Revolutionizing Accounting and Finance Practices with Large Language Models: A Comprehensive Review of Applications and Implications

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Abstract: The advent of Large Language Models (LLMs), such as GPT-4 and BERT, is transforming accounting and finance by enabling intelligent automation, advanced data analysis, and real-time decision support. This paper provides a comprehensive review of recent applications and implications of LLMs in the accounting and finance domains. Specifically, it examines how LLMs enhance financial reporting through automated data processing and narrative generation; improve financial decision-making and forecasting via intelligent analysis and predictive modeling; and increase audit efficiency by enabling compliance checks, anomaly detection, and risk identification. This study contributes to the understanding of how LLMs are reshaping accounting workflows and professional roles, offering a foundation for future research and practical implementation. It also calls for the development of responsible AI governance frameworks to ensure the trustworthy, transparent, and sustainable integration of LLMs in accounting and finance practices.

Keywords: Large Language Models; LLMS; Accounting; Finance; Audit

1. Introduction

The evolution of technology in accounting and finance has been a transformative journey, significantly enhancing the efficiency and accuracy of accounting and finance practices. Historically, accounting was a manual and labor-intensive process. The true leap into the future came with the rise of artificial intelligence (AI), particularly through the development of machine learning (ML) and natural language processing (NLP) technologies. These innovations have taken accounting to a new level by enabling systems to not only process data but also learn from it, predict trends, and interact in human-like ways.

Large Language Models (LLMs) such as GPT-4, BERT, and T5 represent a significant advancement in the field of AI, particularly in natural language processing. LLMs are deep learning models that are trained on vast amounts of textual data to understand, generate, and manipulate human language. These models are capable of performing a wide range of tasks, including text generation, translation, summarization, and question-answering, by leveraging the enormous amounts of language data they have been trained on.

This paper aims to explore the transformative potential of Large Language Models (LLMs) in the accounting and finance field. The objectives of this paper are to:(1) Examine the applications of LLMs in accounting and finance, specifically in areas such as financial reporting, financial forcasting, and audit support. (2) Find out what the future holds for LLMs in different aspects of accounting and finance. The following sections will dive deeper into these topics, providing a comprehensive review of LLM applications and applications in accounting and finance.

2. Research Methodology and Literature Selection

In this paper, a systematic review and assessment of the relevant literature will be conducted using the systematic literature approach, which consists of four steps (Figure1). The first step is to identify keywords and journal sources. In this paper, "large language model" is combined with 'accounting' and "finance" to conduct a systematic search of titles, abstracts, and keywords in Web of science and Scopus databases for title, abstract and keyword systematic searches, and a total of 533 English documents were obtained. In the second step, preliminary screening was conducted to exclude 407 articles with incompatible article types and duplicated literature, leaving a total of 126

articles. Step 3: Preliminary examination of content suitability. By reading the titles, abstracts and keywords of the literature, we judged whether the articles could reflect the research topic of this paper. After removing non-English and missing texts, 46 English texts were retained to be in line with the research theme. In the fourth step, the retained literature was reviewed in depth, and 23 English-language literatures that matched the research theme of this paper were manually supplemented by tracking the literature list of the review articles in line with the guideline of SLR snowballing. Thus, a total of 69 English-language literatures were selected for this paper.
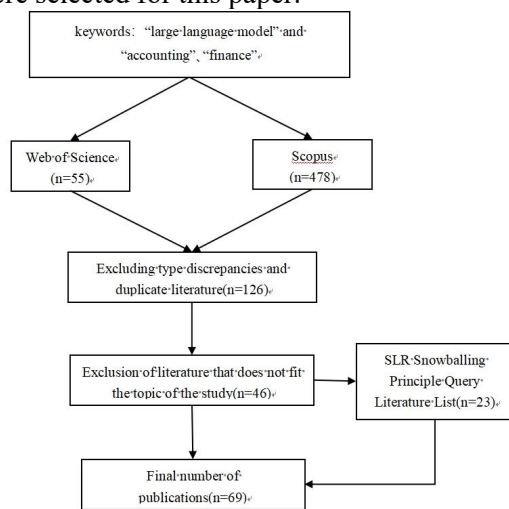

Figure 1. Literature Selection Process

3. Literature Analysis
This paper compiles and analyzes the 69 retained literature.

3.1 Publication Trends
In terms of the number of publications, research on the application of large-scale language modeling to the field of accounting and finance is still relatively small and is still in its infancy. From the point of view of publication time (see Figure 2.), the research related to large-scale language models and the field of accounting starts from 2023, and the number of publications grows rapidly, with a total of 31 publications in 2024, and as of March 2025, there are 17 publications.

3.2 Distribution of Journals
In terms of literature publication (see Figure 3.), the literature published in journals is still relatively small at 37%. Most of the literature has been published, but 40% of the literature was

published as conference papers. Moreover, 23% of the literature are preprints and not officially published.
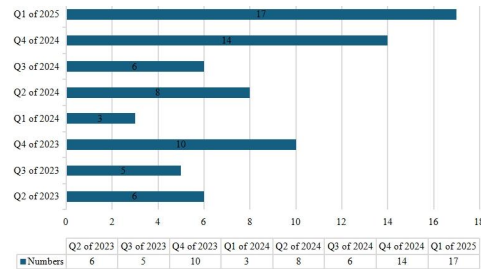

Figure 2. Trends in Research Related to Large-scale Language Modeling and the Field of Accounting and Finance
Note: Author's compilation based on relevant literature
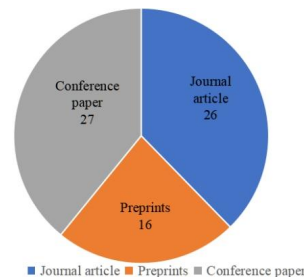

Figure 3. Distribution of Literature Related to Large-scale Language Models and the Field of Accounting and Finance
Note: Author's compilation based on related literature

In this paper, 26 documents published in journals are analyzed, and the distribution of journals in which the studies related to large language models and the field of accounting and finance are published is shown in Table 1. From the distribution of journals, it is clear that the existing studies have been published mainly in journals in the fields of Journal of Management Information Systems, British Accounting Review, and Journal of Emerging Accounting Technologies. It can be seen that the research related to the application of large-scale language models in accounting and finance has received attention and acceptance from journals in the fields of management and emerging accounting technologies.

Table 1. Journals with Number of Literature Greater than or Equal to 2 in the Field of Large-scale Language Modeling and Accounting and Finance

No.	Name of journal	Number of papers
1	ACM Transactions on Management Information Systems	2
2	British Accounting Review	2

3	International Journal of Accounting Information Systems	2
4	Neural Computing and Applications	2
5	Journal of Emerging Technologies in Accounting	2

Note: Author's compilation based on relevant literature

3.3 Citation Analysis
Literature Citation Analysis. In this paper, the citation status of published literature is organized, and Table 2 lists the top five cited literature. In this paper, we found that the research on the application of big language models in accounting and finance has high citations in the areas of text analysis and sentiment analysis. The most highly cited study is by Huang et al. [1], who found that a large language model containing domain-specific knowledge summarizes textual information more accurately than other natural language processing algorithms by examining a large language model designed based on Google's BERT model. This finding is conducive to improving the accuracy, reliability and efficiency of the big language model in extracting textual information.

Table 2. List of Top Five Cited Papers

No.	Name of Literature	Journal	Year	Number of Citations
1	FinBERT: A Large Language Model for Extracting Information from Financial Text	Contemporary Accounting Research	2023	177
2	Large Language Models in Finance: A Survey	ICAIF 2023 - 4th ACM International Conference on AI in Finance	2023	83
3	Enhancing Financial Sentiment Analysis via Retrieval Augmented Large Language Models	ICAIF 2023 - 4th ACM International Conference on AI in Finance	2023	71
4	Are ChatGPT and GPT-4 General-Purpose Solvers for Financial Text Analytics? A Study on Several Typical Tasks	EMNLP 2023 - 2023 Conference on Empirical Methods in Natural Language Processing, Proceedings of the Industry Track	2023	29
5	ChatGPT in finance: Applications, challenges, and solutions	Heliyon	2024	23

Note: Organized by the authors based on relevant literature. Literature citation counts are from Scopus searches with a data cut-off date of April 15, 2025.

4. Automated Data Processing and Financial Reporting

4.1 Automated Data Processing
One of the most significant advancements that LLMs bring to financial reporting is automated data processing (Figure 4). Existing researches suggest that large language models can automate some accounting tasks[2,3] .Traditionally financial reporting required extensive human effort to collect, verify, and input data from various sources, such as invoices, receipts, bank statements, and accounting journals. This process, while essential for accurate financial reporting, is time-consuming and prone to human errors, particularly in data entry and reconciliation [4]. By leveraging advanced machine learning techniques and large language models, the automated processing network system for financial statement information disclosure has enhanced the accuracy, speed and cost-effectiveness of the disclosures [5] (Table3).

LLMs can recognize text, perform a large amount of information processing, and extract effective financial information from it to help researchers and practitioners in the field of accounting to perform accounting tasks more efficiently. Specifically, large language models can effectively extract financial information from both structured and unstructured data.

In terms of structured information extraction, LLMs can extract structured information from corporate reports. For example, a command-adjusted large language model can extract structured ESG-related insights from sustainability reports. This information can provide stakeholders with valuable metrics that can facilitate the assessment of corporate performance on ESG[6].

In terms of unstructured information extraction, large language models can extract unstructured information from financial statements, invoices, and other accounting documents using their contextual learning capabilities to help practitioners and others make better use of

accounting information for accounting tasks. For example, large language models can extract financial data from unstructured sources such as PDFs, which can improve the effectiveness and efficiency of data extraction and provide valuable insights for market participants, policy makers, and researchers [7].

For a given financial text, LLMs can automatically identify and categorize the semantic relationships that exist between texts[8]. Relationship extraction from financial documents is beneficial for managers to quickly grasp the financial situation, analyze the current state of business operations, and adjust business strategies.

LLMs streamline this process by extracting relevant financial data from diverse and often unstructured sources, including:

(1) Financial Documents: LLMs can process large volumes of PDF or scanned financial documents, such as balance sheets, income statements, and cash flow statements, to extract key figures and financial metrics. By using natural language processing (NLP) techniques, LLMs can understand and interpret financial terminology, transforming it into structured data.

(2) Invoices and Receipts: LLMs can parse invoices and receipts to extract data on transaction amounts, vendor names, dates, payment methods, and itemized charges. They can also cross-reference this data with the general ledger to ensure consistency and accuracy.

(3) Emails and Contracts: LLMs are capable of scanning emails, contracts, and other correspondence for financial details, such as payment terms, due dates, and financial commitments. They can extract this data and integrate it directly into the company's financial system.

Once the data is extracted, LLMs can automatically categorize and organize it into predefined formats, such as General Ledger (GL) entries or accounts receivable/payable reports, making the data ready for integration into financial statements. That is to say, LLMs enable automated preparation of financial reports and extraction of financial data. A large language model with a graphical overlay module at its core can also automate graphical overlays and enable real-time financial visualization [9].
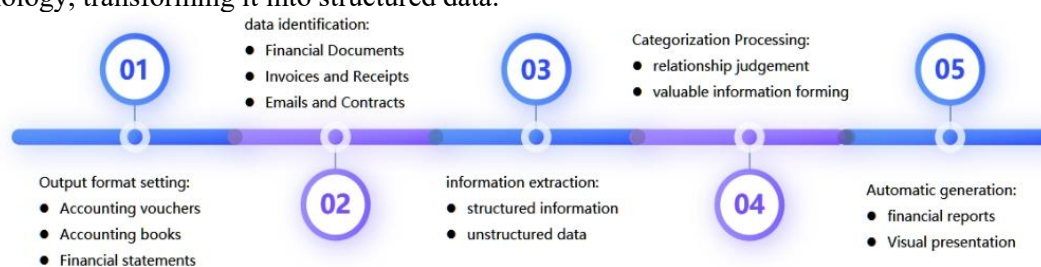

Figure 4. Automated Data Processing and Financial Reporting with LLMs

Table 3. Comparison of Traditional vs. LLM-Driven Financial Reporting

Aspect	Traditional Financial Reporting	LLM-Driven Financial Reporting
Data Extraction	Manual data entry from paper documents, spreadsheets, and emails	Automated extraction from diverse sources such as PDFs, invoices, and emails
Data Accuracy	Prone to human errors, especially in data entry and reconciliation	Higher accuracy with fewer errors due to automated processing and AI-based checks
Time Efficiency	Time-consuming and slow due to manual data input and report writing	Time savings due to automation; reports generated faster and with less human involvement
Human Resource Allocation	Requires more accountants, auditors, and financial analysts	Reduced demand for manual reporting tasks, freeing resources for strategic activities
Risk of Errors	High due to human mistakes in data entry and report writing	Reduced human error with real-time validation and machine learning algorithms
Regulatory Compliance	Relies on human oversight to ensure compliance with regulations	Ensures compliance by integrating regulatory guidelines into automated processes

4.2 The Future of LLMs for Financial Reporting Applications

The future of financial reporting is being profoundly shaped by the integration of large language models (LLMs) (As shown in Table 4). Their capacity to process natural language, learn contextual relationships, and generate coherent

narratives positions them as vital tools for enhancing the speed, transparency, and accessibility of financial reporting.

4.2.1 Narrative generation

Another area where LLMs is narrative generation for financial reports. While numbers and figures are vital in financial reporting, they often lack the context and explanations needed for stakeholders to understand the implications of the data. LLMs bridge this gap by generating explanatory notes that accompany the financial statements. Because LLMs use advanced language generation techniques to automatically craft textual explanations for financial figures. For example, when summarizing a company's balance sheet, LLMs can generate detailed explanations of the company's liquidity position, changes in equity, and significant shifts in assets or liabilities. These notes may also include clarifications on depreciation, amortization, or tax liabilities, explaining the underlying assumptions and calculations in layman's terms.

Such explanations improve stakeholder understanding and reduce reliance on financial intermediaries. Furthermore, LLMs can be fine-tuned to comply with industry-specific regulatory or reporting standards, ensuring that their narratives remain accurate and audit-friendly.

4.2.2 Simplifying complex financial concepts

For stakeholders without an accounting background, financial reports can be difficult to interpret. LLMs in simplifying complex financial terminology into plain language, providing easily understandable explanations. This makes the reports accessible not only to financial analysts and accountants but also to non-financial stakeholders, such as executives, investors, and regulatory bodies.

For example, rather than stating "accounts receivable increased by 18%," an LLM could explain, "The company made more credit sales this quarter, which means more customers are expected to pay in the future." This fosters informed decision-making for executives, investors, and even regulators who need to understand corporate performance quickly.

4.2.3 Tailoring content for specific audiences

LLMs can generate different types of narratives based on the audience. For instance, a detailed technical report might be produced for internal use, while a simplified version can be created for presentation to external stakeholders such as shareholders or the public.

This capability enables financial professionals to spend more time on strategic decision-making and less time drafting lengthy narratives or explanations for financial data. Investors may receive a report focusing on earnings per share (EPS), market outlook, and investment risks. Internal controllers may be shown detailed variance analysis. Regulators may get disclosure-focused reports emphasizing compliance indicators. This intelligent segmentation ensures that each stakeholder receives the most relevant, digestible information without information overload.

4.2.4 Real-time financial monitoring

With integration into accounting systems and enterprise resource planning (ERP) platforms, LLMs can facilitate real-time financial reporting. Rather than relying on quarterly or monthly batch reports, finance teams can access dynamic dashboards continuously updated with fresh data. LLMs can be trained to generate on-demand summaries in response to queries like:

"What caused the spike in Q2 operating expenses?"

"How have receivables aged over the past 30 days?"

This capability empowers decision-makers with instant insights, improving agility and responsiveness to changing financial conditions.

4.2.5 Integrated risk flagging and predictive reporting

LLMs not only report on past performance but also forecast future outcomes. When connected to internal data sources and external economic signals (e.g., interest rates, supply chain disruptions), LLMs can flag potential financial risks or deviations from budget in advance. These predictive features can assist CFOs in scenario planning and stress testing, thereby enhancing financial resilience.

4.2.6 Enhanced regulatory and ESG reporting

As ESG (Environmental, Social, and Governance) reporting becomes mandatory in many jurisdictions, LLMs can help extract ESG metrics from sustainability documents and automatically generate narratives that comply with frameworks like GRI, SASB, or CSRD. This reduces the compliance burden and ensures consistency in disclosures across documents and periods.

5. Financial Decision-making and Forecasting

Large language models have powerful natural language processing capabilities for deep

learning, as well as for handling large amounts of data. These capabilities help practitioners with various financial tasks, including financial analysis and decision-making and financial forecasting (Table 5).

Table 4. LLMs in Financial Data Processing and Reporting

Module	Application Area	Technical Capabilities	Key Benefits	Example Scenarios
Automated Data Processing	Data Extraction & Classification	- Extract data from structured/unstructured documents - Text recognition and semantic relationship analysis	- Improved efficiency in financial data processing - Reduced human error	- Extracting revenue and expense data from PDFs - Parsing contracts into accounting entries
	Information Integration & Format Conversion	- Automatically generate standard formats (e.g., GL, AR/AP reports)	- Quick preparation of draft financial statements	- Categorizing invoice data for ledger input
	Visual Reporting	- Automatic generation of charts, trend graphs, and dashboards	- Real-time monitoring of financial performance	- Generating real-time profit trends
Future Applications	Narrative Generation	- Auto-write footnotes and financial commentary - Translate complex financial terms into plain language	- Improved report readability - Reduced narrative drafting workload	- Explaining the impact of "asset impairment losses" on net income
	Customized Report Generation	- Create audience-specific versions (e.g., for managers, shareholders, regulators)	- Address different stakeholder needs effectively	- Detailed managerial budget report Simplified investor profit summary
	Real-Time Reporting & Forecasting	- Integrate with ERP for dynamic updates - Detect risk signals and budget deviations	- Enhanced strategic decision-making - Strengthened risk control	- Monitor cash flow anomalies Predict tax liabilities
	ESG and Compliance Disclosure	- Extract ESG-related content from sustainability reports - Generate disclosures aligned with GRI/SASB standards	- Reduced compliance costs - Improved corporate transparency	- Auto-generated carbon emissions disclosure narrative

Table 5. Applications of LLMs in Financial Decision-Making and Forecasting

Application Area	Key Functions of LLMs	Benefits
Financial Analysis & Decision-Making	- Intelligent decision support (real-time insights) - Automated financial analysis - Financial sentiment analysis - Q&A from reports	- Improved decision efficiency - Reduced analysis workload - Enhanced data utilization
Financial Forecasting	- Earnings prediction - Bankruptcy prediction - Generation of predictive financial indicators	- Improved forecasting accuracy - Early risk identification - Enhanced corporate planning
Future Development Directions	- Real-time decision systems - Personalized forecasting (prescriptive analytics) - Hybrid human-AI teams - Regulatory compliance & XAI - Tech integration (e.g., RPA, blockchain)	- Agile financial management - Higher transparency and compliance - Synergistic work between humans and AI

5.1 Financial Analysis and Decision-making

Financial analysis and decision-making is a very important task in business operations. However, analyzing a large amount of information is a very difficult task. The emergence of large-scale language models effectively helps financial personnel to analyze financial data and make decisions. At present, the research on large language models in financial analysis and decision-making mainly includes intelligent decision-making, automatic financial analysis, financial sentiment analysis, and financial report analysis and Q&A (Figure5).

In terms of intelligent decision-making, large-scale language models that support artificial intelligence can help finance

professionals make intelligent decisions. The integration of large-scale language models and AI can transform unstructured financial data into real-time, visualized opinions. Finance staff can use these opinions to make decisions, improving the accuracy and efficiency of decision-making. For example, when making investment decisions, large language models can generate tailored financial summaries for users, helping investors effectively interpret complex financial documents [10].
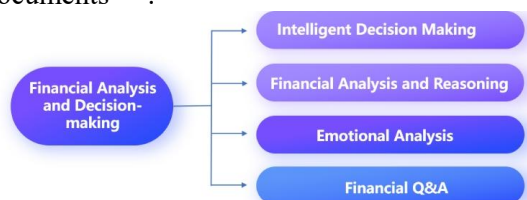

Figure 5. LLM in Financial Analysis and Decision-making

In terms of financial analysis and reasoning, large language models can perform complex financial analyses and generate downloadable results, which greatly improves the accuracy and efficiency of financial analysis and reduces costs. Existing studies have examined the capability of large language models in financial analysis and reasoning by designing a series of multi-step advanced reasoning tasks. The results show that the ability of large language models to reason logically, decompose tasks, and generate solutions can significantly enhance the performance of finance professionals in financial analysis tasks, improving the efficiency and accuracy of financial analysis[11].

In the context of financial sentiment analysis, retrieval enhancement and fine-tuning techniques for large language models can be effective in performing financial sentiment analysis tasks. By fine-tuning the open-source large language model, it can respond more accurately to the user's financial sentiment analysis task and improve the accuracy of the prediction. Retrieval-enhanced generation techniques that inject external knowledge into a large language model can enrich the depth of information in the large language model to perform more detailed predictions[12]. For example, a large language model can analyze the sentiment of a company based on news reports about the company and generate corporate alert information based on the analysis[13].

In the context of financial Q&A, a retrieval-enhanced system for large-scale language modeling can efficiently extract contextual information from financial reports to complete the Q&A task and help users make decisions[14]. For example, a Retrieval Augmented Generation (RAG) system is customized for Q&A of bank financial reports. The system generates uniform prompts for the large language model, which then utilizes its natural language processing and generation capabilities to efficiently complete the user's query. With the help of the RAG, users can get accurate answers from bank reports and improve the efficiency and accuracy of decision-making[15].

5.2 Financial Forecasting
Financial forecasting is of great significance to the organization itself as well as to various stakeholders. The deep learning capabilities of large-scale language models can be more effective in making various financial forecasts, including bankruptcy forecasts, earnings forecasts, and generating predictive financial factors (Figure 6).

Figure 6. LLM in Financial Forcasting

The natural language processing capabilities of large-scale language models can process financial statement structures and key variables and generate predictive financial factors, which in turn can effectively predict corporate performance. For example, GPT can quickly create predictive financial factors based on an organization's financial statements and use them to predict the future stock position of the organization, thus reflecting the future performance of the organization and greatly improving the efficiency of financial analysis[16].

In terms of bankruptcy prediction, large language models can analyze enterprise data and predict enterprise risks through zero-sample and few-sample learning. For example, DuPont analysis of financial statements through large language models[17] can help enterprise managers better interpret the financial statements, grasp the current state of the enterprise's operation, discover potential risks in the process of the enterprise's operation in advance, and avoid possible operational risks to avoid the enterprise from going bankrupt.

5.3 The Future of LLMs for Financial

Decision-making and Forecasting Applications

As the financial industry continues to evolve in an increasingly data-driven and dynamic global economy, Large Language Models (LLMs) are poised to play a transformative role in shaping the future of financial decision-making and forecasting (As shown in Figure 7). Their capacity to process vast amounts of structured and unstructured data, generate human-like narratives, and perform advanced reasoning creates new possibilities for data-informed, agile, and predictive financial management.

(1) Toward Real-Time and Dynamic Decision Support Systems

Future applications of LLMs in financial decision-making will likely focus on real-time analysis and adaptive insights. Traditional financial planning often relies on static reports and periodic reviews. However, LLMs integrated with real-time data feeds (e.g., ERP, CRM, market data) can continuously assess financial positions and generate dynamic recommendations. For instance, CFO dashboards powered by LLMs could deliver scenario-based insights and automated commentary, supporting agile decision-making in volatile market conditions.

In addition, with the convergence of LLMs and financial digital twins—virtual models of organizational financial states—decision-makers will be able to simulate and evaluate multiple financial strategies instantaneously. This shift from reactive to proactive financial management marks a key evolution driven by LLMs.

(2) Personalized Forecasting and Prescriptive Analytics

Moving beyond traditional regression-based models, LLMs enable personalized forecasting by integrating behavioral, transactional, and macroeconomic data. In the future, financial forecasts will not only predict what might happen (predictive analytics), but also recommend optimal actions (prescriptive analytics) tailored to specific enterprise profiles or investor needs.

For example, an LLM-powered system might forecast a decline in liquidity in Q4 based on historical cash flow trends, vendor payment cycles, and market conditions, and then recommend deferral of certain capital expenditures or renegotiation of supplier terms. This contextualized, action-oriented forecasting can significantly improve strategic alignment

and operational resilience.

(3) Hybrid Intelligence and Augmented Finance Teams

Rather than replacing financial professionals, future applications of LLMs will emphasize hybrid intelligence—the synergy of human expertise and machine reasoning. Financial professionals will increasingly rely on LLMs as intelligent assistants capable of processing data, drafting insights, generating what-if scenarios, and flagging anomalies or biases.

Moreover, LLMs will become embedded in augmented finance teams, where tasks such as working capital optimization, margin analysis, or tax forecasting are co-executed by human analysts and LLM agents. This will redefine financial roles toward more strategic, value-generating functions and reduce manual, error-prone tasks.

(4) Regulatory Alignment and Ethical Governance

The future of LLMs in financial forecasting must also consider regulatory compliance, explainability, and auditability. As AI-generated financial forecasts and decisions impact investors, lenders, and regulators, there is growing pressure to ensure that these models are transparent, fair, and auditable.

Efforts such as Explainable AI (XAI) and AI assurance frameworks will become central in financial LLM applications. Regulators may also require disclosures on the use of LLMs in financial statements, stress-testing models, or investment recommendations. Hence, responsible AI governance will be a key enabler of sustainable adoption.
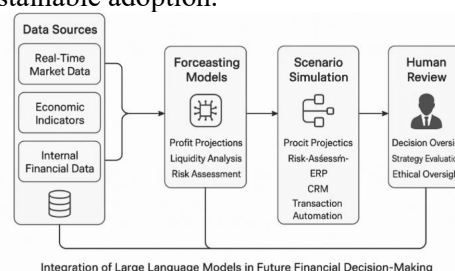
Figure 7. Integration of Large Language Models in Future Financial Decision-Making

6. Audit Efficiency and Risk Identification

A large language model is an intelligent model that combines deep learning and natural language processing with generation, which can automatically learn language patterns, analyze and understand text content, etc. In auditing work, a large amount of data needs to be

collected and analyzed, and the emergence of large language models can well help auditors to complete these tasks. Existing studies have explored the application of large language models in auditing from several aspects (As shown in Table 6).

6.1 Audit Conceptual Guidance and Financial Statement Auditing

In terms of auditing Q&A, natural language understanding and generation of large language models can well understand the auditor's questions and give appropriate answers. For example, the large-scale language model can answer some questions about auditing concepts and auditing-related laws and regulations[18].

In compliance auditing, large language models can help auditors process large amounts of information to determine the compliance of audit information. For example, fine-tuned large language models can better understand the judgment of whether the content of financial documents meets the requirements of accounting standards, enabling automated compliance auditing[19,20].

In the context of financial statement auditing, building audit bots based on large-scale language models can enhance the digitalization and intelligence of corporate financial statement audits. Audit data bots intelligently extract data through natural language commands. Audit workpaper robots automatically prepare workpapers through intent recognition and tool library selection. Audit analysis robots use visualization and intelligent analysis techniques to improve decision making[21].

In the context of financial reporting auditing, the use of large language models can automatically identify and correct contradictions and inconsistencies in financial reports. For example, large language models can automatically identify and validate key performance indicators in financial reports[22]. Combining large language models with embedding-based paragraph clustering methods can simplify and automate the identification and correction of contradictions and inconsistencies in financial reports, which in turn increases the effectiveness and efficiency of the audit process and reduces the time required for a comprehensive and reliable financial report audit [23].

6.2 Advanced Audit Risk Analysis and Quality Assurance

In terms of audit risk analysis, large language models can perform audit risk analysis. For example, a risk analysis report can be generated for audit reports using the retrieval enhancement generation technique of large language models to help auditors reduce audit risks[24].

For financial audits of misuse of funds, the detection of misuse of funds can be defined as a multi-class classification problem focusing on a selected subset of payment data. The audit of fund misuse is then achieved by embedding textual data using a large language model that integrates the outputs of multiple basic classifiers using a classification framework with a collection of single-class classifiers[25].

In terms of quality auditing, intelligent auditing systems built from large language models can streamline the auditing process, optimize resource allocation and enhance data processing and evaluation, among others. For example, an audit system designed using a large language model can help build a knowledge base for data processing, retrieval, and evaluation. And large language models can perform real-time analysis to simplify audit focus and adaptively adjust audit sample sizes. LLMs can also automatically identify critical quality items for each audit and optimize resource allocation to detect and mitigate high-risk issues[26].

In addition, collaboration between the auditor and the large-scale language model, each utilizing its own strengths, can better accomplish complex auditing tasks. For example, pre-trained and fine-tuned large language models can automatically perform routine tasks and flag potential anomalies to help auditors carry out audits. For audit managers, big language models can help them perform routine reviews and flag potential risks[27].

6.3 The Future of LLMs for Auditing Applications

The future of auditing is poised to be deeply influenced by the advancement and integration of Large Language Models (LLMs). As financial data grows increasingly complex and voluminous, the demand for intelligent, scalable, and adaptive audit tools is more pressing than ever. LLMs offer immense promise in transforming auditing from a labor-intensive compliance task into a proactive, intelligent, and risk-focused function. This section explores three key future directions:

6.3.1 Greater integration with audit platforms

Future audit platforms are expected to fully integrate LLMs as core components of intelligent auditing systems. These integrations will enable real-time risk monitoring, automated audit trail documentation, and dynamic updates of audit strategies based on live data. LLMs will serve not only as assistants for data extraction and interpretation but as embedded co-auditors that learn from each audit cycle, thereby improving performance and relevance over time. Integration with enterprise resource planning (ERP) systems and cloud-based accounting software will allow seamless data flow, enabling end-to-end auditing capabilities.

6.3.2 Enhanced explainability and trust

Although LLMs show powerful capabilities in automating audit tasks, ensuring the explainability of their outputs is critical to gaining trust from auditors and regulators. The next generation of LLM-based audit tools will likely feature integrated explainable AI (XAI) modules. These modules will break down the model's decision-making process in understandable ways, helping auditors trace conclusions back to the original data sources and logic. This will not only support audit transparency but also comply with auditing standards that emphasize professional skepticism and evidence-based conclusions.

6.3.3 Expansion into predictive and preventive auditing

Traditionally, auditing has been retrospective in nature. In the near future, LLMs will enable a shift toward predictive and preventive auditing. By analyzing transactional data patterns, real-time communications, and industry benchmarks, LLMs can forecast potential risks before they materialize. This proactive risk detection will be particularly valuable in areas like fraud detection, compliance monitoring, and internal control assessment. Additionally, fine-tuned LLMs could generate early warnings about emerging issues such as revenue manipulation, cybersecurity breaches, or ESG non-compliance, allowing organizations to implement timely corrective actions.

Table 6. LLM Applications in Audit Efficiency and Risk Identification

Subsection	Application Area	Key Capabilities of LLMs	Examples / Research Sources
Audit Conceptual Guidance and Financial Statement Auditing	- Audit Q&A support - Compliance auditing - Financial statement automation - Detecting inconsistencies in reports	- Understand audit concepts and standards - Automate compliance checks - Extract and analyze financial data - Correct contradictions in reports	- Huang et al. (2025): Concept Q&A - Armin et al. (2023), Thiago et al. (2024): Compliance - Yang et al. (2024): Audit bots - Lars et al. (2023), Tobias et al. (2023): Report validation
Advanced Audit Risk Analysis and Quality Assurance	- Audit risk analysis - Misuse of funds detection - Quality auditing and resource optimization	- Generate risk reports using RAG - Classify anomalies and detect fraud - Build knowledge bases, adjust sample sizes, identify key risks	- Abhishek et al. (2024): Risk reports - Feng et al. (2024): Multi-class misuse detection - Yao et al. (2024): Intelligent audit systems
The Future of LLMs for Auditing Applications	- Integration with audit platforms - Explainable AI for transparency - Predictive and preventive auditing	- Real-time auditing through ERP links - Explain decision logic clearly - Forecast potential risks and provide early warnings	- Conceptual projections based on trends - XAI and predictive audit frameworks - Future integration scenarios (no specific citation)

7. Conclusions

This study provides a comprehensive review of the transformative potential of Large Language Models (LLMs) in the fields of accounting and finance. By systematically analyzing 69 pieces of relevant literature, this paper explores how LLMs such as GPT-4 and BERT are reshaping key areas including automated financial reporting, financial decision-making and forecasting, and audit efficiency and risk identification.

First, the findings reveal that LLMs offer significant advantages in automating data processing and improving the accuracy, timeliness, and accessibility of financial reporting. From extracting structured and unstructured financial information to generating narrative disclosures and real-time dashboards, LLMs enable a new paradigm of intelligent,

explainable, and dynamic financial reporting systems.

Second, in financial decision-making and forecasting, LLMs enhance the capability of finance professionals to analyze complex data, generate tailored insights, and support real-time, personalized predictions. The use of techniques such as retrieval-augmented generation (RAG) and fine-tuning further improves their performance in sentiment analysis, Q&A systems, and scenario simulation, contributing to more agile and strategic financial management.

Third, LLMs contribute to greater audit efficiency and proactive risk identification, by supporting compliance checking, automating working papers, detecting inconsistencies in financial statements, and enabling predictive auditing. These capabilities allow auditors to shift from manual, retrospective approaches to intelligent, forward-looking audit strategies.

Despite these promising applications, the paper also identifies critical challenges such as data privacy, model explainability, ethical concerns, regulatory compliance, and the risk of over-reliance on automation. These must be addressed through the development of responsible AI governance frameworks and hybrid human-AI collaboration models.

Overall, this review underscores the transformative and disruptive role of LLMs in accounting and finance, suggesting that professionals in the field must adapt their skills, tools, and mindsets to fully leverage these technologies. Future research should further investigate LLM integration in industry-specific contexts, evaluate long-term impacts on professional roles, and develop frameworks for ensuring fairness, accountability, and transparency in financial AI systems.

Acknowledgments

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