Global Journal of Management and Business Research: D

Accounting and Auditing

Highlights

Asset Size of Commercial Banks
Intelligence on Business Operations
Financial Crises and the Success
The Impact of Artificial Intelligence

Discovering Thoughts, Inventing Future

Volume 24 Issue 1 Version 1.0

© 2001-2024 by Global Journal of Management and Business Research, USA
<table>
<thead>
<tr>
<th><strong>Dr. John D. Theodore</strong></th>
<th><strong>Prof. Moji Moatamedi</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>American Military University</td>
<td>Honorary Vice Chair</td>
</tr>
<tr>
<td>JDT Management Consultants, President.</td>
<td>Ph.D., at The University of Sheffield,</td>
</tr>
<tr>
<td>D.B.A., Business Economy</td>
<td>MBA, Manchester Business School</td>
</tr>
<tr>
<td>University of South Africa</td>
<td>University of Manchester</td>
</tr>
<tr>
<td>Ph.D. Aristotelian University</td>
<td>UK</td>
</tr>
<tr>
<td>Business Administration</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Administration, University of Kansas</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dr. R. Allen Shoaf</strong></th>
<th><strong>Professor Maura Sheehan</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A., M.A., Ph.D. Cornell University</td>
<td>Professor, International Management</td>
</tr>
<tr>
<td>Cornell University, Teaching Assistant in the English Department,</td>
<td>Director, International Centre</td>
</tr>
<tr>
<td>University of Florida, US</td>
<td>for Management &amp; Governance Research (ICMGR)</td>
</tr>
<tr>
<td></td>
<td>Ph.D. in Economics</td>
</tr>
<tr>
<td></td>
<td>UK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dr. Mehdi Taghian</strong></th>
<th><strong>Dr. Carl Freedman</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Lecturer</td>
<td>B.A., M.A., Ph.D. in English, Yale University</td>
</tr>
<tr>
<td>Faculty of Business and Law</td>
<td>Professor of English, Louisiana State University, US</td>
</tr>
<tr>
<td>BL Deakin Business School</td>
<td></td>
</tr>
<tr>
<td>Melbourne Burwood Campus</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dr. Agni Aliu</strong></th>
<th><strong>Dr. Tsutomu Harada</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. in Public Administration,</td>
<td>Professor of Industrial Economics</td>
</tr>
<tr>
<td>South East European University, Tetovo, RM</td>
<td>Ph.D., Stanford University, Doctor of Business</td>
</tr>
<tr>
<td>Associate professor South East European University,</td>
<td>Administration, Kobe University</td>
</tr>
<tr>
<td>Tetovo, Macedonia</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dr. Wing-Keung Won</strong></th>
<th><strong>Dr. Xiaohong He</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D., University of Wisconsin-Madison,</td>
<td>Professor of International Business</td>
</tr>
<tr>
<td>Department of Finance and</td>
<td>University of Quinnipiac</td>
</tr>
<tr>
<td>Big Data Research Center</td>
<td></td>
</tr>
<tr>
<td>Asia University,</td>
<td>BS, Jilin Institute of Technology; MA, MS, Ph.D.,</td>
</tr>
<tr>
<td>Taiwan</td>
<td>(University of Texas-Dallas)</td>
</tr>
</tbody>
</table>
Dr. Carlos García Pont
Associate Professor of Marketing
IESE Business School, University of Navarra
Doctor of Philosophy (Management),
Massachusetts Institute of Technology (MIT)
Master in Business Administration, IESE, University of Navarra
Degree in Industrial Engineering,
Universitat Politècnica de Catalunya
Web: iese.edu/aplicaciones/faculty/facultyDetail.asp

Dr. Sönanke M. Bartram
Department of Accounting and Finance
Lancaster University Management School
Ph.D. (WHU Koblenz)
MBA/BBA (University of Saarbrücken)
Web: lanz.ac.uk/staff/bartras1/

Dr. Bassey Benjamin Esu
B.Sc. Marketing; MBA Marketing; Ph.D Marketing
Lecturer, Department of Marketing, University of Calabar
Tourism Consultant, Cross River State Tourism Development Department
Co-ordinator, Sustainable Tourism Initiative, Calabar, Nigeria

Dr. Dodi Irawanto
Ph.D., M.Com, B.Econ Hons.
Department of Management
Faculty of Economics and Business
Brawijaya University
Malang, Indonesia

Dr. Ivona Vrdoljak Raguz
University of Dubrovnik,
Head, Department of Economics and Business
Economics,
Croatia

Dr. Yongbing Jiao
Ph.D. of Marketing
School of Economics & Management
Ningbo University of Technology
Zhejiang Province, P. R. China

Dr. Charles A. Rarick
Ph.D.
Professor of International Business
College of Business
Purdue University Northwest
Hammond, Indiana US

Yue-Jun Zhang
Business School,
Center for Resource and Environmental Management
Hunan University, China

Dr. Albrecht Classen
M.A. (Staatsexamen), Ph.D. University of Virginia,
German
Director, Summer Abroad Program, Medieval Europe
Travel Course

Dr. Brandon S. Shaw
B.A., M.S., Ph.D., Biokinetics, University of Johannesburg, South Africa
Professor Department of Sport and Movement Studies
University of Johannesburg, South Africa
Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. The Impact of Artificial Intelligence on Business Operations. 1-8
2. Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa. 9-21

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index
The Impact of Artificial Intelligence on Business Operations

By Zuo Bruno

Summary - Artificial Intelligence (AI) is driving a significant and positive change in how businesses operate, fundamentally changing established models and pushing enterprises towards a more efficient and innovative future. This concise abstract explores the intricate influence of artificial intelligence (AI) on several aspects of corporate operations. It thoroughly analyses the development and present uses of AI, as well as successful cases, obstacles, and forthcoming trends.

1. An Examination of the Role of Artificial Intelligence (AI) in the Operations of Businesses.

The introduction provides a comprehensive overview of the development of AI and its incorporation into business operations. The text explores the role of AI in transforming decision-making processes, highlighting its versatility in optimizing operations across various industries. It covers topics such as automation and predictive analytics.

2. Artificial Intelligence (AI) is being Increasingly Utilized in Several Aspects of Business Operations.

An extensive examination of AI applications includes the enhanced efficiency of automation, the predictive capabilities of analytics, the transformative influence of AI in Customer Relationship Management (CRM), and its effects on Supply Chain Management. The passage emphasizes the essential role of AI in improving operational efficiency.

GJMBR-D Classification: FOR Code: 0803

Strictly as per the compliance and regulations of:

© 2024. Zuo Bruno. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/
The Impact of Artificial Intelligence on Business Operations

Zuo Bruno

Summary: Artificial Intelligence (AI) is driving a significant and positive change in how businesses operate, fundamentally changing established models and pushing enterprises towards a more efficient and innovative future. This concise abstract explores the intricate influence of artificial intelligence (AI) on several aspects of corporate operations. It thoroughly analyses the development and present uses of AI, as well as successful cases, obstacles, and forthcoming trends.

1. An Examination of the Role of Artificial Intelligence (AI) in the Operations of Businesses.

The introduction provides a comprehensive overview of the development of AI and its incorporation into business operations. The text explores the role of AI in transforming decision-making processes, highlighting its versatility in optimizing operations across various industries. It covers topics such as automation and predictive analytics.

2. Artificial Intelligence (AI) is being Increasingly Utilized in Several Aspects of Business Operations.

An extensive examination of AI applications includes the enhanced efficiency of automation, the predictive capabilities of analytics, the transformative influence of AI in Customer Relationship Management (CRM), and its effects on Supply Chain Management. The passage emphasizes the essential role of AI in improving operational efficiency.

3. Examples of Successful Implementation of Artificial Intelligence

Case studies are used to demonstrate real-world applications, namely how large companies utilize artificial intelligence (AI) for tailored suggestions, optimizing industrial processes, and detecting fraud in financial institutions. These stories emphasize the concrete advantages that AI provides to many industries.

4. Obstacles and Moral Deliberations

Delving into the negative aspects, the abstract explores issues such as data privacy, concerns about employment displacement, and biases in AI algorithms. This addresses the ethical concerns that arise from the integration of AI and emphasizes the importance of developing AI responsibly.

5. Emerging Developments and Advancements

The document examines the possible collaborations between AI and quantum computing, the emergence of Explainable AI (XAI) for clear decision-making, and the expansion of AI into Small and Medium-sized Enterprises (SMEs).

6. Repercussions for Corporate Executives

The second-to-last section presents valuable perspectives for executives, offering tactics for integrating AI and highlighting the pivotal importance of training the workforce to navigate a future dominated by AI.

7. In conclusion

The description provides a concise overview of how AI has significantly influenced business operations and highlights the potential areas of investigation in the always growing field of AI integration.

I. Overview

The relentless progression of Artificial Intelligence (AI) in the history of technological advancement has been marked by an intriguing interplay between human inventiveness and machine capacities. This section delves into a detailed examination of the Evolution of Artificial Intelligence, charting its transformational progression from basic rule-based systems to the advanced machine learning algorithms and neural networks that characterize its current capabilities.

The evolution of Artificial Intelligence (AI) has been a significant process.

a) Rule-Based Systems

Rule-based systems were fundamental in the early stages of AI development. These systems functioned based on explicit instructions, in which human experts encoded their knowledge into algorithms. Although rules were beneficial for certain activities, their inflexibility hindered adaptability.

i. The Conceptual Framework of Machine Learning

The introduction of machine learning brought about a significant change in the prevailing mindset. Algorithms have progressed from predetermined rules to systems that can acquire knowledge from data. This was the beginning of a new era, in which AI had the ability to identify patterns, make forecasts, and adjust its behavior based on past encounters.

ii. Emergence of Neural Networks

The re-emergence of neural networks, drawing inspiration from the intricate organization of the human brain, signified a critical juncture. Deep learning, a branch of machine learning, enables AI systems to analyze large datasets, identify complex patterns, and achieve exceptional precision in tasks like picture recognition and natural language processing.

iii. Reinforcement Learning and Beyond

Reinforcement learning is a continuing journey in the field of evolution, where artificial intelligence acquires knowledge by engaging in a process of trial and error, imitating the learning methods of humans. As we approach the future, artificial intelligence is exploring
areas such as unsupervised learning, generative adversarial networks (GANs), and quantum-inspired computing. This indicates a path where AI evolves from being a mere tool to being an intellectual partner.

b) The Incorporation of Artificial Intelligence in Business

The narrative smoothly shifts to the mutually beneficial incorporation of AI into the framework of commercial operations. The age when AI was considered a distant possibility has ended; it has now become an essential influence that shapes the strategies, operations, and innovations of organizations.

i. The Revolution of Automation

Automation serves as the forefront of incorporating AI. Businesses utilize robotic process automation (RPA) to optimize routine activities, hence improving operational efficiency. The continuous advancement of algorithms in various fields, including as data entry and customer assistance, allows human resources to be freed up for more strategic pursuits.

ii. Proficiency in Predictive Analytics

The predictive capabilities of AI have become crucial in strategic decision-making. Enterprises utilize predictive analytics to forecast market trends, manage supply chain operations, and anticipate client preferences. This not only reduces risks but also drives organizations towards being proactive and forward-thinking entities.

iii. The Cognitive Leap of Cognitive Computing in

Cognitive computing signifies a significant advancement in the integration of artificial intelligence. It facilitates the comprehension, acquisition, and interaction of systems in a manner that resembles human language. In the corporate context, this refers to the utilization of sophisticated customer relationship management (CRM) systems that possess the ability to understand and address consumer inquiries with a level of acumen similar to that of a human, hence improving user experiences.

iv. Transforming Industries with Artificial Intelligence

In addition to its impact on individual applications, artificial intelligence fundamentally transforms entire industries. AI is revolutionizing various domains, ranging from healthcare diagnostics to financial risk assessments. The integration encompasses smart manufacturing, where artificial intelligence coordinates production processes, and the emerging field of autonomous cars, where algorithms traverse intricate settings.

This section provides an overview of the development of AI and its integration into the complex fabric of contemporary business.

II. Artificial Intelligence (AI) is being Increasingly Utilized in Several Aspects of Business Operations

This section explores the various applications of Artificial Intelligence (AI) in corporate operations, highlighting the innovative ways it has improved efficiency, analytics, customer relations, supply chains, and decision-making processes.

a) The Implementation of Automation and Enhancement of Efficiency

i. Robotic Process Automation (RPA)

RPA is a prominent force in the automation revolution driven by AI. It frees enterprises from monotonous, rule-driven duties, allowing for more efficient procedures. RPA, or Robotic Process Automation, improves productivity, minimizes mistakes, and enables human resources to concentrate on tasks that need creativity and strategic thinking, ranging from invoice processing to data entry.

ii. Intelligent Document Processing (IDP)

IDP, an AI-driven advancement in document processing, retrieves valuable information from unorganized material. It systematically analyses extensive amounts of documents, detecting patterns and extracting pertinent information. This not only accelerates the process of making decisions based on
data, but also strengthens organizations in their ability to handle the difficulties caused by an excessive amount of information.

b) Anticipatory Analysis
   i. Predicting Market Trends
      Predictive analytics, a well-established component of AI applications, enables firms to forecast market trends with exceptional precision. Through the examination of past data, recognition of recurring trends, and utilization of machine learning algorithms, businesses may make well-informed choices, enhance marketing tactics, and maintain a competitive edge in rapidly changing market environments.

   ii. Enhancing the Efficiency of Supply Chains
      AI plays a significant role in supply chain management, utilizing predictive analytics to optimize logistics. The act of estimating demand, optimizing inventory levels, and forecasting supplier performance transitions from mere aspirations to concrete reality. The outcome is a supply chain that functions with streamlined accuracy, diminishing expenses and augmenting overall effectiveness.

c) CRM (Customer Relationship Management)
   i. Tailored Customer Experiences
      AI revolutionizes the field of customer relationship management, bringing about a significant change in the way it operates. Algorithms utilize data on client behaviour, preferences, and interactions in order to create tailored experiences. By incorporating artificial intelligence, CRM systems enhance customer loyalty and foster a dynamic and responsive interaction between customers and companies. This is achieved through features such as chatbots that offer immediate assistance and predictive product recommendations.

   ii. Analysis of Emotional Tone
      The incorporation of sentiment analysis into CRM systems signifies a significant achievement. Artificial intelligence systems analyze client sentiments based on their interactions, reviews, and feedback. Businesses acquire valuable knowledge about client satisfaction levels, allowing them to adjust their strategy, immediately resolve problems, and cultivate a favorable brand image.

d) Supply Chain Management
   i. Efficient Inventory Control
      The influence of AI on supply chain management encompasses intelligent inventory management. AI algorithms utilize real-time monitoring to maintain inventory levels at their most optimal state. This not only avoids situations where there is a shortage or excess of stock, but also reduces the expenses associated with holding inventory and improves the overall ability of the supply chain to withstand disruptions.

   ii. Accuracy of Demand Forecasting
      The field of demand forecasting is experiencing a revival with the integration of artificial intelligence. AI-powered algorithms utilize historical data, market trends, and external factors to generate detailed demand forecasts. Businesses can use this agility to synchronize production and distribution with real market demands, resulting in waste reduction and enhanced resource allocation.

e) Processes for Making Decision
   i. Enhanced Decision-Making
      Artificial intelligence enhances decision-making processes by offering insights based on data analysis. Machine learning algorithms process extensive datasets, providing valuable insights for making strategic decisions. The combination of human intuition and machine precision enhances the quality and speed of decision-making in several business sectors.

   ii. Precision in Risk Management
      AI enhances risk management by accurately recognizing potential risks and forecasting their potential consequences. AI empowers firms with a proactive defense against uncertainties by evaluating financial risks, assessing market swings, and gauging operational vulnerabilities.

      This section explores the various and significant uses of AI in the complex fabric of business processes,
demonstrating how these technologies are not only tools but also agents of transformation.

III. Examples of Successful Implementation of Artificial Intelligence

In this part, we explore notable case studies that demonstrate the profound impact of Artificial Intelligence (AI) in many business sectors.

a) The Impact of AI-Powered Recommendations on E-commerce Giants

i. Amazon’s Dynamic Product Recommendations

Amazon, the dominant force in online retail, has transformed the way customers interact with its platform through the use of artificial intelligence-powered recommendations. Amazon’s recommendation engine utilizes data from purchase history, browsing behavior, and user preferences to provide personalized product suggestions. Not only does this improve user involvement, but it also greatly contributes to the platform’s earnings, demonstrating the power of AI in changing the future of online shopping.

ii. Netflix’s Customized Content Recommendations

Netflix utilizes artificial intelligence (AI) to produce tailored content recommendations for its consumers in the digital streaming domain. Netflix utilizes advanced algorithms to provide a personalized viewer experience by analyzing viewing history, genre preferences, and the timing of user engagement. This not only retains consumers’ engagement but also serves as an illustration of how AI might revolutionize content consumption in the entertainment sector.

b) Enhancing Manufacturing Efficiency using Artificial Intelligence

i. Bosch’s Implementation of Predictive Maintenance

Bosch, a prominent participant in the manufacturing sector, utilizes artificial intelligence for the purpose of predictive maintenance. Bosch utilizes sensors and AI algorithms to proactively predict and prevent equipment breakdowns. By adopting this proactive approach, the amount of time that production is halted is minimized, the expenses associated with maintenance are decreased, and the manufacturing process operates at its highest level of efficiency.

ii. Siemens’ Implementation of AI-Powered Quality Control

Siemens utilizes artificial intelligence to enhance quality control in the manufacturing process. Computer vision algorithms analyze visual data obtained from production lines in order to detect any defects or deviations that do not meet the quality standards. This not only improves the quality of the product but also simplifies the manufacturing process, demonstrating how AI can significantly impact precision and efficiency.

c) The Role of Financial Institutions and Artificial Intelligence in Fraud Detection

i. PayPal’s Algorithms for Detecting Fraud

PayPal utilizes artificial intelligence (AI) in the financial industry to strengthen its defences against fraudulent activities. AI algorithms analyse transaction patterns, user behaviour, and other relevant data to detect potentially fraudulent transactions. The prompt analysis in real-time guarantees prompt intervention, safeguarding both the platform and its users against financial hazards.

HSBC’s risk assessment system utilizes artificial intelligence technology.

HSBC utilizes artificial intelligence (AI) to assess risks, specifically in the process of evaluating loan applications. Machine learning algorithms evaluate the creditworthiness of applicants by analysing a wide range of data points, such as credit history, spending patterns, and economic indicators. This not only expedites the decision-making process but also enhances the accuracy of risk assessments in the realm of financial services.

These case studies underscore the versatility and impact of AI applications in different sectors, showcasing how businesses can leverage these technologies to optimize operations, enhance user experiences, and fortify their positions in competitive markets.
IV. CHALLENGES AND ETHICAL CONSIDERATIONS

In this section, we delve into the critical challenges and ethical considerations associated with the widespread adoption of Artificial Intelligence (AI) in business operations.

a) Data Privacy and Security
   i. The Balancing Act
      As businesses increasingly rely on AI to analyze vast datasets, the issue of data privacy becomes paramount. The challenge lies in striking a delicate balance between harnessing the insights derived from extensive data and safeguarding the privacy rights of individuals. Stricter regulations and heightened public awareness emphasize the need for businesses to adopt robust data protection measures, ensuring the responsible and ethical use of information.

   ii. Security Implications
      With the proliferation of AI, the vulnerability of systems to cyber threats escalates. The interconnectedness of AI systems poses security challenges, as any compromise in the data integrity or algorithmic processes can have far-reaching consequences. Businesses must proactively address these concerns by implementing advanced cybersecurity measures, encryption protocols, and continuous monitoring to fortify their AI-driven infrastructures.

b) Job Displacement Concerns
   i. The Automation Paradox
      While AI promises increased efficiency and productivity, the fear of job displacement looms large. Automation, driven by AI, has the potential to replace certain repetitive tasks, leading to concerns about the future of employment in various sectors. Businesses must navigate this ethical challenge by fostering a transition that focuses on upskilling the workforce, creating new job opportunities, and ensuring a responsible approach to technological advancement that considers its broader societal impact. The Automation Paradox refers to the phenomenon where as automated systems become more efficient, the need and importance for human intervention increases. This concept highlights the critical role of human operators in overseeing and correcting errors that may arise in automated systems. Despite the aim of automation to reduce human errors and speed up processes, the paradox emphasizes that humans become more valuable in ensuring the proper functioning of automated systems.

   ii. Reskilling Initiatives
      Addressing job displacement concerns involves proactive reskilling initiatives. Companies can play a pivotal role in mitigating this challenge by investing in training programs that equip employees with the skills needed for the evolving job market. Collaborative efforts between governments, educational institutions, and businesses are essential to create a resilient workforce capable of thriving in an AI-driven era.
c) Bias in AI Algorithms
   i. Unveiling Algorithmic Bias
      AI algorithms, when trained on biased datasets, can perpetuate and even exacerbate societal biases. This becomes particularly evident in sectors like recruitment, finance, and criminal justice. Recognizing and rectifying algorithmic bias is crucial for fostering inclusivity and fairness. Businesses must prioritize diversity in their data collection processes, implement transparency in algorithmic decision-making, and continuously audit and refine their models to minimize bias.
   ii. Ethical AI Design
      To address bias, businesses should adopt an ethical approach to AI design. This involves rigorous testing for bias, constant monitoring of algorithmic outputs, and integrating ethical considerations into the development lifecycle. By adhering to ethical AI principles, businesses not only mitigate the risks of bias but also contribute to the creation of more equitable and just technological systems.

This section highlights the imperative for businesses to grapple with the complex challenges and ethical considerations inherent in the integration of AI into their operations. Addressing these issues is crucial for ensuring that the benefits of AI are realized responsibly and ethically.

V. Future Trends and Innovations

In this section, we explore the emerging trends and innovations that are poised to shape the future landscape of Artificial Intelligence (AI) in business operations.

a) AI and Quantum Computing
   i. Quantum Leap in Computing
      The synergy between AI and quantum computing heralds a transformative era in computational capabilities. Quantum computing’s inherent capacity for parallel processing unlocks unparalleled potential for handling complex AI algorithms. This symbiotic relationship is expected to revolutionize optimization problems, cryptography, and machine learning tasks, paving the way for advancements that were previously deemed computationally infeasible.
   ii. Quantum Supremacy and AI Advancements
      As quantum computing achieves milestones like quantum supremacy, the applications for AI expand exponentially. Quantum algorithms promise to exponentially speed up certain AI computations, propelling breakthroughs in areas such as drug discovery, optimization of logistical operations, and solving intricate machine learning challenges. The convergence of AI and quantum computing is not just an evolution; it is a paradigm shift in computational capabilities.

b) Explainable AI (XAI) for Transparent Decision-Making
   i. The Imperative of Transparency
      The advent of complex AI models has underscored the need for transparency in decision-making processes. Explainable AI (XAI) addresses this imperative by providing interpretable insights into how AI systems arrive at specific conclusions. Businesses increasingly recognize the importance of transparent AI, particularly in sectors where accountability and comprehension of decisions are paramount.
   ii. Building Trust through Explainability
      XAI enhances the trustworthiness of AI systems. By offering clear explanations for decisions, XAI not only ensures compliance with regulatory frameworks but also fosters user trust. As businesses deploy AI in critical areas like finance, healthcare, and autonomous systems, the ability to understand and explain AI-driven decisions becomes a foundational element in the acceptance and ethical application of these technologies.

c) Integration of AI in Small and Medium-sized Enterprises (SMEs)
   i. Democratizing AI Access
      Traditionally, large enterprises with substantial resources have led to AI adoption. However, the future sees a democratization of AI access, particularly for Small and Medium-sized Enterprises (SMEs). As AI technologies become more accessible and tailored solutions emerge, SMEs can harness the power of AI to enhance operational efficiency, customer engagement, and overall competitiveness.
   ii. Customized Solutions for SMEs
      Innovations in AI frameworks and cloud-based solutions enable SMEs to implement customized AI applications that align with their specific needs. From streamlining supply chain processes to automating customer interactions, AI empowers SMEs to make data-driven decisions and compete effectively in dynamic markets. The integration of AI in SMEs represents a democratization of innovation, driving economic growth and fostering a more inclusive technological landscape.

This section illuminates the trajectory of AI’s future, showcasing the transformative potential of quantum computing, the pivotal role of explainable AI in transparent decision-making, and the democratization of AI access for SMEs. As businesses navigate this dynamic landscape, these trends will undoubtedly shape the next chapter in the evolution of AI in business operations.

VI. Implications for Business Leaders

In this section, we delve into the practical implications that the integration of Artificial Intelligence (AI) holds for business leaders, addressing key...
strategies for implementation and the crucial aspect of workforce preparation.

a) Strategies for Implementing AI in Business Operations

i. Aligning AI with Business Objectives
   Successful AI integration requires a strategic alignment with overarching business objectives. Leaders must delineate clear goals and identify areas where AI can deliver maximum impact. Whether optimizing internal processes, enhancing customer experiences, or improving decision-making, a well-defined strategy ensures that AI initiatives contribute directly to the organization's success.

ii. Incremental Implementation and Scalability
   Rather than pursuing a comprehensive AI overhaul, leaders are advised to adopt an incremental implementation approach. Beginning with pilot projects allows for iterative testing, refinement, and minimization of risks. Scalability considerations should be an integral part of the strategy, ensuring that successful AI implementations can be expanded across different business functions.

iii. Collaboration and Ecosystem Integration
   AI implementation extends beyond technology; it involves fostering collaboration and integrating AI within the broader business ecosystem. Business leaders should explore partnerships with AI vendors, industry consortia, and research institutions. This collaborative approach not only facilitates knowledge exchange but also enhances the collective intelligence available for optimizing AI applications.

b) Training the Workforce for an AI-Driven Future

i. Reskilling and Upskilling Initiatives
   The advent of AI necessitates a paradigm shift in workforce skills. Business leaders must invest in reskilling and upskilling programs to empower employees with the competencies required in an AI-driven environment. These initiatives should address not only technical skills related to AI but also soft skills such as adaptability, critical thinking, and creativity.

ii. Creating a Culture of Continuous Learning
   Establishing a culture of continuous learning is paramount for preparing the workforce for an AI-driven future. Leaders should encourage employees to embrace learning as an ongoing process, fostering a mindset that values adaptability and embracing the acquisition of new skills. By institutionalizing a culture of continuous learning, organizations position themselves to navigate the evolving landscape of AI technologies.

iii. Ethical and Responsible AI Training
   As AI systems become integral to business operations, leaders must prioritize ethical considerations. Workforce training should encompass ethical AI practices, emphasizing transparency, fairness, and accountability. This ensures that employees understand the ethical dimensions of AI applications and contribute to responsible AI implementation within the organization.

VII. Conclusion

As we draw the curtains on our exploration of the transformative synergy between Artificial Intelligence (AI) and business operations, this section offers a recapitulation of AI's profound impact and ventures into the uncharted territories that lie ahead.

a) Recapitulation of AI’s Impact on Business Operations
   Throughout this discourse, we've traced the evolution of AI, witnessed its integration into various facets of business operations, and examined case studies illustrating its successes. From automation and efficiency gains to predictive analytics, customer relationship management, supply chain optimization, and enhanced decision-making processes, AI emerges as a catalyst for unprecedented advancements.

   The case studies presented to underscore the tangible benefits experienced by diverse industries, showcasing how E-commerce giants leverage AI-powered recommendations, manufacturing undergoes optimization, and financial institutions fortify defences against fraud. These success stories affirm that AI is not a theoretical concept but a practical tool reshaping the landscape of business operations.

b) Looking Forward: The Uncharted Territories of AI Integration
   As we peer into the future, the integration of AI in business operations promises to venture into uncharted territories. Emerging trends such as the intersection of AI and quantum computing, the pursuit of Explainable AI (XAI) for transparent decision-making, and the democratization of AI in Small and Medium-sized Enterprises (SMEs) beckon business leaders to stay vigilant and adaptive.

   The ethical considerations surrounding AI challenges related to data privacy and security, job displacement concerns, and the imperative for unbiased AI algorithms highlight the need for continuous dialogue and proactive measures. Business leaders must navigate these challenges with foresight, balancing innovation with responsibility.

   In conclusion, the fusion of AI and business operations is not merely a technological convergence; it is a transformative journey that demands strategic
foresight, ethical considerations, and a commitment to cultivating a workforce prepared for the future. As we step into the uncharted territories of AI integration, the lessons gleaned from the past and present serve as guiding beacons for businesses embarking on this transformative expedition.

REFERENCES

Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa

By Fatma Khalfallah

Abstract: Our principal objective is to implement a conditional CAPM that, in addition to the global market risk, specifies the level of market integration, evaluates exchange rate risk, and accounts for local market risk. To investigate the potential for portfolio diversification for foreign investors in this region by examining the impact of financial crises on the evolution of national markets in the MENA region's financial integration with the global market as well as with the three selected developed markets, namely France, Great Britain, and the United State. In order to test a conditional version of De Santis and Gerard's ICAPM by admitting a specification of a multivariate GARCH process, this line of research has used a particular methodology (MGARCH).

Keywords: financial crisis, ICAPM, international diversification, financial integration.

GJMBR-D Classification: JEL: Class F3

Strictly as per the compliance and regulations of:
Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa

Fatma Khalfallah

Abstract - Our principal objective is to implement a conditional CAPM that, in addition to the global market risk, specifies the level of market integration, evaluates exchange rate risk, and accounts for local market risk. To investigate the potential for portfolio diversification for foreign investors in this region by examining the impact of financial crises on the evolution of national markets in the MENA region's financial integration with the global market as well as with the three selected developed markets, namely France, Great Britain, and the United States. In order to test a conditional version of De Santis and Gerard's ICAPM by admitting a specification of a multivariate GARCH process, this line of research has used a particular methodology (MGARCH).

Keywords: financial crisis, ICAPM, international diversification, financial integration.

1. Introduction

In modern portfolio theory and with the famous Markowitz theory (52), international diversification is an integral feature of international financial markets.

Any investor will certainly prefer investment opportunities that offer the most attractive prospects all else being equal, the rate of return taken in isolation is not sufficient to characterize an investment opportunity. It is also necessary to consider possible deviations of the rate of return from its expected value, which brings us back to the concept of uncertainty or risk.

Thus, several potential benefits have encouraged investors to internationalize their portfolios; risk reduction, performance improvement. However, these benefits are directly related to the nature of the financial market structures of the countries involved (Hasan and Simate 2000).

In addition, several factors present an obstacle to the gains of international diversification. Thus, previous works have shown that the exchange rate risk and the political risk present major limits to the benefits resulting from the strategy of international diversification (Eun and Resnik 1987), Cosset and Suret (1995).

Over time, and depending on the events that have occurred in the financial markets, particularly the incidence of financial crises, the debate has focused on the significant impact of these crises on international portfolio diversification strategies.

Indeed, the strong financial integration between financial markets constitutes a major concern for the investor in search of international portfolio diversification. Since, the direct consequence of financial interdependencies is the propagation of volatility on stock markets.

This transmission of volatility manifests itself in the instability of financial markets in the prices and returns of financial assets and in the levels of stock market indices.

In this context, the international investor is confronted with this risk, which presents a threat that prevents them from achieving their objectives in international diversification strategies.

This observation opens up a rich field of research, and several empirical works have taken into consideration the intensity of the changes that have hit the global financial system since the 1987 crisis.

The first line of research was conducted by Roll (1988) and Miniskey (1992) on this crash. Then other works examined the crises of emerging countries "the Asian crisis, the Mexican crisis" such as Karyoli and Stulz (1996), Schwebach et al (2002), they underlined the stake of the strategy of international diversification in a context revived by rather strong financial disturbances.

As a result, the second line of research studied the effectiveness of this strategy and evaluated the expected gains from international diversification.

Thus, the research focused on developed markets and especially on the emerging markets of East Asia, Latin America and Central Europe with studies by, Middleton et al (2008), Robert G. Bowman, Kam Fong Chan and Matthew R. Comer (2010), Jacek Niklewski and Timothy Rodgers (2011) and Robert Vermeulen (2013).

The conclusion drawn from this strand of research is that with the growth of comovements between developed and emerging markets and the frequent emergence of financial crises that characterize East Asia, Latin America, and Eastern Europe, the investor should target other emerging markets that provide advantages in managing their portfolio.

Recently, the MENA region has been under the scrutiny of some works in order to measure the potential profit of diversification that it can offer to foreign investors, such as Abraham et al (2001), Simon Neaime

In our turn, in our empirical investigation, we are interested in eight MENA countries (Tunisia, Morocco, Egypt, Turkey, Jordan, Saudi Arabia, United Arab Emirates), three developed countries (United States, Great Britain and France) and the world market, with the objective of measuring the degree of integration of each MENA country in our sample with the world market and to answer the following question: For a foreign investor, are the MENA stock markets advantageous in terms of diversification gain in a context revived by crises?

To achieve this objective, a literature review on international diversification during financial crises will be presented in a first section, as well as an empirical study of the impact of the subprime crisis on MENA stock markets in terms of portfolio management performance which will be the subject of a second section.

II. Literature Review

Roll (88) showed that during the crash 87 all stock prices of 23 global financial markets studied have sharp declines around 20% per month, similarly the correlations between countries are mainly positive but moderate in size.

Minskey (1992) examined the same crisis by finding that the crash can have a major impact on the architecture of financial markets, he indicated that the crisis has sown the seeds of structural changes across international financial markets.

As a result, the studies of Longin and Solnik (95), Solnik (97), Karolyi and Stulz (96), Kronor and Ng (1998) Groslambert (2000) have highlighted the increase in correlations of stock market indices during periods of crisis marked by a strong movement of volatility.

Garnaut (1998) argued that the Asian crisis had a major structural impact on the financial architecture of the region through the increase in the degree of correlations.

Schwebach et al (2002) confirmed this result and indicated that correlations between countries increased from 0.18 to 0.274 during the first phase of the crisis and from 0.451 to 0.531 during the second phase, the same results are also affirmed by Bekae et al (2005).

All these results call into question the effectiveness of international diversification strategy.

Thus, Wan-juin Paul chiu (2008) examined the comparative benefits of international diversification through the analysis of the indices of 21 developed countries and 13 developing countries over a period from January 1988 until December 2004.

To properly assess the gains of international diversification, two simple measures are used, the increase in the risk-adjusted premium by investing in the maximum risk-adjusted return portfolio and the reduction in volatility by investing the minimum variance portfolio on efficient international frontiers.

The empirical results suggest that investors in less developed countries, particularly East Asia and Latin America, benefit from regional and international diversification more than those in developed countries. The study found that the absolute values of the gains are reduced over time due to the integration and financial crises of the international financial market.

However, (Middleton et al 2008) they showed that the opportunities to invest in emerging markets of Central Europe are still significant, even in times of financial crisis.

Lagoarde-Segot, T et al (2009) tested the contagion between the G7 markets through the study of stock market linkages in order to identify the benefits of international diversification, their results show that during periods of turmoil the interdependence is increased but despite this context the benefit is still there for fund managers in these markets, it seems to be robust to strong changes in volatility.

Robert G. Bowman, Kam Fong Chan, and Matthew R. Comer (2010) examined the response of global equity markets to the 1997 Asian crisis. The study included 39 countries a portfolio of 17 emerging countries, and a portfolio of 22 developed countries.

They showed that the correlations of returns in the countries during the Asian crisis was increased dramatically. This indicates that the benefits of international diversification were significantly reduced, but not necessarily eliminated, during the crisis. Following the crisis, they found that correlations declined, but not to the pre-crisis level, so the benefits of international diversification are available, but they are diminished.

Jacek Niklewski and Timothy Rodgers (2011) sought to answer the crucial question of whether the changes in financial market architectures caused by the global financial crisis have had a permanent impact on international diversification? As such, they sought to examine the conditional correlations between U.S. equity markets and a number of developed, emerging and frontier markets.

They pointed out that the increase in correlation during and after the crisis has a direct impact on international diversification, such that investing in emerging and frontier markets has become less attractive to international portfolio managers.

Vermeulen Robert (2013) empirically examined during the period of 2001 to 2009, the portfolios of international investors before and during the global financial crisis for 22 countries. The results indicate that during the crisis international investors rebalanced their portfolios towards the less correlated markets.

Moreover, the author emphasized that the most important thing here is not the diversification in silk but
the diversification where investors manage to hang less correlated stocks when the market situation is very volatile.

However, the question of expected gains from international diversification remains understudied for certain regions such as the Middle East and North Africa: MENA.

Some works have explored this area in order to identify for the international investor the existing opportunities to diversify his portfolio on these markets.

Indeed, Ali F. Darrat et al (2000) examined the degree of integration of three stock markets: Morocco, Jordan and Egypt, using the causality tests of Granger (69) and the cointegration tests of Johnson (88).

They showed that these emerging countries are globally segmented and regionally integrated which means that these studied MENA markets offer diversification potential for international investors.

Abraham et al (2001) selected three oil-producing markets in the Gulf region for a period from 1993 to 1998, with the aim of assessing the substantial benefits of diversification in these markets.

Indeed, using the mean-variance paradigm of Markowitz (59), they highlighted a low correlation of returns between these markets studied and the They indicated that the allocation of funds can be extended up to (20-30%) into the U.S. equity markets, which offers an important opportunity for investors to integrate securities from these markets into their portfolios to enhance returns and reduce risk.

They indicated that the allocation of funds can be extended up to (20-30%) in the stock markets.

In (2003), Assaf selected six Middle Eastern stock markets: Bahrain, Kuwait, Oman, Saudi Arabia and the Emirates, similarly Hassan et al studied ten markets in this region and this was to examine the correlations between these markets.

They pointed out that the benefit of diversification is significant; some markets have low correlation with others and thus may be a better choice to reduce the risk of a regional investment portfolio.

Simon Neaime (2005) examined the integration of seven MENA markets with each other and with major global stock exchanges. Johnson's cointegration tests indicate that the GCC (Gulf Cooperation Council) stock exchanges still offer international investors potential for portfolio diversification.

Thomas et al (2005), using the cointegration method to examine the financial structure of the MENA region and their implication on international portfolio management, showed that the long-term correlation of these markets with the European as well as the US market is not stable. This indicates the existence of an opportunity to diversify the asset portfolio for the three categories of investors.

In (2007), the same authors examined the issue of international diversification this time on seven stock markets in the MENA region "Morocco, Tunisia, Egypt, Jordan, Lebanon, Turkey and Israel".

They constructed international portfolios in both dollars and local currencies for a period from 1998 to 2006, their results highlighted the presence of remarkable diversification benefits in the MENA region.

Cheng et al (2010) studied the return behavior of nine stock markets in the MENA region namely "Bahrain, Egypt, Israel, Jordan, Kuwait, Morocco, Oman, Saudi Arabia, and Turkey" by using different variants of CAPM.

They conducted a comprehensive empirical analysis on the dynamics of returns and risk in the MENA region, overall they found that the markets of Turkey and Israel are the most integrated with the global market, their results suggest that investing in most of the Arab markets in the MENA region for the period of study provides uncorrelated returns with the global market, thus an opportunity of profit by exercising international diversification in these markets.

Mansourfour et al (2010) divided the MENA region into two groups "oil producing countries" and non-oil producing group, in order to examine the role of each group in the benefit presented to international investors in terms of international diversification.

The results of this study indicate that oil-producing countries offer more advantageous opportunities for international portfolio diversification than the countries in the second group.

However, during the global financial crisis in 2008 the returns in these markets collapsed.

Neaime (2012) in this study the author analyzed the impact of the global financial crisis 2007-2008 on the emerging markets of the MENA region, through the examination of financial linkages between the markets of the MENA region and the most developed financial markets as well as the intra-regional linkages between the financial markets of the MENA countries among themselves.

Thus, through a detailed examination of financial integration in seven stock markets in the MENA region namely: Egypt, Jordan, Morocco, Tunisia, Kuwait, Saudi Arabia, and the Emirates with France, Great Britain, and the United States, while taking into consideration the volatility in these markets as well as the phenomenon of contagion during the period of the financial crisis, Simon Neaime showed that the stock market of Saudi Arabia is the market least affected by the global financial shock and still offers opportunities for portfolio diversification, while the markets of non-oil producing countries offer less opportunities for diversification.

Michael et al (2013) took by study the stock market comovements of the MENA region; "Egypt, Jordan, Saudi Arabia, Kuwait, Quater, Emirates" with the US market and between them for a period of 9 years from 2002 to 2010.
The results show that there is a modest degree of correlation between the MENA region and the U.S. market which implies opportunities for diversification in the near term.

Houseyin et al (2013) conducted an empirical study on emerging markets in Europe, the Middle East and Africa to identify the benefits of international diversification among the markets of the Czech Republic, Egypt, Hungary, Morocco, Poland, Russia, South Africa and Turkey.

Using, Johansen's (1988) cointegration tests for a period from 1994 until 2010, they showed the existence of cointegration relationships between most of these markets with a finding that the benefits of portfolio diversification in these markets are limited for investors.

Mehmet Balci et al all (2015) examined the opportunities for international diversification in the stock markets of GCC countries, some countries show segmentation with the global market during periods of disruption and thus can offer diversification opportunities despite the crisis environment.

Mouna Boujelbene et all (2015) conducted an empirical investigation on developed and emerging Islamic stock markets “European, Asian, North American, MENA and Latin American markets, with the aim of examining the benefits of international diversification during quiet and disruptive periods.

Their study using the multivariate cointegration test highlights that Islamic stock market movements are partially segmented, in addition the level of integration between markets tends to change over time especially during periods characterized by financial crises.

Their results suggest that Islamic Shariah-compliant assets may offer potential diversification benefits, a finding that has important implications for the design of investment strategies for investors who wish to diversify their portfolios especially during periods of crisis.

In sum, the works that are interested in the study of the dynamics of the gains expected from international diversification as a function of integration, they have ignored the exchange rate risk, in other words, they have assumed that investors do not hedge their exposure to exchange rate risk, so that the price of exchange rate risk is equal to zero, as is the price of local market risk “Giovannini and Jorion (89), Harvey (91), Chan et al.

The same approach was adopted by the works that considered the effect of financial crises “Roll (88), Rahm and Yung (94), Hamao et al (90), Arrouri and Jawadi (2011), Kenourgios et al (2011).

In addition, according to the literature review presented on the issue of international diversification for stock markets in the MENA region, we can see that the period of study is always short, the results of work are heterogeneous and fail to decide between the existence or nonexistence of opportunities for international diversification on the MENA region.

Also, the basic model; “the model of De Santis and Gerard (97)” which was adopted by the majority of previous works to identify the gains of international diversification is based on the assumption of perfect financial integration, however the reality on the financial markets that they are in a situation of partial segmentation, and this after the previous works of Bekaert and Harvey (95,97), Karolyi and Stulz (2002), Dumas et al (2003), Bar and Pristley (2004).

III. Methodology

Our contribution at this stage consists in applying a conditional CAPM that takes into account in addition to the global market risk; the specification of the degree of integration of the studied markets, the assessment of the exchange rate risk as well as the local market risk. In order to study the effect of financial crises on the evolution of financial integration of national markets in the MENA region with the global market as well as with the three selected developed markets namely France, Great Britain and the United States and thus to examine the possibilities of portfolio diversification for international investors in this region.

So the methodology adopted for this line of research consists in testing a conditional version of MEDAFI of De Santis and Gerard (97), by admitting a specification of a multivariate GARCH process (MGARCH).

a) The Dynamic Version of CAPM

In a context of perfect financial integration in the financial markets and with the PPP hypothesis verified, the international extension of the CAPM of Sharpe (64) and Linter (65) presented by Adler and Dumas (83), Solnik (77), Stulz (81), De Santis and Gerard (97) and others, can be written as follows

$$E(R_\tau / \Psi_{t-1}) - R_{\tau i} = \beta_{im,t-1} \left[ E(R_{ml} / \Psi_{t-1}) - R_{\tau i} \right] ; \forall i \quad (1)$$

With $$\beta_{im,t-1} = \frac{\text{cov}(R_\tau, R_{ml} / \Psi_{t-1})}{\text{var}(R_{ml} / \Psi_{t-1})} \quad (2)$$
This is the variable sensitivity of security \( i \) to the market portfolio \( m \).

\( R_{it} \): The variable profitability of security \( i \) between (t-1) and \( t \).

\( R_{ft} \): The return on the risk-free asset between (t-1) and \( t \).

\( R_{mt} \): The return on the global market portfolio between (t-1) and \( t \).

All expectations are made conditional on the information vector available at time \( t-1 \).

Equation (1) can be rewritten as follows:

\[
E(R_{it} / \Psi_{t-1}) - R_{ft} = \delta_{m,t-1} \text{cov}(R_{it} , R_{mt} / \Psi_{t-1}) \quad \forall \, i
\] (3)

With

\[
\delta_{t-1} = \frac{E(R_{mt} / \Psi_{t-1}) - R_{ft}}{\text{var}(R_{m} / \Psi_{t-1})}
\]

This is the world market covariance risk price over time.

Relationship (3) is the most widely used formulation in empirical asset pricing work, and implicitly assumes that financial markets are integrated in a way that the market risk price equals zero; investors are not exposed to currency risk.

Implications for international portfolio diversification.

In what follows, we will examine the implications of relationship (3) for international portfolio diversification.

Thus, let us consider two portfolios that present the same risk, the first one is internationally diversified noted I and the other one is purely domestic noted i. The CAPMT relationship described in equation (3) allows us to calculate the expected return on each of these portfolios.

The difference between the two expected returns can be interpreted as the ex-ante gain from international portfolio diversification (the benefit generated by holding international stocks). This gain can be expressed as follows:

\[
E(R_{fi} - R_{ft} / \Psi_{t-1})
\] (4)

According to Black’s (1972) separation theorem, portfolio profitability can be written as a form of a linear combination between the risk-free asset and the market portfolio \( R_{I} = \theta_{t-1} R_{mt} + (1 - \theta_{t-1}) R_{ft} \), where \( \theta \) is the measure of risk aversion.

Thus, the excess return of the portfolio I is expressed as follows:

\[
E(R_{I} / \Psi_{t-1}) - R_{ft} = \delta_{m,t-1} \text{cov}(\theta_{t-1} R_{mt} , R_{mt} / \Psi_{t-1}) = \delta_{m,t-1} \theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1})
\] (5)

Let \( \theta_{t-1}^2 = \frac{\text{var}(R_{I} / \Psi_{t-1})}{\text{var}(R_{mt} / \Psi_{t-1})} \) (9)

According to equations (5) and (6), the gain of international diversification for a domestic investor according to the conditional version of the CAPM is given by the following relation:

\[
A \text{ first intuition can be drawn from equation (10) by taking the particular case } \theta = 1
\]

A relation (11) presents the measure of portfolio diversification gains developed by De Santis and Gérard (97) for the case of the American investor, which is a special case of (10), according to their relation market i has the same portfolio risk of the world market at each point in time.

According to the relation (10), the expected gains from portfolio diversification are an increasing function of the price of the world market risk and the quantity of the specific risk considered.
In this regard, the use model developed by Fatma Khalfallah (2023) is appropriate at this level. Thus, our version of conditional CAPM presents a mixed relationship between the price of market risk, exchange risk and domestic market risk and a measure of degree of financial integration is as follows:

\[
E(R_g / \Psi_{t-1}) - R_g = \phi_{t-1}^{i} \left[ \delta_{m,t-1} \text{cov}(R_g, R_{mt} / \Psi_{t-1}) + \sum_{c=1}^{L} \delta_{c,t-1} \text{cov}(R_c, R_{ct} / \Psi_{t-1}) \right] + (1 - \phi_{t-1}^{i}) \delta_{i,t-1} \text{var}(R_{ht} / \Psi_{t-1})
\]

(12)

Thus the model application of equation (12) for equations (5) and (6) is as follows.

For equation (5), the excess return on the portfolio \( I \) that is internationally diversified is written as a function of market risk and currency risk:

\[
E(R_{it} / \Psi_{t-1}) - R_{it} = \left[ \delta_{m,t-1} \text{cov}(\theta_{t-1}, R_{mt} / \Psi_{t-1}) + \sum_{c=1}^{L} \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1}) \right]
\]

\[
\delta_{m,t-1} \theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1}) + \sum_{c=1}^{L} \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1})
\]

(13)

For equation (6), the excess return of portfolio \( i \) that is purely domestic is written as a function of market risk and local market risk and a measure of degree of integration:

\[
E(R_{it} / \Psi_{t-1}) - R_{it} = \phi_{t-1}^{i} \left[ \delta_{m,t-1} \text{cov}(\theta_{t-1}, R_{mt} / \Psi_{t-1}) + (1 - \phi_{t-1}^{i}) \delta_{i,t-1} \text{var}(R_{ht} / \Psi_{t-1}) \right]
\]

(14)

Thus, according to equations (13) and (14), the gain from international diversification according to the conditional version of the CAPM is given by the relation (15)

\[
E(R_{it} - R_{ht} / \Psi_{t-1}) = \delta_{m,t-1} \left[ \theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1}) - \phi_{t-1}^{i} \text{cov}(R_{ht}, R_{mt} / \Psi_{t-1}) \right] + \sum_{c=1}^{L} \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1}) - (1 - \phi_{t-1}^{i}) \delta_{i,t-1} \text{var}(R_{ht} / \Psi_{t-1})
\]

(15)

Then, relation (15) shows that the expected gain from international diversification strategies is determined as a function of the price of market risk, the amount of country-specific risk considered with a measure of the degree of integration

\[
\text{var}(R_{mt} / \Psi_{t-1}) - \phi_{t-1}^{i} \text{cov}(R_{ht}, R_{mt} / \Psi_{t-1})
\]

the price of exchange rate risk \( \delta_{c,t-1} \) and local market risk \( \delta_{i,t-1} \)

b) The Data

Our study focuses on the economies of the MENA region, with data for the following countries: Tunisia, Morocco, Egypt, Turkey, Jordan, Saudi Arabia, the United Arab Emirates, United Arab Emirates, France, Great Britain, the United States, and the global market. Then, four groups of data are considered: the monthly return series market as well as the world market, the series of real exchange rates expressed in US dollars, exchange rate series expressed in U.S. dollars, the financial and macroeconomic variables used to macroeconomic variables used to condition the estimates of risk prices and the instrumental variables related to the degree of related to the degree of integration.

c) The Yield Series

The observations used are monthly end-of-period prices from January 1995 to December 2013 for Morocco, Egypt, Turkey and Jordan, and from May 2005 to December 2013 for Tunisia, Saudi Arabia and the United Arab Emirates.

Market prices are taken from Morgan Stanley Capital International (MSCI), and the market portfolio is approximated by the MSCI world index 25, these market returns are expressed in dollars and adjusted by dividends.

d) Real Exchange Rate Series

The monthly real exchange rates are expressed in terms of the U.S. dollar 27, and are taken from International Financial are extracted from International financial statistic (IFS) and obtained by subtracting nominal exchange rates exchange rates by the consumer price indexes (CPI).

e) Global and Local Instrumental Variables

The instrumental variables are used to condition estimating the prices of market risk, currency risk and risk local, like Hardouvelis et all (2006) and Carrieri and All (2007) we retain the following factors to condition estimating the prices of market risk and foreign risk:
The monthly change in the premium term, it's the difference between a long interest rate (10 years us treasury notes) and short rate (3 months us treasury bills) (DEPTERM)

The monthly change in the short term interest rate (3 months us treasury bills) (DSHORT).

The monthly change in the S&P’s 500 stock market index (RSP)

A constant term

All these information variables are extracted from the international datastream database and are used with a lag behind the series of excess returns.

For the risk of the local market of each country, we use the following set of information variables is determined by previous studies like Bekahert and Harvey, 1995; Gerard et al., 2003)

− A constant term
− The monthly change in the excess stock returns of each country (DRD)
− The monthly change in 1-month interest rate (DSHORT)
− The monthly change in the regional inflation rate (VIR)

The degree of financial integration for each country is affected by some economic financial and sociopolitical factors at the local and international level. It is, therefore, necessary to identify the determinants of the degree of financial integration. To this end, we use the following variables information

− DGDP: Each country’s Gross domestic product (GDP) in volume, which is considered the most appropriate instrument to identify the level of integration by Carrieri et al. (2007) and Bhattacharya and Daouk (2002).
− INRD: The interest rate differential between the US market and the local market, this variable reflects the convergence of these emerging markets to the global market
− INFID: The differential between the rate of inflation in each local market and the US, this variable highlights the volatility of exchange rates of the local currency and provides information on the investment costs and consequently the advantage of diversification

Table 1: Anticipated Gains from International Diversification of MENA Markets for the Period 05-2005 to 12-2013 (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>With the World Market</th>
<th>With the French Market</th>
<th>With the British Market</th>
<th>With the American Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>1.561 (1.2795)</td>
<td>1.9299* (1.2909)</td>
<td>1.8199* (1.1794)</td>
<td>2.099* (1.1905)</td>
</tr>
<tr>
<td>Emirates</td>
<td>2.4695* (0.2876)</td>
<td>2.8905* (0.3806)</td>
<td>2.155* (0.1887)</td>
<td>2.305* (0.1437)</td>
</tr>
<tr>
<td>Jordan</td>
<td>3.8351* (0.1117)</td>
<td>4.491* (0.2117)</td>
<td>3.9075* (0.1001)</td>
<td>4.101** (0.123)</td>
</tr>
<tr>
<td>Morocco</td>
<td>3.8479** (0.1776)</td>
<td>3.201** (0.2228)</td>
<td>3.9978** (0.1476)</td>
<td>6.001** (0.0869)</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>3.607* (0.6223)</td>
<td>4.5071*** (0.7023)</td>
<td>4.0171* (0.4988)</td>
<td>3.9891* (0.7117)</td>
</tr>
<tr>
<td>Tunisia</td>
<td>5.021*** (0.0889)</td>
<td>6.331** (0.0569)</td>
<td>5.906*** (0.0780)</td>
<td>7.122*** (0.033)</td>
</tr>
<tr>
<td>Turkey</td>
<td>1.132 (2.3441)</td>
<td>2.0021 (2.0441)</td>
<td>1.977 (2.2911)</td>
<td>2.881 (2.0001)</td>
</tr>
</tbody>
</table>

* Significant at the 10% level, ** Significant at the 5% Level, *** Significant at the 1% level, (.) Standard Deviation is Reported in Parentheses.

According to Table 1, the results show a statistically and economically significant advantage of international diversification for all the markets studied with the global market, the French market, the British market and the American market except for Turkey.

Indeed, over the period of study, Egypt the most correlated with the global market with an average correlation of 62% has the lowest average annual profits 1.56%, the same finding with the French market, British and American; the strongest correlation with a low potential diversification that does not exceed 2%.

On the other hand, Tunisia the least correlated market with the global market, the French market, the British market and the U.S. market with respective average correlations (32%, 31%, 32%, 31%) and presents the highest profits of diversification (5%, 6.33%, 5.9%, 7.12%).
Morocco presents a diversification gain for the American investor of 6% and around 4% with the world, French and British markets with an average correlation of 40% with all these markets. The same result is also found for Jordan with very close values for the correlation as well as the gains of international diversification.

For the Gulf countries, Emirates and Saudi Arabia have a correlation at the turn of 50% and 40% with the world market as well as with the other developed markets, they present significant diversification gains on average of 2.5% for Emirates and at the turn of 4% for Saudi Arabia.

The results reported in this table of the evolution of diversification gains, indicate that the estimated gains of international portfolio management have significantly decreased during the crisis phase, contrary to the opinion among financial experts and academics.

Indeed, the anticipated gain of Egypt's diversification with the world market and developed markets presents oscillations with positive and negative values that explains the low potential of diversification, a sharp drop is recorded twice; (-25%) during the crisis phase 2007-2009 and (-28%) during the revolution period 2010-2011.

For Morocco, the profit values are more important before the crisis period, at the time of shock the gains noted a considerable fall (-13%), this result valid with the world market, French, British and especially with the American market the gains remained slightly weak until the end of the period of study and this compared to the period before the crisis.

For Jordan, the graph shows a sharp drop of (-23%) between 2008 and 2009 with the world market and the developed markets in our sample. These same findings are also valid for the Saudi and UAE markets with falls of 20% and 27% during the crisis phase.

For Tunisia, the subprime crisis has also affected the gains on this market with a drop in value (-12%) as well as during the period of revolution 2010-2011, this collapse is recorded with the global market, French, British and American.

f) Financial Integration

i. The Degree of Financial Integration

This table reports the estimation results for the financial integration metrics. \( \phi_{\min} \), \( \phi_{\max} \), and \( \phi_{\text{ave}} \) show the maximum, minimum and average degree of integration respectively. The robust standard deviations are indicated by the Std.dev.

According to the estimation results reported in Table 1 panel A, the dynamics of financial integration in our sample is explained especially by the differential between the local interest rate and that of the US and the differential between the local inflation rate and that of the US.

According to the statistics (panel B), Turkey and Tunisia have the lowest degree of integration with values of 0.448 and 0.457 respectively. They are the least integrated countries in the world market as well as the Jordanian market with a level equal to 0.578.

In contrast, Egypt has the highest average level of financial integration with a value of 0.663. After that, we find the Gulf countries Emirates (0.651) and Saudi (0.601) and Morocco with a value of 0.633.
Our results at this stage are close to the results of Khaled Guesmi et al. (2014) who studied the financial integration process of 4 countries in the MENA region (Turkey, Israel, Jordan and Egypt), they also found that Egypt the most integrated market and Jordan is the most segmented.

**Graphic 1:** The Evolution of the Level of Financial Integration
Graphic 1 traces the evolution of the level of financial integration of seven MENA markets with the global market and shows that this integration is not homogeneous. According to the chart, Egypt is the most integrated market with a threshold of 85% during the period 1998-2000, after which the level dropped to around 70% for the rest of the period.

For the Emirates, their degree of integration with the global market has experienced two peaks during the year 2005 and the year 2010 with a level of 90%. The same thing for Saudi Arabia has experienced a financial integration rate between 2006 and the end of 2007 with a value that reaches a threshold of 85%.

This upward trend can be explained by the increase in investment capital flows to these countries.

### ii. Measure of Integration Versus Conditional Correlation

Table 3: Statistics of Conditional Correlations

<table>
<thead>
<tr>
<th>Country</th>
<th>Egypt</th>
<th>Emirates</th>
<th>Jordan</th>
<th>Morocco</th>
<th>Saudi Arabia</th>
<th>Tunisia</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rho_{\text{min}}$</td>
<td>0.786</td>
<td>0.397</td>
<td>0.298</td>
<td>0.3</td>
<td>0.177</td>
<td>0.477</td>
<td>0.455</td>
</tr>
<tr>
<td>$\rho_{\text{max}}$</td>
<td>0.813</td>
<td>0.925</td>
<td>0.901</td>
<td>0.887</td>
<td>0.947</td>
<td>0.937</td>
<td>0.803</td>
</tr>
<tr>
<td>$\rho_{\text{moy}}$</td>
<td>0.801***</td>
<td>0.831***</td>
<td>0.723***</td>
<td>0.697***</td>
<td>0.733***</td>
<td>0.788***</td>
<td>0.701***</td>
</tr>
</tbody>
</table>

$\rho_{\text{max}}$, $\rho_{\text{min}}$ and $\rho_{\text{moy}}$ are the maximum, minimum and mean correlation coefficients, which are obtained from the multiple bivariate DCC-GARCH processes. *** indicates that the coefficient in question is significantly different from zero.

The purpose of correlation estimation is to provide conditional investors with a complete picture of the actual financial and economic situation in each market.

Since the correlations approach is a technique for measuring financial integration that has been applied by previous works (Longin and Solnik, 1995), Kroly and Stulz (1996), Manuel and Croci (2004). However, the appeal to the simple calculation of conditional correlations does not allow us to affirm this purpose, which justifies the use of instrumental variables of financial integration (Dumas et al, 2006). Carrieri et al (2007).

The examination of this observation is presented in Table 6, which compares the integration index of each local market to its conditional correlation with the world market. Then the analysis of the statistics shows us that the conditional correlations in sum are more important in terms of values compared to the financial integration index.

Egypt has an average correlation coefficient of 0.801 against an average degree of integration 0.663. Similarly, for Emirates, Jordan, Saudi Arabia, Tunisia and Turkey, Tunisia and Jordan show the lowest level of integration with an average rate of 50% during the study period. However, all of the markets studied experienced a considerable drop during the 2007-2008 period.

This decline is due to the impact of the subprime crisis on these markets and on the global market in general.

In sum, an upward trend then is recorded when examining the dynamics of financial integration in MENA markets. In what follows, we will conduct a comparative analysis between financial integration and conditional correlation in order to confirm these results.

### IV. Conclusion

The conclusions drawn from the literature indicate that the framework of financial crises, which is characterized by strong interdependence between financial markets and high volatility, is a major concern for the investor seeking international portfolio diversification.

Thus, with the growth of co-movements between developed and emerging markets and the frequent emergence of financial crises that characterize East Asia, Latin America and Eastern Europe, the investor should target other emerging markets such as MENA countries.

The appreciable profits realized by the strategy of international portfolio diversification have been detected by the works of Markowitz (52), Grubel (1968),

In addition to these classic works, a group of studies have explored the benefits of portfolio diversification among developed markets as well as emerging countries such as Harvey (91), Campbell and Hamao (1992), Odier and Solnik (93), Solnik (95) Gerke et al (2005), Markellos and Siriopoulos (1997), Rezayat and Yavas (2006), Chiou (2008), Chonghui jiang et al (2010).


However, the classical and recent works on this topic there in times of crisis and non-crisis have carried some limitations in their basic strategies. Indeed, the assumption of the absence of hedging to international investment has made ignore the exchange rate risk in the modeling as well as the local risk.

In addition, most of the works have adopted only the assumption of perfect financial integration in the financial markets when studying the expected gains from international diversification.

In this regard, our contribution to the literature has sought to test a conditional version of CAPMFI that includes both in addition to global market risk, foreign exchange risk and local market risk in order to identify the potential of diversification that offers MENA countries for investors and their significance in times of crisis with a consideration of the specification of degree of integration of markets studied.

Then, our results indicated that the anticipated gains from diversification sought in MENA markets are present and significant during the study period with temporary absence during the mortgage crisis phase for all the studied markets and during any period of political disturbance, the case of revolution for Egypt and Tunisia.

Bibliography

Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa


By Mustafa Razzaq Flayyih, Mohamed Hassan Wadi & Hasanain Salim Rasheed

Abstract- Assets are economic resources owned by a bank, in the form of tangible or intangible properties that are suitable for repaying debts. In other words, assets are those that can be easily converted into cash within a specific time period. Bank assets must be hedged against numerous risks. This study aims to investigate the impact of solvency risks and asset quality risks on the assets of commercial banks by measuring and analyzing the identified study variables. This study addresses the problem of asset loss in commercial banks, whether fixed or liquid, and offers solutions towards attracting prospective investors and retaining current ones via asset preservation and increment. Researchers can also benefit from this study in terms of variable measurements and key concept identification. The study samples entailed the Commercial Bank of Iraq (BCOI) and the National Investment Bank (BNOI) over the study period from 2011 to 2020.

Keywords: risk solvency, asset quality risk, and commercial banks.


Mustafa Razzaq Flayyih ¤, Mohamed Hassan Wadi ¤ & Hasanain Salim Rasheed ¤

Abstract: Assets are economic resources owned by a bank, in the form of tangible or intangible properties that are suitable for repaying debts. In other words, assets are those that can be easily converted into cash within a specific time period. Bank assets must be hedged against numerous risks. This study aims to investigate the impact of solvency risks and asset quality risks on the assets of commercial banks by measuring and analyzing the identified study variables. This study addresses the problem of asset loss in commercial banks, whether fixed or liquid, and offers solutions towards attracting prospective investors and retaining current ones via asset preservation and increment. Researchers can also benefit from this study in terms of variable measurements and key concept identification. The study samples entailed the Commercial Bank of Iraq (BCOI) and the National Investment Bank (NBO) over the study period from 2011 to 2020. The study employed the descriptive analytical method in describing, measuring and analyzing the data derived from actual financial data available in search for sample pools. The data analysis was subsequently carried out using the SPSS version 26 program. This study reached the conclusion that solvency risks generally have a negative association with the size of assets, while asset quality risks have a positive and direct relationship with the size of assets. The study then offered several recommendations, including that commercial banks should prevent violations and reduce non-performing loans, as well as ensure on-time loan repayments with benefits, thus raising their rating. In addition, commercial banks should work to obtain the expected returns or benefits on an ongoing basis, and increase the size of their assets. Addressing customer inquiries in a timely manner would also ensure customer satisfaction.

Keywords: risk solvency, asset quality risk, and commercial banks.

I. INTRODUCTION

Banks are closely linked to economic growth, accelerating it through the mediating role of the financial services they provide. Therefore, the stability of the banking sector is a precondition for economic growth and firmness. The sector’s stability depends on the size of its assets which in turn is determined by profitability and capital adequacy as employed in its secured loans, thus leading to greater investments (Ekinci & Poyraz, 2019).

The financial stability of the economy depends to a large extent on the stability and flexibility of the banking system. To achieve banking stability, banks have to maintain high-quality banking assets that help in the achievement of a similar volume of assets. Failure to ensure bank stability can cause financial fragility and may lead to crisis scenarios in the event of market illiquidity and/or bank contagion (Velliscig et al., 2021).

The banking sector is considered one of the most important economic sectors and the most sensitive to changes, which in turn exposes it to various risks due to its dynamic structure and the complex nature of the economic environment. The risks faced by banks can be classified into several categories including solvency risks, asset quality risks, and others (Larya & et al., 2016). The main source of income for the banking sector generally consists of loans granted by commercial companies and banks, which come along with solvency risks and asset quality risks. The Basel identifies the asset quality risks of the Banking Supervision Committee, including the possibility of partial or total loss of the loan outstanding due to failure to repay in a timely manner. An increase in asset quality risk increases the marginal cost of debt and equity, and subsequently the cost of bank financing. As the bank’s exposure to asset quality risks increases, the tendency for it to experience financial crisis also heightens (Afriyie & Akotey, 201).

The most prominent of these risks are those related to financial solvency and asset quality owing to the internal banking system which can be controlled and of which can increase or decrease the bank’s asset size. This study hence focuses on the impact of these risks on the asset size of commercial banks over the 2011-2020 period. Accordingly, the theoretical underpinning of this study incorporates the most important concepts of the study variables. Related mathematical equations and the SBSS program output were used to determine the impact of those risks on the banks’ asset size so as...
to address the research problem and achieve the research objective. More specifically, these were achieved by measuring the relationship between the independent and dependent variables, testing the hypotheses, and drawing the key conclusions and recommendations.

II. Review of Literature

a) Solvency Risk

i. The Concept of Solvency Risk

Financial solvency refers to the ability and durability of the bank capital in facing the failure of investment operations and the absorption of risks, including non-payment risk and investment value depreciation risk (Gatzert, 2018: 3). Solvency in finance generally refers to the ability the bank’s revenues, including its return on investment, to cover various costs (Topak et al., 2017: 576). It also entails the bank’s ability to fulfill various obligations without resulting in default and bankruptcy. To do so, the banks need to have sufficient assets which is represented by their ability to pay off due obligations. A bank is deemed to be financially insolvent when its usage exceeds the size of its obligations, leading to its inability to fulfill those obligations (Mehrara et al., 2014: 29). This occurs when the market value of the bank’s assets falls to a level lower than the market value of its liabilities, i.e., even after liquidating all of its assets, it is still not able to meet all its liabilities thus leading to the loss of its depositors (Odekin et al., 2019: 109).

b) Asset Quality Risk

i. Asset Quality Concept

The quality of assets is determined by the assessment of credit risks such as those related to investment portfolios and loans (Boateng, 2019: 44). The extent to which the management is effective in monitoring credit risk can influence the credit rating. Many factors are taken into consideration when evaluating the quality of assets, including whether the portfolio is adequately diversified, the established rules and regulations to reduce credit risk, the operational efficiency, and so on (Alamirew, 2015: 15).

c) Asset Size

i. The Concept of Asset Size

Assets entail the money and resources owned by the bank at a specific time. Most banks rely on assets for the purpose of obtaining internal revenues in the future (Alnakee et al., 2022: 147). This includes the commercial banks’ use of their resources (Gibson, 2014: 228) including loans and financial investments. In general, these are expected to result in economic benefits, owned or controlled by the corporation as a result of various events (Clark et al., 2012: 8). The main hypothesis of this research is that “there is no significant relationship between solvency risk and asset quality risk with asset size”. This hypothesis is further divided into two sub-hypotheses as follows:

H1: There is no significant relationship between solvency risk and the asset size of commercial banks.

H2: There is no significant relationship between asset quality risks and the asset size of commercial banks.

III. Research Methodology

The study sample consists of two commercial banks listed on the Iraqi Stock Exchange namely the Commercial Bank of Iraq and the National Investment Bank. The study period was between 2011 and 2020. Data collection was conducted using the deductive method, focusing on journals and periodicals. The inductive method was also employed focusing on the final accounts of the sampled banks, involving the usage of mathematical equations for measuring the independent variable (credit risk) and dependent variable (profit quality). Next, statistical analysis was employed to determine the relationship between the variables, followed by the hypotheses testing.

IV. Measuring Variables

a) Measuring Solvency Risk

The financial solvency of a bank is linked to its capital adequacy, as the capital adequacy ratio is one of the most important financial and technical indicators for the financial sector and of which serves as a safety valve for protecting the depositors’ money and enhancing investor confidence (Mashkour & Fullyh, 2020: 5028). A higher capital adequacy enables the bank to better maintain its solvency, protect its depositors, and increase the confidence of creditors, depositors and supervisory authorities (Psorn, 2013: 20). The capital adequacy ratio is used to determine the solvency of banks (Aspal et al., 2019: 170). It is calculated in accordance with the requirements of the Basel Committee (III) using the following equation (Mashkour & Fullyh, 2020: 5028):

\[ \text{CA}= \frac{\text{TC}}{\text{RWA (CR + MR + OR)}} \times 100\% = 8\% \]

Since:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full English Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>Capital Adequacy Ratio</td>
</tr>
<tr>
<td>TC</td>
<td>Total Capital</td>
</tr>
<tr>
<td>RWA</td>
<td>Risks Weighted Assets</td>
</tr>
<tr>
<td>MR</td>
<td>Market Risk</td>
</tr>
<tr>
<td>CR</td>
<td>Credit Risk</td>
</tr>
<tr>
<td>OR</td>
<td>Operational Risk</td>
</tr>
</tbody>
</table>

The total capital can be calculated by summing both the base capital and the auxiliary capital according to the following equation (Agyapong et al., 2019: 4):

\[ \text{TC} = \text{CCT1} + \text{SCT2} \]
Assets weighted with credit risks is calculated by gathering the assets weighted with credit risks inside and outside the balance sheet, according to the following equation (Salgotra et al., 2015: 57):

\[
RWA (CR) = WBCRWA + OBCRWA
\]

In keeping with the international standards for banking regulation, the Central Bank of Iraq has developed a mechanism for calculating solvency risks. Banks operating in the Iraqi banking sector, except for foreign bank branches, must maintain a percentage of solvency risk not less than 10%. This ratio represents the relationship between the capital base and the assets weighted with specific weights to offset credit risk and risk laborer and market risks (Central Bank of Iraq, 2018: 3).

b) Measuring the Quality of Assets

Credit risk can be interpreted in its broadest sense as the risk of financial loss due to the borrower’s failure to cover his obligations. Among the bank’s activities in providing credit and others are trading activities and capital markets (Mashkour & Fullyh, 2020: 5031). In most cases, the ratio of loan loss provisions to total loans is used as a variable substitute for measuring credit risk (Alnakee et al., 2022: 147).

Several studies had measured the quality of assets by dividing the provision for loan losses by the total loans, which represents the ability of banks to bear losses from bad loans (Mashkour & Fullyh, 2020: 5031). This study measures the quality of assets by using the following equation (Ekinci et al., 2019: 981):

\[
NPLLR = \frac{NPL}{L} \times 100\%
\]

A high ratio signifies a decrease in the quality of assets, which is reflected in the asset size of the bank, due to the increase in the volume of loans subject to non-payment. A low ratio indicates high quality assets; in short, a lower ratio is better for the banks and the banking establishment (Sufian, 2011: 49).

c) Measurement of Asset Size

The assets are arranged in the balance sheet according to the degree of their liquidity. The result for the cycle is determined by the difference between the assets and liabilities in the balance sheet. In the case of dividing the assets from the liabilities at the end of the period, additional assets are realized with the same primary resources. This addition expresses the profits and is recorded positively under liability. To balance it out, it is recorded under negative assets. When the opposite happens, it indicates that the company has the same requirements priority finance less than the assets. This difference expresses the loss, as it is recorded under assets as positive and under liabilities as negative. The size of the assets can be measured according to the equation below (Lucy et al., 2018: 22):

\[
AS = L + PR
\]
V. Results and Discussion

a) Quantitative Analysis of the Research Variables

i. The Results of Measuring Solvency Risk (Capital Adequacy)

Capital Adequacy Ratio (CAR) is calculated by dividing the total capital in the banks by the total risk-weighted assets using the following equation:

\[ \text{CAR} = \frac{TC}{RWA} \times 100 \]

Since:

- \( TC \): Total Capital
- \( RWA \): Total risk weighted assets

Table 1 clarifies the calculation of the capital adequacy ratio for banks, based on the equation above:

<table>
<thead>
<tr>
<th>Value Year</th>
<th>TC (1)</th>
<th>RWA (2)</th>
<th>CA (3) = (1/2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Commercial Bank of Iraq</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2011</td>
<td>116695</td>
<td>94947072.984</td>
<td>0.012</td>
</tr>
<tr>
<td>2 2012</td>
<td>158239</td>
<td>730223.91</td>
<td>0.088</td>
</tr>
<tr>
<td>3 2013</td>
<td>173680</td>
<td>232816</td>
<td>0.238</td>
</tr>
<tr>
<td>4 2014</td>
<td>322841</td>
<td>3679027.76</td>
<td>0.009</td>
</tr>
<tr>
<td>5 2015</td>
<td>309150</td>
<td>180731.682</td>
<td>2.183</td>
</tr>
<tr>
<td>6 2016</td>
<td>293419</td>
<td>645867.324</td>
<td>2.753</td>
</tr>
</tbody>
</table>

Average 0.7835%

| **B** Al Ahly Investment Bank |
| 1 2011 | 52914 | 164429.46 | 0.322 |
| 2 2012 | 105417 | 37403.108 | 0.767 |
| 3 2013 | 154660 | 110544.044 | 1.400 |
| 4 2014 | 168541 | 486905.94 | 0.346 |
| 5 2015 | 286242 | 155885 | 1.836 |
| 6 2016 | 294108 | 149002 | 1.974 |
| 7 2017 | 306172 | 153412 | 1.995 |
| 8 2018 | 312819 | 165866 | 1.9 |
| 9 2019 | 269050 | 90813 | 2.964 |
| 10 2020 | 274295 | 189152 | 1.5 |

Average 1.5004%

Source: Prepared by the Researcher based on the Final Accounts of the Sampled Banks

As illustrated in Table 1, the capital adequacy ratio (CAR) for the sampled banks varies from year to year, due to the variance in the total capital and the increase or decrease in the risk-weighted assets in relation to the total capital. This ratio shows the extent to which the banks are able to use the total capital in facing losses that may occur as a result of dealing with risky assets; this ratio is called the margin of safety ratio (security margin). The decrease in this ratio indicates a rise in banking risks and vice versa, i.e., an inverse relationship. In addition, there is a direct relationship between the increase in capital adequacy and the increase in total capital. The capital adequacy ratio for the Commercial Bank of Iraq and the Al-Ahly Bank for Investment for the entire research period is greater than the minimum permissible percentage (i.e., 8%) under the Basel Committee Requirements (III). As noted, the ratios increased significantly in the sampled banks, indicating that the banks maintain their financial resources as a result of the risks involved in their investment activities, which prompted them to significantly increase the size of their capital relative to the risk-weighted assets. In short, there is an inverse relationship between the capital adequacy ratio and the risk-weighted assets, whereby an increase in risk-weighted assets indicates a decrease in the capital adequacy ratio and vice versa.

Table 1 shows that the capital adequacy ratio for the Commercial Bank of Iraq reached a higher limit with a percentage of (2.753) in year 2020, at a minimum of (0.003) in year 2014 and an annual average of (0.7835). The increase in the adequacy rate was due to two main reasons: 1) the continuous growth in capital, and 2) the investment policy of the bank, i.e., avoiding
risky investments and directing most of its financial resources to invest in risk-free treasury transfers. As for the National Bank for Investment, the capital adequacy ratio varied in growth for the period between 2011 and 2020. This is due to the continuous growth in total capital for the mentioned period, as the capital adequacy ratio reached a higher limit by (2.964) in year 2019 with a minimum of (0.322) in year 2011 and an annual average of (1.5004). The high adequacy ratio was due to two main reasons: 1) the continuous growth in capital, and 2) the investment policy of the bank, i.e., by avoiding risky investments and directing most of its financial resources to invest in balances in the absolute account with the Central Bank, which is free of risks.

In order to assess the capital adequacy of the sampled banks, the general average of the capital adequacy ratio in the Commercial Bank of Iraq during the research period was (0.7835). This ratio is detrimental as a result of the inverse relationship between the capital adequacy ratio and the financial risks. The Al-Ahly Bank for Investment had the highest average percentage during the research period (1.5004). This increase in capital adequacy ratio above the minimum limits set by the Basel Committee (III) requirements indicates that the banks should follow a conservative investment and credit policy in terms of employing their financial resources. In addition, it expresses the strength of the financial position of the sampled banks in terms of the ability of their capital in facing the risks that they may be exposed to, as well as their ability to cover the possible losses.

ii. Assets Quality Analysis of the Sampled Banks

This percentage indicates the poor quality of the assets of the bank and vice versa, that is, when the ratio of non-performing loans to the total loans decreases, the quality of the assets of the bank is good, as calculated using the following equation:

\[ AQ = \frac{NPL}{TL} \times \%100 \]

Since:

- NPL = bad loans
- T = total loans

Table 2 below shows the calculation for the asset quality of the sampled banks using the above equation:

<table>
<thead>
<tr>
<th>Year</th>
<th>NPL</th>
<th>T</th>
<th>AQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>13485</td>
<td>35965</td>
<td>0.37</td>
</tr>
<tr>
<td>2012</td>
<td>12060</td>
<td>82914</td>
<td>0.15</td>
</tr>
<tr>
<td>2013</td>
<td>428</td>
<td>2311</td>
<td>0.19</td>
</tr>
<tr>
<td>2014</td>
<td>1004</td>
<td>3956</td>
<td>0.25</td>
</tr>
<tr>
<td>2015</td>
<td>2525</td>
<td>7154</td>
<td>0.35</td>
</tr>
<tr>
<td>2016</td>
<td>8632</td>
<td>9102</td>
<td>0.95</td>
</tr>
<tr>
<td>2017</td>
<td>19468</td>
<td>29,245</td>
<td>0.665</td>
</tr>
<tr>
<td>2018</td>
<td>20314</td>
<td>30932</td>
<td>0.65</td>
</tr>
<tr>
<td>2019</td>
<td>13950</td>
<td>31242</td>
<td>0.44</td>
</tr>
<tr>
<td>2020</td>
<td>6707</td>
<td>11447</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Average 0.4605%

<table>
<thead>
<tr>
<th>Year</th>
<th>NPL</th>
<th>T</th>
<th>AQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>11910</td>
<td>36973</td>
<td>0.322</td>
</tr>
<tr>
<td>2012</td>
<td>8828</td>
<td>49054</td>
<td>0.248</td>
</tr>
<tr>
<td>2013</td>
<td>9129</td>
<td>67493</td>
<td>0.186</td>
</tr>
<tr>
<td>2014</td>
<td>79,593</td>
<td>115538</td>
<td>0.689</td>
</tr>
<tr>
<td>2015</td>
<td>176467</td>
<td>165327</td>
<td>1.067</td>
</tr>
<tr>
<td>2016</td>
<td>81611</td>
<td>18402k</td>
<td>0.443</td>
</tr>
<tr>
<td>2017</td>
<td>5040</td>
<td>124683</td>
<td>0.04</td>
</tr>
<tr>
<td>2018</td>
<td>5057</td>
<td>134356</td>
<td>0.037</td>
</tr>
<tr>
<td>2019</td>
<td>4018</td>
<td>76828</td>
<td>0.052</td>
</tr>
<tr>
<td>2020</td>
<td>7585</td>
<td>168965</td>
<td>0.045</td>
</tr>
</tbody>
</table>

Average 0.3129%

Source: Prepared by the Researcher based on the Final Accounts of The sampled Banks
It is clear from the table above that the quality of the assets in the sampled banks varies from year to year. This is due to the increase in non-performing loans in addition to the decrease in total loans relative to the non-performing loans. The ratio of non-performing loans to total loans shows the quality of the bank’s assets, and subsequently the ability of banks in managing their financial assets. The high ratio of non-performing loans to total loans is evidence of the high percentage of amounts at risk and the failure to collect them. Meanwhile, the decrease in this percentage indicates that the loans had been collected according to their maturity dates. Hence, it is clear that there is an inverse relationship with the quality of assets and a positive relationship with non-performing loans. This means that the ratio of non-performing loans to total loans rises as a result of the rise in non-performing loans, while the rise in the ratio of non-performing loans to total loans is due to the bank’s low asset quality. Table 3 indicates the classification of each of the sampled banks:

### Table 3: Asset Quality Classification of the Sampled Banks

<table>
<thead>
<tr>
<th>Bank</th>
<th>Quality of Realized Assets %</th>
<th>Asset Quality Ratio for Rating Arbitration</th>
<th>Overall Rating Percentage</th>
<th>Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Ahly Investment Bank</td>
<td>4.34%</td>
<td>Less than 5</td>
<td>Less than 20</td>
<td>Strong</td>
</tr>
<tr>
<td>Baghdad Bank</td>
<td>34.25%</td>
<td>From 5 to 15</td>
<td>From 50 to 20</td>
<td>Patients</td>
</tr>
<tr>
<td>Commercial Bank</td>
<td>54%</td>
<td>From 35 to 15</td>
<td>From 80 to 50</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 60</td>
<td>More than 100</td>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>

It is clear from the table that the ratio of the quality of assets is different for the Commercial Bank of Iraq. The quality of the assets reached (0.665%) in year 2017, which is unsatisfactory, with a minimum of (0.15) in year 2012 and an annual average of (0.4605%). The increase in this ratio during the research period indicates the low asset quality of the bank. It is noted that the ratio of non-performing loans to total loans had exceeded the set threshold of 60%. This indicates a bad loan, which leads to large losses in the bank’s capital. Therefore, there is a need to reduce the volume of non-performing loans. As for the National Investment Bank, it reached the highest percentage of (0.689) in year 2015. The lowest level of (0.04) was recorded in year 2018, with an average of (0.3129). This indicates an unsatisfactory loan, thus requiring the bank to reduce its volume of non-performing loans. The risk quality of the sampled banks’ assets was evaluated by comparing the general average. The general average for the Commercial Bank of Iraq is (0.4605), followed by the National Investment Bank at (0.3129), and the Bank of Baghdad at (0.235) which is the lowest degree of non-payment risk.

### iii. Analysis of Asset Size for the Sampled Banks

The size of a bank is often measured by the amount of assets that it owns. As an increase in the commercial banks’ volume of assets increases their ability to invest, the increase in the volume of the banks’ assets is typically expected to result in an increase in their profitability. In the event that the size of the commercial banks is measured with the property rights they own (paid capital, reserves and undistributed profits), the banks with larger property rights have greater funds available to them hence increasing their ability to invest. In addition, the increase in property rights increases the confidence of investors, which may be reflected in the volume of customer deposits. Thus, by increasing the financial leverage, the rate of return on equity can be maximized. The following equation was adopted to measure the size of the commercial banks’ assets:

\[ AS = L + PR \]

**Since:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full English Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS</td>
<td>Asset Size</td>
</tr>
<tr>
<td>L</td>
<td>Liabilities</td>
</tr>
<tr>
<td>PR</td>
<td>Property Rights</td>
</tr>
</tbody>
</table>

Table 4 presents the results of the basic capital measurements of the sampled banks:
Table 4: Comparison of the Asset Size Measurements (million dinars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of Total Liabilities (L)</th>
<th>Value of Right of Ownership (PR)</th>
<th>Value of Total Assets (AS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>109624945</td>
<td>94538893</td>
<td>204163838</td>
</tr>
<tr>
<td>2012</td>
<td>112261767</td>
<td>135184629</td>
<td>247446396</td>
</tr>
<tr>
<td>2013</td>
<td>160236268</td>
<td>143200259</td>
<td>30346527</td>
</tr>
<tr>
<td>2014</td>
<td>138264072</td>
<td>196579178</td>
<td>334843250</td>
</tr>
<tr>
<td>2015</td>
<td>164887327</td>
<td>284385241</td>
<td>449275568</td>
</tr>
<tr>
<td>2016</td>
<td>140687855</td>
<td>274201298</td>
<td>414891153</td>
</tr>
<tr>
<td>2017</td>
<td>1411878</td>
<td>281941</td>
<td>423819</td>
</tr>
<tr>
<td>2018</td>
<td>168808</td>
<td>291809</td>
<td>460178</td>
</tr>
<tr>
<td>2019</td>
<td>159987</td>
<td>283958</td>
<td>443945</td>
</tr>
<tr>
<td>2020</td>
<td>177848</td>
<td>271929</td>
<td>449777</td>
</tr>
</tbody>
</table>

Average: 195582989%

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of Total Liabilities (L)</th>
<th>Value of Right of Ownership (PR)</th>
<th>Value of Total Assets (AS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>546448</td>
<td>529135</td>
<td>1075583</td>
</tr>
<tr>
<td>2012</td>
<td>792475</td>
<td>105417</td>
<td>897892</td>
</tr>
<tr>
<td>2013</td>
<td>182588</td>
<td>154660</td>
<td>337248</td>
</tr>
<tr>
<td>2014</td>
<td>542237446</td>
<td>168480</td>
<td>542405926</td>
</tr>
<tr>
<td>2015</td>
<td>614971643</td>
<td>263429</td>
<td>615235072</td>
</tr>
<tr>
<td>2016</td>
<td>534745388</td>
<td>285705</td>
<td>603214</td>
</tr>
<tr>
<td>2017</td>
<td>291008</td>
<td>287839</td>
<td>578847</td>
</tr>
<tr>
<td>2018</td>
<td>317509</td>
<td>257766</td>
<td>524948</td>
</tr>
<tr>
<td>2019</td>
<td>267182</td>
<td>256642</td>
<td>532803</td>
</tr>
<tr>
<td>2020</td>
<td>276161</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average: 169719746%

Source: Prepared by the Researcher based on the Final Accounts of the Sampled Banks

It is clear from the tables above that the sampled banks’ size of assets as measured by the total liabilities and the right of ownership varies in proportion from year to year (449275568). The highest ratio is recorded in year 2015, with a minimum of (423819) in year 2017 and an annual average of (195582989). The highest limit was recorded by the National Investment Bank (615235072) in year 2015, with a minimum of (524948) in year 2019 and an annual average of (169719746). For the purpose of evaluating the volume of assets in the sampled banks during the research period, the general average of the sampled banks was used. The general average for the Commercial Bank of Iraq is (195582989), followed by the National Investment Bank at (169719746) which is the lowest percentage.

b) Statistical Analysis of the Baath Sample Variables
   i. Statistical Analysis of the Commercial Banks

General Statistics

With the goal of identifying the general characteristics of the studied data, Table 5 presents the general statistics depicting the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables:

Table 5: General Statistics for the Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>x1</td>
<td>10</td>
<td>0.003</td>
<td>2.753</td>
<td>0.78350</td>
<td>1.047378</td>
</tr>
<tr>
<td>x2</td>
<td>10</td>
<td>0.150</td>
<td>0.950</td>
<td>0.46050</td>
<td>0.251401</td>
</tr>
<tr>
<td>Y1</td>
<td>10</td>
<td>423819</td>
<td>449275568</td>
<td>195582989</td>
<td>182135146.6</td>
</tr>
</tbody>
</table>

Based on the table above, the variable of Solvency Risk x1 recorded a minimum value of (0.003) and a maximum value of (2.753). Its arithmetic mean recorded a value of (0.78350) and standard deviation of...
(1.047378). Meanwhile, Asset Quality Risk X2 recorded a minimum value of (0.150) and maximum value of (0.950). Its arithmetic mean is (0.46050) with a standard deviation of (0.2514010). Asset Size recorded a minimum value of (423819) and maximum value of (449272568). Its arithmetic mean is (195582989) with a standard deviation of (182135146.6).

ii. Relationships between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The correlations between the independent variables and the dependent variable are henceforth discussed:

1. Correlations between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2 and y1)

The researcher developed null and alternative hypotheses for the purpose of testing the significance of the association between the variables, as follows:

The First Null Hypothesis:

\[ H_0: \] There is no significant correlation between Solvency Risk and Asset Size (x1 and y1).

Against the Alternative Hypothesis:

\[ H_1: \] There is a significant correlation between Solvency Risk and Asset Size (x1 and y1).

The Second Null Hypothesis:

\[ H_0: \] There is no significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

Against the alternative hypothesis:

\[ H_1: \] There is a significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

For the purpose of verifying and testing the above hypotheses, the researcher used the statistical program SPSS version 26 to obtain the correlation values and their statistical significance, as shown in Table 6 below:

<table>
<thead>
<tr>
<th>X1</th>
<th>X2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>Pearson Correlation: -0.797**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed): 0.006</td>
</tr>
<tr>
<td></td>
<td>N: 10</td>
</tr>
</tbody>
</table>
**. Correlation is significant at the 0.01 level (2-tailed).

The table above shows that Solvency Risk (x1) and Asset Size (y1) have a significant inverse correlation (-0.797) below the significance level of 5%. Meanwhile, Asset Quality Risk (x2) and Asset Size (y1) have a non-significant correlation (-0.229) below the significance level of 5%. From the foregoing, it appears that Asset Size has a higher correlation with Solvency Risk than with Asset Quality Risk.

2. The Effect and Significance of the Relationship between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher investigated the effect of the independent variables on the dependent variable based on the null hypotheses developed:

The First Null Hypothesis:

\[ H_0: \] Solvency Risk (x1) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

\[ H_1: \] Solvency Risk (x1) has a statistically significant effect on Asset Size (y1).

The Second Null Hypothesis:

\[ H_0: \] Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

\[ H_1: \] Asset Quality Risk has a statistically significant effect on Asset Size (y1).

The hypotheses testing was conducted using the SPSS program. The results are summarized in Table 7 below:

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>The Coefficient of Determination</th>
<th>Corrected Determination Coefficient</th>
<th>Test Value</th>
<th>Morale Test</th>
<th>Impact Parameter Value</th>
<th>Test Value</th>
<th>Moralizing the test</th>
<th>Moral of the Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>X1</td>
<td>.64 0</td>
<td>.59 0</td>
<td>13.949</td>
<td>006 0</td>
<td>- .797</td>
<td>-3.735</td>
<td>.006 0</td>
<td>The variable is inverse</td>
</tr>
<tr>
<td></td>
<td>X2</td>
<td>.05 0</td>
<td>.05 0</td>
<td>0.441</td>
<td>525 0</td>
<td>- .229</td>
<td>-0.664</td>
<td>.525 0</td>
<td>The variable is not significant</td>
</tr>
</tbody>
</table>
From the table above, the coefficient determination for Solvency Risk (x1) is 0.64 with a corrected determination coefficient of 0.59. This value indicates that the regression model used by the researcher explains 64% of the total differences. Meanwhile, the value of the test F is 13.949 moral value sig. equal to 0.006, below the significance level of 5%. This indicates the significance of the model to trace Solvency Risk (x1) on Asset Size (y1). Additionally, the effect parameter value of -0.80 is equal to -3.735, indicating an inverse moral significance, since the value of the moral sig. is below the significance level of 5%. Thus, it can be concluded that a one-unit increase in Solvency Risk (x1) leads to a decrease in Asset Size (y1) by 0.80. The moral value sig. to trace Asset Quality Risk (x2) on Asset Size (y1) is greater than the significance level of 5%. This means that Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1).

iii. Statistical Analysis for Al-Ahly Investment Bank General Statistics

The general characteristics of the studied data are presented in Table 8 below, detailing the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables:

<table>
<thead>
<tr>
<th>Table 8: General Statistics for the Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Statistics</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>X1</td>
</tr>
<tr>
<td>X2</td>
</tr>
<tr>
<td>Y1</td>
</tr>
</tbody>
</table>

It can be seen from the table above that Solvency Risk (x1) has a minimum value of (0.322) and maximum value of (2.964). Its arithmetic mean is (1.50040) with a standard deviation of (0.826813). Meanwhile, Asset Quality Risk (x2) has a minimum value of (0.037) and maximum value of (1.067). Its arithmetic mean is (0.31290) with a standard deviation of (0.339587). As for Asset Size (y1), it has minimum value of (337248) and maximum value of (615235072). Its arithmetic mean is (169719746) with a standard deviation of (273029330.5).

iv. Relationships between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The correlations between the independent variables and the dependent variable are henceforth discussed:

1. Correlations between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher developed null and alternative hypotheses for the purpose of testing the significance of the association between the variables, as follows:

The First Null Hypothesis:

H0: There is no significant correlation between Solvency Risk and Asset Size (x1 and y1).

Against The Alternative Hypothesis:

H1: There is a significant correlation between Solvency Risk and Asset Size (x1 and y1).

The Second Null Hypothesis:

H0: There is no significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

Against the Alternative Hypothesis:

H1: There is a significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

For the purpose of verifying and testing the above hypotheses, the researcher used SPSS version 26 to obtain the correlation values and their statistical significance, as shown in Table 9 below:

<table>
<thead>
<tr>
<th>Table 9: Correlations between the Independent and Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlations</strong></td>
</tr>
<tr>
<td><strong>Y1</strong></td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td><strong>X1</strong></td>
</tr>
<tr>
<td>-0.082</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>0.821</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td><strong>X2</strong></td>
</tr>
<tr>
<td>.883**</td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

The table above shows that Solvency Risk (x1) and Asset Size (y1) have a significant and inverse relationship (-0.082) with a significance level below 5%. Meanwhile, Asset Quality Risk (x2) and Asset Size (y1) has a significant direct correlation (0.883) with a level of significance below 5%.

From the foregoing, it appears that Asset Size (y1) has a higher correlation with Asset Quality Risk (x2) than with Solvency Risk (x1).
2. The Effect and Significance of the Correlation between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher investigated the effect of the independent variables on the dependent variable asset size based on the developed null hypotheses below:

The first null hypothesis:

\[ H_0: \text{Solvency Risk (x1) has no statistically significant effect on Asset Size (y1)}. \]

Against the Alternative Hypothesis:

\[ H_1: \text{Solvency Risk (x1) has a statistically significant effect on Asset Size (y1)}. \]

The second null hypothesis:

\[ H_0: \text{Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1)}. \]

Against the Alternative Hypothesis:

\[ H_1: \text{Asset Quality Risk (x2) has a statistically significant effect on Asset Size (y1)}. \]

The hypotheses testing was conducted using the SPSS program. The results are summarized in Table 10 below:

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Coefficient of Determination</th>
<th>Corrected Determination Coefficient</th>
<th>Test Value ( F )</th>
<th>Morale Test F</th>
<th>Impact Parameter Value</th>
<th>Test Value ( t )</th>
<th>Morale sig. t test</th>
<th>Moral of the Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>X1</td>
<td>0.007</td>
<td>-0.117</td>
<td>0.054</td>
<td>0.821</td>
<td>-0.082</td>
<td>-0.233</td>
<td>0.821</td>
<td>The variable is not significant</td>
</tr>
<tr>
<td></td>
<td>X2</td>
<td>0.780</td>
<td>0.752</td>
<td>28.323</td>
<td>0.001</td>
<td>0.883</td>
<td>5.322</td>
<td>0.001</td>
<td>The variable is insignificant</td>
</tr>
</tbody>
</table>

It is clear from the results that the value of the moral sig. to trace Solvency Risk (x1) on Asset Size (y1) is greater than the significance level of 5%. This means that Solvency Risk (x1) has no statistically significant effect on Asset Size (y1).

Meanwhile, the coefficient of determination for Asset Quality Risk (x2) is 0.78 with a corrected determination coefficient of 0.75. This indicates that the regression model explains 78% of the total differences. The value of the test F is 28.323 with a moral value sig. equal to 0.001, which is below the significance level of 5%. This indicates the significance of the model for tracing Asset Quality Risk (x2) on Asset Size (y1). The value of the effect parameter is 0.88, while the test value is equal to 5.322. This value indicates direct moral significance, since the value of the morality sig. is below the significance level of 5%. From this, it can be concluded that a one-unit increase in the value of Asset Quality Risk (x2) would result in an increase in Asset Size (y1) by 0.88.

VI. Conclusions and Recommendations

a) Conclusions

Through the results and analysis, a set of conclusions was reached as follows:

1. In the commercial banks, Asset Quality Risk and Asset Size have a non-significant and inverse correlation with a significance level below 5%. While in the National Bank, Solvency Risk and Asset Size have a non-significant correlation below the significance level of 5%, whilst Asset Quality Risk and Asset Size have a morale value below the significance level of 5%.

2. In the commercial banks, Asset Size has the highest correlation with Solvency Risk followed by Asset Quality Risk. While in the National Bank, Asset Size has the highest correlation with Asset Quality Risk followed by Solvency Risk.

b) Recommendations

This study proposes the following recommendations:

1. Commercial banks need to work on eliminating and reducing bad loans. They need to guarantee timely loan repayments along with benefits, which would raise their ratings and increase the size of their assets.

2. Commercial banks should work on increasing their capital and reducing potential asset risks. They need to increase their investments and reduce risks in order to make continuous profits and increases the size of their assets.

3. Commercial banks should have high quality assets to be able to enjoy high ratings and thus increase the size of their assets.

Acknowledgements

All thanks and appreciation to the organizing committee of the 4th International Conference on Business, Management, and Finance. I also wish to thank Dr. Abbas Jumaah Al-Waeli for the encouragement, and support, which helped me to complete this study in due time. I also extend my sincere thanks to the Dean of Mazaya University.
College, Prof. Dr. Imad Ibrahim Daoud, for supporting scientific research in this institution.

References Références Referencias


MEMBERSHIPS
FELLOWS/ASSOCIATES OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL
FMBRC/AMBRC MEMBERSHIPS

INTRODUCTION

FMBRC/AMBRC is the most prestigious membership of Global Journals accredited by Open Association of Research Society, U.S.A (OARS). The credentials of Fellow and Associate designations signify that the researcher has gained the knowledge of the fundamental and high-level concepts, and is a subject matter expert, proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice. The credentials are designated only to the researchers, scientists, and professionals that have been selected by a rigorous process by our Editorial Board and Management Board.

Associates of FMBRC/AMBRC are scientists and researchers from around the world are working on projects/researches that have huge potentials. Members support Global Journals’ mission to advance technology for humanity and the profession.

FMBRC
FELLOW OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL

FELLOW OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL is the most prestigious membership of Global Journals. It is an award and membership granted to individuals that the Open Association of Research Society judges to have made a ‘substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Fellows are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Fellow Members.
**To the Institution**

**Get Letter of Appreciation**
Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.

**Exclusive Network**
Get access to a closed network
A FMBRC member gets access to a closed network of Tier 1 researchers and scientists with direct communication channel through our website. Fellows can reach out to other members or researchers directly. They should also be open to reaching out by other.

**Certificate**
Certificate, LoR and Laser-Momento
Fellows receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member’s university.

**Designation**
Get honored title of membership
Fellows can use the honored title of membership. The “FMBRC” is an honored title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FMBRC or William Walldroff, M.S., FMBRC.

**Recognition on the Platform**
Better visibility and citation
All the Fellow members of FMBRC get a badge of ‘Leading Member of Global Journals’ on the Research Community that distinguishes them from others. Additionally, the profile is also partially maintained by our team for better visibility and citation. All fellows get a dedicated page on the website with their biography.
FUTURE WORK
GET DISCOUNTS ON THE FUTURE PUBLICATIONS
Fellows receive discounts on future publications with Global Journals up to 60%. Through our recommendation programs, members also receive discounts on publications made with OARS affiliated organizations.

GJ ACCOUNT
UNLIMITED FORWARD OF EMAILS
Fellows get secure and fast GJ work emails with unlimited forward of emails that they may use them as their primary email. For example, john [AT] globaljournals [DOT] org.

PREMIUM TOOLS
ACCESS TO ALL THE PREMIUM TOOLS
To take future researches to the zenith, fellows receive access to all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

CONFERENCES & EVENTS
ORGANIZE SEMINAR/CONFERENCE
Fellows are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

EARLY INVITATIONS
EARLY INVITATIONS TO ALL THE SYMPOSIUMS, SEMINARS, CONFERENCES
All fellows receive the early invitations to all the symposiums, seminars, conferences and webinars hosted by Global Journals in their subject.
PUBLISHING ARTICLES & BOOKS

EARN 60% OF SALES PROCEEDS
Fellows can publish articles (limited) without any fees. Also, they can earn up to 70% of sales proceeds from the sale of reference/review books/literature/publishing of research paper. The FMBRC member can decide its price and we can help in making the right decision.

REVIEWERS

GET A REMUNERATION OF 15% OF AUTHOR FEES
Fellow members are eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get a remuneration of 15% of author fees, taken from the author of a respective paper.

ACCESS TO EDITORIAL BOARD

BECOME A MEMBER OF THE EDITORIAL BOARD
Fellows may join as a member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. Additionally, Fellows get a chance to nominate other members for Editorial Board.

AND MUCH MORE

GET ACCESS TO SCIENTIFIC MUSEUMS AND OBSERVATORIES ACROSS THE GLOBE
All members get access to 5 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 10 GB free secure cloud access for storing research files.
ASSOCIATE OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL

ASSOCIATE OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL is the membership of Global Journals awarded to individuals that the Open Association of Research Society judges to have made a substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Associate membership can later be promoted to Fellow Membership. Associates are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Associate Members.
TO THE INSTITUTION

GET LETTER OF APPRECIATION
Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.

EXCLUSIVE NETWORK

GET ACCESS TO A CLOSED NETWORK
A AMBRC member gets access to a closed network of Tier 2 researchers and scientists with direct communication channel through our website. Associates can reach out to other members or researchers directly. They should also be open to reaching out by other.

CERTIFICATE

CERTIFICATE, LOOR AND LASER-MEMENTO
Associates receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member’s university.

DESIGNATION

GET HONORED TITLE OF MEMBERSHIP
Associates can use the honored title of membership. The “AMBRC” is an honored title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., AMBRC or William Waldroff, M.S., AMBRC.

RECOGNITION ON THE PLATFORM

BETTER VISIBILITY AND CITATION
All the Associate members of ASFRC get a badge of “Leading Member of Global Journals” on the Research Community that distinguishes them from others. Additionally, the profile is also partially maintained by our team for better visibility and citation. All associates get a dedicated page on the website with their biography.
**FUTURE WORK**

**GET DISCOUNTS ON THE FUTURE PUBLICATIONS**

Associates receive discounts on the future publications with Global Journals up to 60%. Through our recommendation programs, members also receive discounts on publications made with OARS affiliated organizations.

---

**GJ ACCOUNT**

**UNLIMITED FORWARD OF EMAILS**

Associates get secure and fast GJ work emails with 5GB forward of emails that they may use them as their primary email. For example, john [AT] globaljournals [DOT] org..

---

**PREMIUM TOOLS**

**ACCESS TO ALL THE PREMIUM TOOLS**

To take future researches to the zenith, fellows receive access to almost all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

---

**CONFERENCES & EVENTS**

**ORGANIZE SEMINAR/CONFERENCE**

Associates are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

---

**EARLY INVITATIONS**

**EARLY INVITATIONS TO ALL THE SYMPOSIUMS, SEMINARS, CONFERENCES**

All associates receive the early invitations to all the symposiums, seminars, conferences and webinars hosted by Global Journals in their subject.

---

© Copyright by Global Journals | Guidelines Handbook

VII
**Publishing Articles & Books**

**Earn 60% of sales proceeds**

Associates can publish articles (limited) without any fees. Also, they can earn up to 30-40% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.

---

**Reviewers**

**Get a remuneration of 15% of author fees**

Fellow members are eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get a remuneration of 15% of author fees, taken from the author of a respective paper.

---

**And Much More**

**Get access to scientific museums and observatories across the globe**

All members get access to 2 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 5 GB free secure cloud access for storing research files.
<table>
<thead>
<tr>
<th>ASSOCIATE</th>
<th>FELLOW</th>
<th>RESEARCH GROUP</th>
<th>BASIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4800 lifetime designation</td>
<td>$6800 lifetime designation</td>
<td>$12500.00 organizational</td>
<td>APC per article</td>
</tr>
<tr>
<td><strong>Certificate</strong>, LoR and Momento 2 discounted publishing/year</td>
<td><strong>Certificate</strong>, LoR and Momento</td>
<td><strong>Certificates</strong>, LoRs and Momentos Unlimited free publishing/year</td>
<td><strong>GJ Community Access</strong></td>
</tr>
<tr>
<td><strong>Gradation</strong> of Research</td>
<td><strong>Unlimited</strong> discounted publishing/year</td>
<td><strong>Gradation</strong> of Research</td>
<td></td>
</tr>
<tr>
<td>10 research contacts/day</td>
<td><strong>Unlimited</strong> research contacts/day</td>
<td><strong>Unlimited</strong> research contacts/day</td>
<td></td>
</tr>
<tr>
<td>1 GB Cloud Storage</td>
<td>5 GB Cloud Storage</td>
<td><strong>Unlimited</strong> Cloud Storage</td>
<td></td>
</tr>
<tr>
<td><strong>GJ Community Access</strong></td>
<td><strong>Online Presence</strong> Assistance</td>
<td><strong>Online Presence</strong> Assistance</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GJ Community Access</strong></td>
<td><strong>GJ Community Access</strong></td>
<td></td>
</tr>
</tbody>
</table>
Preferred Author Guidelines

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from https://globaljournals.org/Template.zip

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

Before and During Submission

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and agree to Global Journals' ethics and code of conduct, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author’s email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s’) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted must not have been submitted or published elsewhere and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

Policy on Plagiarism

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors’ institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

© Copyright by Global Journals | Guidelines Handbook
Authorship Policies

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

Copyright

During submission of the manuscript, the author is confirming an exclusive license agreement with Global Journals which gives Global Journals the authority to reproduce, reuse, and republish authors' research. We also believe in flexible copyright terms where copyright may remain with authors/employers/institutions as well. Contact your editor after acceptance to choose your copyright policy. You may follow this form for copyright transfers.

Appealing Decisions

Unless specified in the notification, the Editorial Board’s decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.
**Manuscript Style Instruction (Optional)**

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27” x 11””, left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word “Abstract” in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

**Structure and Format of Manuscript**

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references).

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper’s subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unreferedeed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.
Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title
The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details
The full postal address of any related author(s) must be specified.

Abstract
The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords
A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods
Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations
Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations
Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends
Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.
Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Electronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for Writing a Good Quality Management Research Paper

Techniques for writing a good quality management and business research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can’t clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.
6. **Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. **Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

8. **Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. **Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. **Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. **Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. **Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. **Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. **Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. **Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. **Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. **Never copy others’ work:** Never copy others’ work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. **Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. **Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. **Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

© Copyright by Global Journals  |  Guidelines Handbook
21. **Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. **Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. **Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

**Informal Guidelines of Research Paper Writing**

**Key points to remember:**
- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

**Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

**The introduction:** This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

**The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

**General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

**Mistakes to avoid:**
- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

• Fundamental goal.
• To-the-point depiction of the research.
• Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

• Single section and succinct.
• An outline of the job done is always written in past tense.
• Concentrate on shortening results—limit background information to a verdict or two.
• Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

• Explain the value (significance) of the study.
• Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
• Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
• Briefly explain the study's tentative purpose and how it meets the declared objectives.
Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer’s interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.
Content:
- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:
- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:
As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:
If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:
The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.
- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.
Approach:
When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.
Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules
Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.
CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

<table>
<thead>
<tr>
<th>Topics</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A-B</td>
</tr>
<tr>
<td>Abstract</td>
<td>Clear and concise with appropriate content, Correct format. 200 words or below</td>
</tr>
<tr>
<td></td>
<td>Above 200 words</td>
</tr>
<tr>
<td>Introduction</td>
<td>Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited</td>
</tr>
<tr>
<td>Methods and Procedures</td>
<td>Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads</td>
</tr>
<tr>
<td>Result</td>
<td>Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake</td>
</tr>
<tr>
<td>Discussion</td>
<td>Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited</td>
</tr>
<tr>
<td>References</td>
<td>Complete and correct format, well organized</td>
</tr>
<tr>
<td>Index</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td></td>
</tr>
<tr>
<td>Affirm · 7</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td></td>
</tr>
<tr>
<td>Bias · 6</td>
<td></td>
</tr>
<tr>
<td>Bosch · 4</td>
<td></td>
</tr>
<tr>
<td><strong>C</strong></td>
<td></td>
</tr>
<tr>
<td>Creditworthiness · 4</td>
<td></td>
</tr>
<tr>
<td><strong>D</strong></td>
<td></td>
</tr>
<tr>
<td>Delve · 5, 7</td>
<td></td>
</tr>
<tr>
<td><strong>H</strong></td>
<td></td>
</tr>
<tr>
<td>Halted · 4</td>
<td></td>
</tr>
<tr>
<td>Hindered · 1</td>
<td></td>
</tr>
<tr>
<td><strong>P</strong></td>
<td></td>
</tr>
<tr>
<td>Paradox · 5</td>
<td></td>
</tr>
<tr>
<td>Perpetuate · 6</td>
<td></td>
</tr>
<tr>
<td>Pivotal · 1, 5, 6</td>
<td></td>
</tr>
<tr>
<td>Prompt · 4</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td></td>
</tr>
<tr>
<td>Realm · 4</td>
<td></td>
</tr>
<tr>
<td>Rigorous · 6</td>
<td></td>
</tr>
<tr>
<td><strong>S</strong></td>
<td></td>
</tr>
<tr>
<td>Synchronize · 3</td>
<td></td>
</tr>
<tr>
<td><strong>T</strong></td>
<td></td>
</tr>
<tr>
<td>Thriving · 6</td>
<td></td>
</tr>
<tr>
<td><strong>V</strong></td>
<td></td>
</tr>
<tr>
<td>Vulnerabilities · 3</td>
<td></td>
</tr>
</tbody>
</table>