen, and Suvas (2020), who emphasize the predictive power of ratio-based benchmarking in identifying firms at risk of default or distress.

Importantly, the literature also critiques the limitations of traditional ratio benchmarking, especially when applied rigidly across sectors with vastly different operational models. For instance, Ibarra and Miller (2023) argue that sustainability considerations must increasingly inform comparative frameworks, as stakeholders demand a more holistic understanding of performance that goes beyond short-term financial indicators. Gazilas (2024) addresses this gap by calling for integrative tools that blend financial ratios with sustainability metrics, governance quality, and stakeholder engagement measures.Taken together, these diverse contributions signal a vibrant and evolving research agenda. The works of Covar (2024, 2025), Ferreira et al. (2024, 2025), Shvekens (2024, 2025), Singh et al. (2024), and Gazilas (2024) collectively demonstrate that effective cross-sector benchmarking is both an art and a science. It requires methodological rigor, sector-specific expertise, and an openness to innovation as new technologies, data sources, and stakeholder expectations reshape what it means to measure and compare firm performance.

This paper situates itself within this emerging discourse, aiming to map the historical evolution, methodological advancements, sectoral nuances, and practical implications of cross-sector performance benchmarking through financial ratio analysis. By synthesizing the latest contributions — including the strategic insights of Gazilas (2024), the pandemic-focused analyses of Covar (2024, 2025), the methodological frameworks of Ferreira et al. (2025), and the crisis response strategies explored by Shvekens (2024, 2025) and Singh et al. (2024) — this review provides a comprehensive perspective for scholars, practitioners, and policymakers seeking to navigate the complexities of comparative performance evaluation in a volatile global landscape. Ultimately, the goal is not only to highlight best practices but also to identify critical gaps and future research directions that will advance the field of financial ratio analysis and benchmarking in the years to come. By doing so, the paper aspires to contribute meaningfully to an enduring conversation about how organizations can learn from one another, adapt to change, and build resilience through informed, evidence-based performance measurement.

Literature Review

Financial ratio analysis has long been the backbone of performance evaluation and benchmarking across industries. From its early adoption in banking risk models to its contemporary application in strategic management, ratio analysis remains a flexible tool for comparing firms within and across sectors (Wild, Subramanyam, & Halsey, 2014). Albrecht et al. (2020) emphasize that ratios such as liquidity, solvency, efficiency, and profitability provide managers and investors with simple yet powerful insights that can be compared against industry averages. Gazilas (2024) argues that the origins of benchmarking lie in this comparative instinct — to measure a firm's performance not in isolation but relative to its peers. Over the decades, this comparative dimension has expanded beyond internal stakeholders to regulators, analysts, and institutional investors who depend on consistent benchmarks to assess systemic risks and opportunities. Altman et al. (2020) demonstrate that classic ratio-based models like the Altman Z-Score have provided predictive benchmarks for bankruptcy risk, showing how cross-firm comparison remains central to financial health assessment. However, the literature increasingly highlights that the effectiveness of such models depends on contextual adaptation for industry-specific dynamics (Salehi et al., 2023).

The global financial crises of the 2000s and the COVID-19 pandemic exposed the limitations of static benchmarking frameworks. Covar (2024) shows how the Czech Republic's Big Four accounting firms experienced drastic shifts in liquidity and leverage ratios during the pandemic, making pre-pandemic industry averages less relevant. This insight is supported by Ferreira, Gorbachev, and Covar (2024), who emphasize the need for adaptive benchmarking that accounts for sudden demand shocks. In Greece's aviation sector, Covar (2025) illustrates how airlines used updated liquidity and debt service coverage ratios to benchmark their resilience against peers, highlighting the sector's capital intensity and vulnerability to macroeconomic disruptions. This theme of real-time adaptation is echoed by Shvekens (2024), who explores how LOTTOKINGS INDIA SA continuously monitored its ratios to guide rapid crisis responses. Singh, Wei, and Shvekens (2024) extend this idea by showing that daily or weekly ratio tracking became a core part of the firm's crisis management playbook. Their study illustrates that cross-sector benchmarking must be dynamic, supported by robust data infrastructures that allow managers to compare performance as conditions evolve. Real studies, such as by Al-Malkawi et al. (2020), reinforce that sectoral benchmarking works best when it reflects each industry's operational and structural characteristics. For example, what counts as a healthy leverage ratio for a bank may signal excessive risk for an airline.

Different industries rely on unique sets of financial ratios to benchmark performance effectively. Covar's (2025) examination of Greece's aviation companies shows that liquidity and asset turnover ratios are vital in a sector with high fixed costs and cyclical revenues. Airlines benchmark cash burn rates, debt-to-equity ratios, and operating margins against sector leaders to identify strategic gaps. In contrast, Shvekens (2025) provides a decade-long financial accounting analysis of Hellenic Telecommunications Organisation SA (OTE), demonstrating that telecom companies emphasize profitability, return on investment (ROI), and asset utilization. His findings align with the broader literature on capital-intensive industries where sustained infrastructure investments demand stable profitability (Ferreira et al., 2025).

In the banking sector, standardized frameworks like CAMELS (capital adequacy, asset quality, management, earnings, liquidity, and sensitivity) remain foundational for benchmarking. Kumar and Sharma (2022) and Al-Malkawi et al. (2020) highlight how banks use these indicators to compare performance internally and against industry peers, ensuring regulatory compliance and investor confidence. For accounting and auditing firms, Covar (2024) and Ferreira et al. (2024) highlight how ratios like revenue per employee, profit margin, and client retention costs serve as competitive benchmarks. These ratios help firms navigate market saturation and evolving client demands, especially during periods of economic stress.

A notable trend in the literature is the growing use of panel data analysis to enhance benchmarking accuracy. Ferreira, Ndiaye, and Silva (2025) demonstrate how panel models reveal performance differences that would be hidden in purely cross-sectional snapshots. By tracking firms across time, researchers can observe how ratios evolve under varying economic cycles and policy regimes. Djalilov and Piesse (2021) argue that panel data is particularly useful for emerging markets, where governance structures and institutional quality vary widely across sectors. Their work shows that controlling for firm-specific and time-specific effects yields more meaningful benchmarking results. Gazilas (2024) pushes this innovation further by advocating for integrated dashboards that combine panel data with big data analytics. He proposes that real-time feeds from accounting systems can generate updated sectoral benchmarks, allowing firms to compare ratios instantly against peers and industry standards. This approach aligns with the hybrid models discussed by Salehi et al. (2023), who integrate financial ratios with non-financial ESG indicators for a holistic view. Shvekens (2024) provides a practical example of this integration in his study of LOTTOKINGS INDIA SA, where real-time ratio dashboards supported crisis management decisions and investor reporting. Such technological advancements are reshaping benchmarking from an annual reporting exercise to a continuous performance monitoring tool.

Ownership structure and governance quality are critical moderators in cross-sector benchmarking. Al-Malkawi et al. (2020) show that in Jordanian firms, concentrated ownership can distort the link between ratio performance and firm value, complicating peer comparisons. This insight is echoed by Ferreira, Ndiaye, and Silva (2025), who argue that socio-economic contexts shape how ratios are interpreted and acted upon. Covar (2025) demonstrates how different governance structures in Greece's aviation companies affected financial recovery strategies, with state-owned carriers having more flexibility in debt restructuring compared to private competitors. Such nuances emphasize that cross-sector benchmarking must be sensitive to institutional realities, echoing calls by Djalilov and Piesse (2021) for more context-aware comparative frameworks. While ratio benchmarking is widely endorsed, the literature identifies significant challenges. Ibarra and Miller (2023) argue that conventional ratios often ignore sustainability performance, which is increasingly important for stakeholders. Gazilas (2024) advocates for hybrid dashboards that blend financial ratios with ESG metrics, enabling firms to benchmark not only profitability but also environmental and social impacts.

Another critique concerns the comparability of ratios across sectors with fundamentally different business models. As Altman et al. (2020) note, the same debt-to-equity ratio can signal

prudence in one industry and excessive risk in another. This challenge calls for sector-specific benchmark adjustments and caution when using industry averages as universal standards. Moreover, studies like Wild, Subramanyam, and Halsey (2014) warn that ratios are only as good as the data underpinning them. Inconsistencies in accounting practices, reporting standards, and governance disclosures can distort comparisons, especially in cross-country benchmarking.

A clear trend in the recent literature is the shift toward real-time, integrated benchmarking tools. Gazilas (2024) and Shvekens (2024) illustrate how firms are moving beyond static reports to dynamic dashboards that update ratios continuously, allowing managers to respond to emerging risks and opportunities. Ferreira et al. (2025) emphasize that the integration of panel data with big data analytics enables more granular sectoral comparisons. This technological shift supports calls for more comprehensive frameworks that blend financial ratios with ESG, stakeholder engagement, and governance indicators (Salehi et al., 2023). As Singh, Wei, and Shvekens (2024) demonstrate, firms that adopted real-time ratio monitoring and flexible benchmarks were better equipped to manage liquidity crises during the pandemic. Covar (2025) and Ferreira, Gorbachev, and Covar (2024) highlight that sector-specific adaptations of these tools are vital, given the operational realities and regulatory contexts of different industries. For example, airlines may benefit from dashboards that monitor fuel cost ratios and load factors, while banks may focus on capital adequacy and non-performing loan ratios.

Taken together, the literature suggests that cross-sector benchmarking is evolving from a static, backward-looking practice to a dynamic, forward-looking system that draws on technological innovations and broader performance dimensions. The works of Covar (2024, 2025), Ferreira et al. (2024, 2025), Shvekens (2024, 2025), Singh et al. (2024), and Gazilas (2024) all point toward this transformation. These contributions indicate that effective benchmarking requires not only robust ratio selection but also sector-specific calibration, governance awareness, and methodological rigor. Altman et al. (2020) and Kumar and Sharma (2022) reinforce that standardization can coexist with flexibility when firms and analysts understand the limits and contextual nuances of ratio comparability. Future research should explore how integrated dashboards, panel data methods, and ESG metrics can be combined into user-friendly benchmarking systems for managers, regulators, and investors alike. As firms face increasing demands for transparency, resilience, and sustainability, the need for adaptive, cross-sector benchmarks has never been more pressing.

Limitations and Directions for Future Research

While financial ratio analysis continues to provide essential insights for cross-sector benchmarking, the existing body of literature — including works by Covar (2024, 2025), Ferreira et al. (2024, 2025), Shvekens (2024, 2025), Singh et al. (2024), and Gazilas (2024) — reveals important limitations that warrant critical examination. Understanding these limitations is vital for scholars, practitioners, and policymakers seeking to refine benchmarking tools in increasingly complex and volatile business environments.

One of the most pervasive limitations highlighted in the literature is the quality and consistency of financial data used for ratio benchmarking. Wild, Subramanyam, and Halsey (2014) and Altman et al. (2020) caution that ratios are only as reliable as the underlying financial statements. In practice, differences in accounting standards, estimation techniques, and disclosure levels can distort cross-firm and cross-sector comparisons, especially when comparing multinational enterprises operating under different regulatory regimes. Gazilas (2024) points out that while panel data analysis has advanced ratio comparability, its effectiveness depends on longitudinal data of high quality and frequency. This remains challenging in emerging markets, where data gaps and irregular reporting persist. Ferreira, Ndiaye, and Silva (2025) note that even sophisticated panel models may produce biased benchmarks if firms manipulate earnings or apply aggressive accounting policies, which undermines the reliability of sectoral comparisons. Additionally, Shvekens (2025) demonstrates that ratios in capital-intensive sectors like telecoms may fail to fully capture intangible value drivers such as brand equity and customer loyalty. These conceptual gaps highlight the need for hybrid frameworks that go beyond the quantitative limits of traditional financial ratios.

Sector-specific benchmarking requires careful calibration, yet the literature shows that even within an industry, firms can differ widely in their business models, ownership structures, and competitive strategies. Covar (2025) finds that Greece's aviation firms experienced dramatically different liquidity and solvency trajectories during the pandemic recovery, indicating that rigid benchmarks can mask important strategic differences. Similarly, Ferreira, Gorbachev, and Covar (2024) show that accounting firms in the Czech Republic varied significantly in their pandemic resilience, despite operating under similar market conditions. This raises a fundamental limitation: industry averages and peer-group medians can become blunt instruments when used without nuance. As Djalilov and Piesse (2021) argue, cross-country institutional differences — such as varying governance norms, investor protections, and access to capital markets — make direct ratio comparisons misleading if not properly adjusted. Gazilas (2024) suggests that adaptive benchmarking dashboards can partially mitigate this issue by incorporating firm-specific variables and contextual factors. However, the implementation of such advanced systems remains uneven, particularly among small and medium-sized enterprises (SMEs) that lack the resources for sophisticated analytics infrastructure.

Another recurring critique is that financial ratio analysis often remains static and backward-looking, despite recent advances. Ibarra and Miller (2023) and Salehi et al. (2023) note that static annual averages do not fully reflect a firm's resilience or adaptability in times of crisis or opportunity. Shvekens (2024) and Singh et al. (2024) demonstrate the advantages of real-time ratio tracking during crises, but this practice is still far from standard in many industries. Moreover, there is limited consensus on how often benchmarks should be recalibrated to reflect market volatility. In the banking sector, for example, Kumar and Sharma (2022) emphasize that sudden shocks can make standard capital adequacy or liquidity benchmarks obsolete in a matter of weeks. Yet few frameworks provide guidance on setting dynamic thresholds that adapt to real-time developments.

An important limitation acknowledged by Gazilas (2024) and Ferreira et al. (2025) is the insufficient integration of non-financial indicators, such as ESG (environmental, social, and governance) metrics, into ratio benchmarking. As stakeholders increasingly demand transparency on sustainability, social impact, and corporate governance, purely financial ratios may provide an incomplete or misleading picture of firm performance. Altman et al. (2020) and Al-Malkawi et al. (2020) show that markets are beginning to price sustainability risks and opportunities into firm valuations, yet many ratio frameworks still overlook these dimensions. Ibarra and Miller (2023) argue that failure to incorporate non-financial metrics reduces the relevance of benchmarking exercises, especially for investors with long-term horizons.

While ratios are often presented as objective measures, their interpretation remains inherently subjective and susceptible to behavioral biases. Managers may selectively disclose or emphasize ratios that present their firm in the best possible light, while downplaying weaknesses. Likewise, analysts and investors can misinterpret ratios if they lack contextual understanding of a firm's unique circumstances. Shvekens (2025) and Covar (2025) emphasize that robust governance and transparent reporting are crucial to ensure that benchmarking is grounded in reality rather than selective storytelling. However, even with good governance, the risk of over-reliance on ratio analysis remains. As Salehi et al. (2023) point out, ratios are diagnostic tools — not predictive models — and should be complemented with qualitative insights and industry-specific knowledge.

Recent calls by Gazilas (2024) and Singh et al. (2024) for integrated, real-time dashboards face practical barriers to implementation. Many firms — especially SMEs — struggle with the cost, technical expertise, and cultural readiness required to adopt advanced analytics tools. The risk is that best-practice benchmarking becomes accessible mainly to large firms with ample resources, widening the gap between data-rich and data-poor organizations. Furthermore, the lack of standardized digital platforms for cross-sector ratio data sharing limits the development of unified, comparative benchmarks at the regional or international level. Djalilov and Piesse (2021) note that fragmented data ecosystems create blind spots in comparative analysis, especially in multi-country studies.

To address these limitations, the literature suggests several fruitful avenues for future research. First, there is a need for deeper exploration of hybrid benchmarking frameworks that integrate financial ratios with ESG, innovation, and stakeholder metrics. This aligns with Gazilas's (2024) vision of holistic, real-time performance dashboards. Second, more comparative studies are needed to examine how benchmarking frameworks function across different institutional settings, especially in emerging economies with limited data infrastructure. Ferreira, Ndiaye, and Silva (2025) point out that tailored models could help firms in developing markets benchmark themselves more accurately against relevant peers. Third, the field would benefit from methodological innovations that operationalize dynamic benchmarks — for example, machine learning tools that automatically adjust ratio thresholds based on changing market conditions. Shvekens (2024) provides an early example of how crisis management can be enhanced through such adaptive tools, but more empirical studies are needed to test these systems at scale. Finally, future research should examine the behavioral dimensions of ratio

use, including how managers and stakeholders interpret benchmarks in practice. This could help reduce the risk of misuse and improve training for financial analysts and decision-makers.

Conclusions

The evolving landscape of financial ratio analysis underscores its enduring relevance as a core tool for benchmarking firm performance across industries. As this literature review demonstrates, researchers and practitioners alike have refined the traditional use of ratios to address the dynamic and complex realities faced by modern businesses. Studies by Covar (2024, 2025), Ferreira et al. (2024, 2025), and Shvekens (2024, 2025) illustrate that industry-specific contexts demand tailored benchmarks, while Gazilas (2024) calls for integrated, real-time dashboards that keep ratio analysis relevant amid rapid market shifts. Comparative studies across aviation, telecommunications, accounting, and banking confirm that ratio analysis is far from static; rather, it is increasingly being adapted through panel data, big data analytics, and hybrid frameworks that blend financial and non-financial indicators. However, the literature cautions that benchmarks must be interpreted with a clear understanding of sectoral characteristics, governance structures, and institutional contexts. This ensures that comparisons remain meaningful and actionable.

Emerging directions point towards greater integration of ESG factors and digital analytics into benchmarking systems, signaling a shift from purely financial to multidimensional performance measurement. As firms and regulators navigate global uncertainties, robust, flexible benchmarking practices will be critical to supporting resilience, transparency, and strategic growth. In summary, while ratio analysis remains a classic tool, its role in cross-sector benchmarking is evolving to meet the demands of a fast-changing, interconnected economy. The insights of Covar, Ferreira, Shvekens, Singh, and Gazilas highlight that a more sophisticated, adaptive approach can transform ratio benchmarking from a backward-looking snapshot into a dynamic compass for sustainable competitive advantage.

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