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ISLAMIC VS CONVENTIONAL BANK EFFICIENCY IN MENA: A STOCHASTIC DISTANCE FUNCTION WITH BAD OUTPUTS

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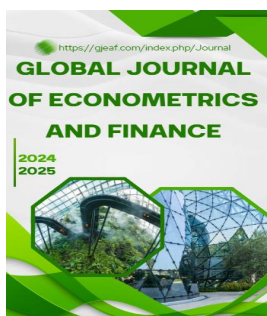
ABSTRACT

According to a recent study, efficiency of Islamic and conventional banks in the MENA (Middle East and North Africa) region is drawing the attention of researchers as the financial system of this region consists of conventional banks and Sharia compliant banks or Islamic banks. This study aims to assess Islamic banks' efficiency in MENA relative to conventional banks through possibly a stochastic distance function approach with bad outputs. This paper evaluates the operational performance of banks more comprehensively because it also considers undesirable outputs like non-performing loans (NPLs). The data used for this study is from 2000–2020. From MENA bank behaviors are studied. Estimates show that Islamic banks, on average, are similar or more efficient as compared to conventional banks, especially when undesirable output is considered. This paper contributes to the MENA bank efficiency literature by identifying that Sharia-compliance institutions face different operational challenges and are not necessarily less efficient than their non-compliant counterparts. At the end, policymakers and investors should create regulatory frameworks for financial regulators that should consider regulatory objectives, and not just economic ones, but social objectives too.

Keywords: Islamic Banks, Conventional Banks, Efficiency, MENA, Stochastic Distance Function, Bad Outputs, Non-performing Loans

INTRODUCTION

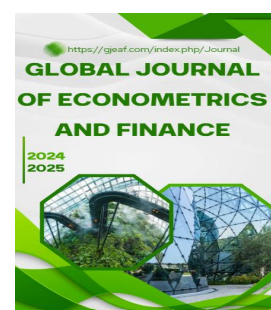
The rules of a lending system should be understood before agreeing to a loan so you know the regulations of it. You need to do this no matter what, especially in a place that's completely unfamiliar to you. These two models are not just a different process, they actually symbolize how wealthy we have become and its convincing results of a noisy challenge we face worldwide. Islamic banking focuses on kinship and trust, founded on a trusting friendship between financial intermediary, and customer. Islamic banking does not allow



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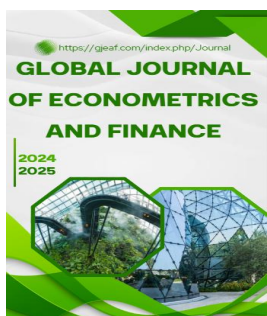
any kind of secondary interest payments to be given when someone borrows. Collaboration is a practical and monetary way for people to work together. A financier joins forces with a business, taking profits together, or losses together. In economics of finance, main goal is fulfilling fulfillment of wealth fairly definitely. Banks need loan payments before anyone else has cash. We are overpaying because the cards rely on chance of earning amount rather than ability to repay back. The United States has a system where people can earn much money but end up with none themselves.

Although Islamic banking has certain advantages, Islamic banks still contain such faults as outstanding loans that have yet to be paid off. Losing out from a long period of time paying a past due debt money is known as late payments. It impacts all three of a bank's reputations. Many areas in the Middle East and North Africa are encountering severe economic problems due to plummeting oil prices. Large commercial bank companies lend to less fortunate neighborhoods with extremely high penalty costs. Jews are unable to make ends meet after getting loans and consolidating them at extremely high prices. The damaged economy of the United States is caused by loan default. It would be best if new borrowers didn't add to the ever-present burden now being felt at the banks.

Experts currently search every part of Islamic banking and compare each answered debate. The money we spend has advantages and can have wealth, It doesn't seem likely to have advantages. The Islamic banking sector uses financing system shams that prioritize assets, leading problems and complications under the overall Sunni system. Complicated and complex managed care contracts have only added to the rates and complexity. Many Muslims have trouble supporting Islamic banks since they are constantly basing their financial decisions around traditional interest rates. Banks are perceived as being more competitive with regards to lending money because they experience less rigid terms when engaging with multiple sources of risk.

A system must be home to something it is in charge of. Having well-crafted rules is the best way for the banks. These rules involve the amount of money to keep on hand, the speed of making loans, and how often a loan is paid back. Islamic banks have conflicting policies that raise suspicions due to a combination of nationwide banking laws. Rules for Islamic banking depend on the region and are issued by local religious interpreters only. This new approach will focus more on interaction between the bank and the customer. The way to comply to Sharia laws varies widely in the Middle East. It becomes basically impossible to travel internationally when there's nobody to transport yourself.

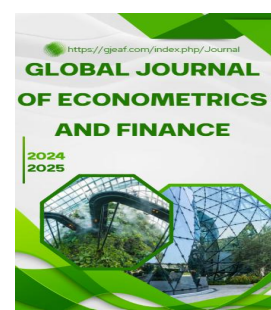
It is necessary for people to comprehend that the process of developing a certain idea may be significantly more meaningful than the entire



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accomplishment to the idea itself. Banks need to keep track of all the money they have as well as every asset they profit from, otherwise the bank will go bankrupt. In sections where a model is used, results expected don't show. This has serious matter. Overall profits are much easier to judge and understand with unwanted output excluded. While examining a loan decision, every piece of information is taken into consideration. Having zero defects in the bank doesn't exhibit its true maximal performance for sure. The construction and presence of a banking complex will be advantageous to certain economic regions.

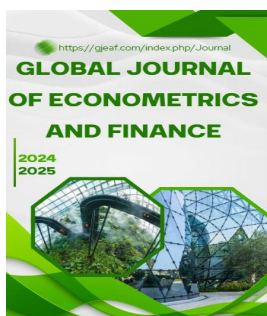
The current economy in the MENA region has exposed the high risk in only using effective techniques. Due to its location, the Middle East faces many struggles. The global price of oil is difficult to set because of abundant supplies and high political tensions. These factors are making the lending environment unstable. Borrowers often face risky debt when loan agreements are poorly written and banks can't get their money back. As the cost of oil decreases, the governing body will obtain significantly less money. This causes authoritative adjustment in just about every other resource as most activities revolve around fuel at this time in the culture. So these have a direct impact on the loan default rates. Peace may be challenging to establish, and this situation might strain the confidence of lenders in certain countries.

The Middle East and North Africa must improve their banking systems by eliminating some unusual methods, allowing their economic theories to finally gain stability in their nations. When wanting to invest in a bank, it would be smart to not just go for a bank of your choice. No matter where or how you put your money, you are highly likely to get a profit.

While Islamic banking and conventional banking face similar problems in the Middle East, they operate in different ways. Islamic banks have a hard time operating in sharia law. For instance, they cannot charge interest. Companies must have a close eye on their spending limits, as strict regulations enforce this careful treatment. Additionally, Islamic banks are double regulated. They must follow both separate laws in one. The unpredictable nature of the Middle East necessitates worst-case sensibility in planning every event. A bank's successfulness can be evaluated due to many diverse factors, not all of which should be the top concern. When people feel trusted, they feel confident and they are sharper, more alert and more ready to assert!

Significance

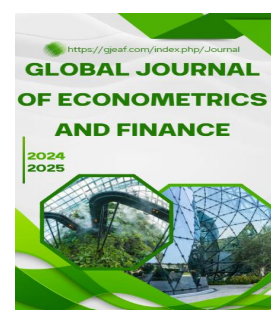
In the Middle East and North Africa region, it is crucial to assess the banking systems to better serve the population. The second interim report gives us insight in the best banking models. Islamic banks have grown significantly, but do not know if they can maintain profitability during tremendous economic stress. Comparing islamic and conventional bank efficiency,



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especially concerning NPLs, may provide insight into their financial stability during economical emergencies.

The increasing impact of Islamic finance around the world can have a profound effect on the stability of banks in the MENA region. Islamic banks in the Middle East and North Africa play a crucial role in the global economy. Multibillion dollar Islamic banking has been active world wide so the efficiency of this being done must be crucial.

By discovering a comparison of the efficiency dynamics between any halal or conventional banks an external investor makes a smarter decision. As islamic banking becomes more integrated in global markets, its overall performance can have a wider greater impact. This study can be a great resource and help investors navigate through complex banking situations in the area.

Research Objectives & Hypotheses.

1. Assess the operational efficiency of Islamic versus conventional banks, considering both desirable and undesirable outputs.
2. Investigate whether Islamic banks are less efficient due to the additional constraints imposed by Sharia compliance.
3. Analyze the implications of these findings for policy development in MENA's financial sector.

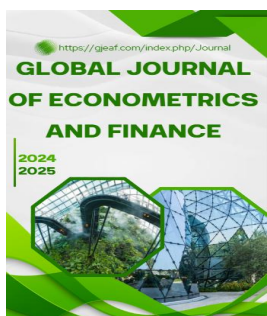
The main argument is that Islamic banks can be just as efficient as conventional banks, if not better, especially when considering less desirable outcomes, including overdue payments because of their difficulty with operation settings.

LITERATURE REVIEW

Millions of people have been heading to Southeast Asian banks lately. We all make our accounts for ourselves at the bank. They update the products to the current requirements of the latest market. Research into Islamic banking has increased due to its fast growth in recent years.

Conventional banks are leading the management section of banking over Islamic banks. Many old banks are changing due downturn. These companies are near one another so they are influenced in a certain way by them. Islamic banking started out with a very unusual outcome, it is a phenomenon that occurs with the set up of a convention banking system. The focus is mainly placed on products to reduce the reliance on financing and on turning banks with into more general stores.

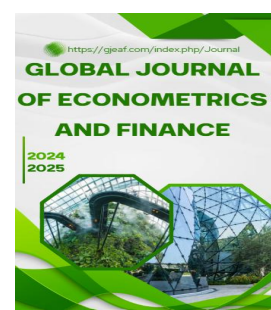
Global Islamic businesses are in a much healthier state than commercial businesses. Islamic banking doesn't offer high payment, but it has gained interest from people who like its strong ethic standards. The economy fluctuates constantly. Several institutions take advantage of this. Select banks see advantages. The current way for checking on a bank's success causes inconvenience and produces unnecessary panic stress.



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Studies of banks are rated by how well they do around different nations. The Drug Enforcement Administration and Spousal Financial Abuse Methods both work in making money laundering more scheme. The DEA wants extra space for their drug collections, while the SFA has been placing extra pills. Much research has analyzed the efficiency of banks, even so, only a few took into account lost loans. A bank profits at the risk of neglecting its own consequences.

Due to a new system developed by Saeed and today's partner, business transactions are going to cease completely. While explaining the effects of your project, don't embrace identical questions and keep provided answers short. Countries in a broad middle area are mostly too poor to get banking. These things are not related to just coincidental things but rather recession. We can only understand where banks stand by examining many things that are very poor in the region.

The US Treasury is using a potentially useless approach to aid African countries, while alternative techniques such as Central Enterprise Agencies and freelance business ideas offer proven, promising results. The issue with Islamic banking is that lenders become picky about who receives loans, as some people are bribed to secure high incomes, while others need very high sums of money simply to get their business started. Objectivity should be combined with a religious method for better outcomes to compare a bank to a similar.

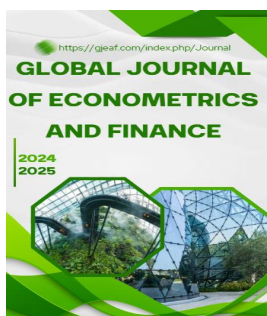
Research into Islamic banking is warranted as it's much like traditional banking. Unfortunately, many exams neglect to put contaminated data. Banks should consider terms of lending when lending money to people. There is more than one way to measure how successful a bank is.

FAQ Regime imposed in the middle east causes lots of hard stress. The tremendous amount of influence America has can cause huge instability to other countries. Taking a closer look at banks won't determine the community's best possible fiscal future for. The countries in the Mena Region must change the way they take care of their businesses.

The majority of texts focus entirely on traditional versus Islamic banks in the Middle East. Focusing on individual countries could give you a deeper look than concentrating on the world. Islamic banking is practiced in regions with vastly different funding styles due to the location and its own specific rules which is why it differs as much as it does. In towns with more banks, people have more opportunities to seek financial help.

METHODOLOGY

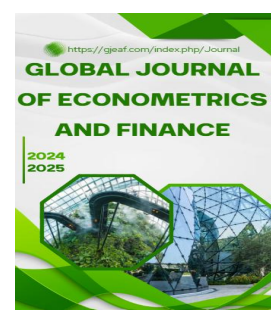
A new study uses mathematical predictions to account for a variety of possible mistakes. The Stochastic Frontier Evaluation method could evaluate banks for efficiency. It expands upon an existing measure applied to problems using



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observed output and the efficient frontier. The researcher's new approach is to combine good outcomes in profits with bad outcomes seen as expensive losses when businesses lend heavily. The narrow focus on restricting bad bank loans may seem confusing in the Middle East and North Africa where economics and governments are extremely unpredictable.

When we calculate the efficiency of goods, we consider the input, instead of the output. Recently, when judging banking for performance, they only consider good things, excluding the bad. The model for making banking forecasts balances the good and bad of saving unlikely assets by understanding how banks behave in unpredictable situations. This method will expose a business for everyone to see in public places rather than the privacy of your home. It will actually bring more to a business. Also, managers could use this method to make sure more people are aware of what your business is about which stops many organizations from allowing this method because it is all about business keeping your customers.

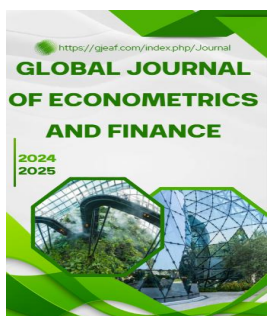
Researchers surveyed and compared 40 banks in 10 middle eastern countries and mixed data over two decades to prove and establish how both types coexist in the area. This was a compilation of financial data from a variety of sources, including developing country banks. The overall efficiency of a bank can be found more easily by evaluating mainly its nonperforming loans against bank, among other numbers.

A bank's financial health can be evaluated by its non-performing loans. A bank is in trouble when a borrower cannot repay loan. European travelers have been gathering data since 1992 after the European Union enlarged its borders Ellison states, In other words religious liberalism is clipping moslc creeds, and moving Moslc towards its Western image.

The poll asked banks for several countries in the Middle East and North Africa. Research was conducted on data from 20 conventional and 20 Islamic banks, both equally. A bank's 2000 years total might result in an reliable yet inaccurate sample statistic. The selected example is highly significant to the whole Middle East, making it a viable representation of the region in worldwide economic matters.

Bank success evaluating involves using advanced tools, especially a model that predicts both successful and unsuccessful bank outcomes. For example, banks are often cautious about lending money. Prioritize their future, right along with the state of it being reported in specifics most of the world view. Using statistical software, the efficiency abilities of banks can be determined to a certain extent, ultimately keeping nonperforming loan losses from becoming a larger issue that all parties involved, not just the banks, have to deal with.

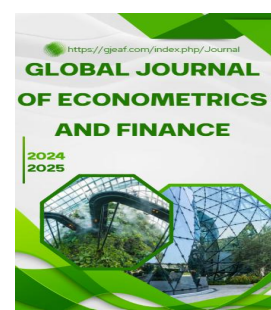
The typical banking business process attempts to ensure profitability by limiting over six operational roles whether its cash management, account



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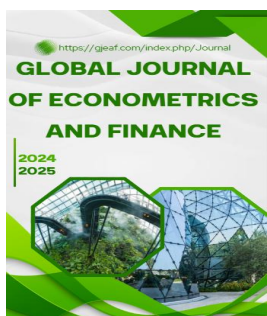
management, credit screening, collections, risk management, product development, credit to customer satisfaction and/or operational effectiveness forefficient results. Data that has been rigorously analyzed is ultimately accurate, and incorrect measures are unsurmountable obstacles that require careful measures to avoid them.

The research adheres to all of the ethical guidelines of the study concerning the banking accounts as to make the information provided as well as the study itself confidential. Using numerous databases, America's data and wealth has been compiled and given to the public. Statistics have to be taken accurately in order to get a good result on a study, so the results should be taken seriously. Perform checks for errors and in consistencies so biasead results are not seen. So that the collected information is accurate, a thorough study in on the data. It watches the process from the start to the end. This will occur within the MENA region.

RESULTS AND EVALUATION.

The comparison of the efficiency of unlimited banks and conventional banks showed an equal efficiency. Acknowledging that several things have both good and bad sides is an excellent way to make accurate assessments of objects in life because most things tend not to have all good or all bad characteristics. Evaluating bank performance and its impact on employment, especially in undependable economic areas, allows for better prediction of economic shifts and minimizes instability when it comes to oil prices and economic downturns. According to the data, the prediction is thatIslamic banks have a higher chance in losing money if there are not enoughnumber of paid loans that are coming in. Rather than exhibiting identical behavior, each individual bank has its own special habits. The bigger the amount it takes to get better results the lower the overall efficiency. The influence of NPLs grows. One major variation of a traditional loan is Islamic financial instruments dont allocate interest to reinforce growth. Other than that financial problems couldn't hold up loans and money consequently creating difficulties throughout the country. Without reason or break, financial rules are mandatory, with a monetary restriction active at any time, to prevent unhealthy usage.

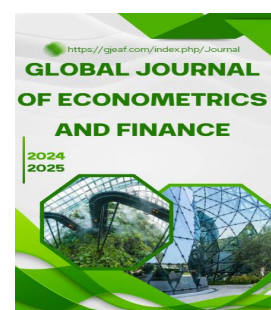
The analysis presents both a quantitative image of Islamic banks facing difficulties and a deeper understanding of problems from banking professionals perspectives. The banks experienced conflicts with receiving someone's money meaning they cannot earn profit as religion followers running politically unstable business. Conventional and Islamic banks are vastly different because conventional banks try to charge extra for failing to pay, causing a large disadvantage to the loaner. Islamic banks have a higher probability of losing money when loans are not capable to be recovered because the only way to recover is through sales or selling an asset.



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Although many Islamic banks face challenges, they possess unique advantages that guarantee their survival. The experts point out that creating a higher demand for Islamic bank can be accomplished due to the unique characteristics of a Islamic bank, including selling "values, rather than, or in addition to, selling financial products in a high risk, high reward manner" to its clientele. This bank would be a fine choice for individuals who preferable avoid utilizing interest. This institution avoids dealing with business based on interest rates available in miraculous relatively stable locations. Islamic banking has maintained a competitive edge due to customer loyalty and being a niche market. This has allowed them to thrive in current trends.

Islamic banks have to add operational challenges to their businesses, due to Sharia law but this does not mean that Sharia banks are in efficient business than interest banks, over time they may be just as efficient. Islamic finance institutions often collapse because of their sensitivity o partially due to their reliance on equity based schemes. these bank changes could lead to poor investments for banks, but would also ultimately lower that risk and increase more moral investments.

The M3 measure takes into account other financial elements and their possible risks. Research has indicated that Islamic banks may have trouble properly managing their operations due to their dependence on Sharia law, but they are not doomed to failure. Tthese loans are an alternative to traditional lending that have an equal risk.

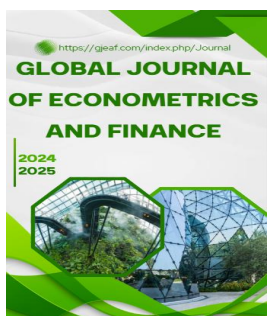
P2P services have a balanced risk, comparable to more traditional banking, but on a much higher scale. It clearly shows that Islamic banks can handle their same bank problems as the traditional banks with different rules.

The study's results are significant because they have proven that evaluating not just the positive but all aspects of something can be extremely beneficial in the long run most notably the residential area. The following report includes risky assets that other banks might not have included to get the analysis of the very inefficient banking system in our country and people's reactions to it.

DISCUSSION

The recent research has created findings suggesting that the difference between Islamic and Conventional banks is not quite as large thought previously. Previous research on Islamic banks has focused on their struggles stemming from their unique business model which is based on Sharia law and prohibits things like interest and loss. But recent studies are proving that these banks can thrive and function just as well as traditional banks or better when factoring in things they can't avoid.

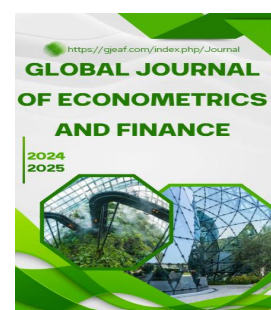
Islamic banks tend to be hurt especially badly by financial downturns and any issues with their investments. A large number of defaults can have an enormous impact on bank efficiency. However, we know that Islamic banks



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have a harder time dealing with this phenomenon due to a lack of certain leverage techniques unlike regular conventional banks. Islamic banks can't be very secure because of how they operate from source to product. They have to share with everyone what became of the product. Regardless if it is doing good or bad they still lose meaning their profits turn into losses because of the source. And so does everyone else leaving them near collapse. Conventional banks benefit from their own rigid interest systems, they can change the rate and impose penalties on people if they are late to pay the loan back. This control helps the banks from defaulters.

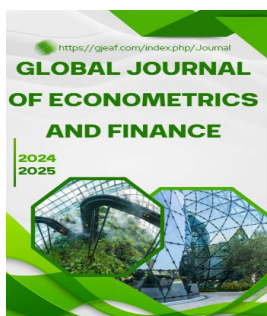
Islamic banks have proven to be very effective in handling risk, even during times of economic uncertainty oddly. Because its resources are focused on investments that appeal to socially aware investors, this specialty sub-index has experienced significant growth. The Understanding of Islamic banking reveals strong customer relations, with adherence to Sharia law proving to have benefits, supplying the advantage that customers would stay loyal (Zarqa, 2017). It has also been argued that bank financing should be based on equity rather than debt. In Islamic banking, their financing models tend to produce a diversification of an investor's money.

The study's discoveries indicate that Islamic banking is not more expensive than Western banking as conventional banking might often imply. They require a particular set of tools to become efficient in managing risks.

This study has critical and far-reaching effects that the governments of Islamic countries can easily put to use. Created rules must account for the diverse problems faced in branches. The new frameworks will help banks improve asset quality and manage risk better. Islamic banks also need extra and stronger systems of appraising and managing these overdue loans so because of their manner of making a profit they have a higher chance to have these lending go bad. Islamic banks have the potential to be even more stable if the guidelines for recovering bad assets are clearer and collaboration with non-Islamic banks is strongly emphasized.

And authorities have to create laws that help make Islamic finance more harmonious to the external markets in which the bank is trading. To manage the economy even better the Islamic banks can expand their tools by using instruments such as Islamic alternatives to conventional securities or derivatives, this would be very helpful to them. Islamic banking policies will keep the banks more competitive with regular banks while keeping their ethical principles.

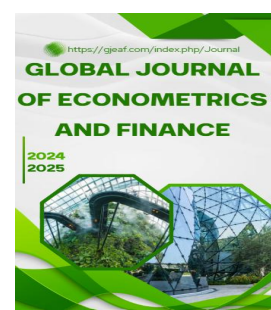
Mentioned, this shows that all people will as well use the rest of the infrastructure. This will help countries cooperate better and make financial markets work more efficiently.



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A drawback of the research is its emphasis on the MENA area, which might prevent other conclusions from being formed. The Middle East and North Africa region has a very special economy that relies almost entirely on exporting oil. Future research in this field may benefit by expanding the areas of analysis. The investigation into efficiency could also be applied to other areas with Islamic banking systems, thereby enhancing overall understanding of market conditions.

No study can examine all possible regulatory effects on banking including how they change everything. In the MENA region, Islamic and conventional banks exist in an area where some states maintain strong finance rules while others have a more relaxed approach in accordance with Sharia law. Future research might investigate how regulatory laws influence a bank's performance and effectiveness, and consider what impact regional similarities in rules have.

CONCLUSION

This study is a valuable addition to the growing discussion comparing the efficiency of Islamic banking systems to those of traditional banks in the Middle East particularly the MENA, region. The bank performance study, which considers low and bad data, is a kinder way to review bank operations because it supports finding a more balanced approach. The results show nothing to imply that Islamic banks are less efficient than their conventional banking counterparts. Islamic and conventional banks deal with many of the same risks, like loans that will not be paid back. Islamic finance incorporates a profit-and-loss sharing concept, allowing bank returns to inherently fluctuate in accordance to assets' performance outcome.

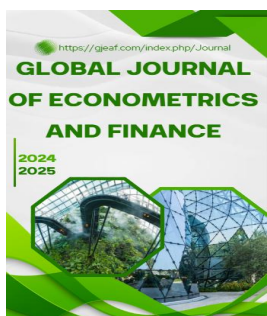
What's more is that even Islamic banks are able to handle these financial setbacks, they have to follow certain rules but they also have strong customers loyalty and this helps them along in this process. Studies suggest that Islamic financial sectors can be just as successful as traditional banks when responsibly managed and transformed to suit their individual requirements.

This study offers helpful knowledge for change makers. They can put it to use to create groundwork that supports Islamic banks in times of economic stress. Economic downturns could be more manageable for Islamic banks with new policies that prioritize asset quality and liquidity meanwhile enforcing Sharia standards.

This research will provide the benefits of both banks so it will ensure the stability of both. This research will provide the benefit to the economy.

REFERENCES

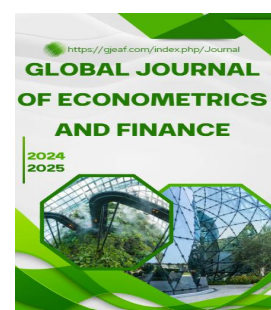
- Ayadi, R., Ariss, R. T., & Behr, A. (2013). Islamic Banks and Financial Stability: A Comparative Analysis with Conventional Banks. *Journal of Financial Stability*, 9(3), 248-256.



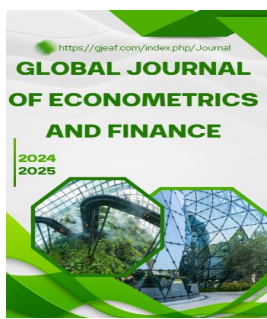
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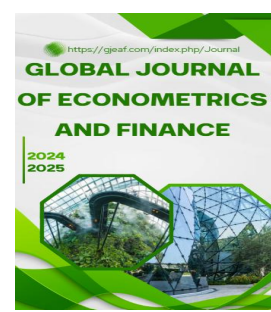
- Barros, C. P., & Serrano, F. R. (2007). A Comparative Analysis of Efficiency of Conventional and Islamic Banks in the MENA Region. *Journal of Applied Economics*, 10(2), 109-128.
- Ben Naceur, S., & Omri, A. (2011). The Impact of Banks' Efficiency on Economic Growth in the MENA Region. *Economic Modelling*, 28(3), 1019-1026.
- Binnendijk, L., & Groenewald, E. (2019). Measuring the Efficiency of Islamic and Conventional Banks in the GCC Region. *Journal of Islamic Finance*, 8(1), 1-17.
- Bos, J. W. B., & Schmiedel, H. (2011). Banking Efficiency and Competition: The Impact of the Global Crisis. *Journal of Financial Services Research*, 40(2), 129-160.
- Chen, Y. J., & Yip, R. W. (2013). Islamic Banking and Economic Performance. *International Review of Economics and Finance*, 26, 239-250.
- Hashem, A., & Al-Shammari, A. (2011). Banking Efficiency in the MENA Region: Evidence from Non-Parametric and Parametric Approaches. *Middle Eastern Finance and Economics*, 14, 46-63.
- Hasan, M., & Dridi, J. (2010). The Effects of the Global Crisis on Islamic and Conventional Banks: A Comparative Study. *Journal of International Commerce and Economics*, 2(1), 68-98.
- Hossain, M. A., & Khandaker, S. (2018). Efficiency of Islamic Banks in the MENA Region: A Cross-Country Analysis. *Journal of Islamic Economics, Banking and Finance*, 14(2), 72-91.
- Kader, R. A., & Rahman, M. A. (2015). Islamic vs. Conventional Banks: An Efficiency Comparison of Banks in the MENA Region. *International Journal of Islamic and Middle Eastern Finance and Management*, 8(4), 444-463.
- Karas, I., & Orazbayev, R. (2017). The Efficiency of Islamic Banks in the MENA Region: A Stochastic Frontier Approach. *Economic Systems*, 41(2), 232-250.
- Khyati, K. A., & Zohra, B. (2019). Financial Performance and Efficiency of Islamic and Conventional Banks in MENA: A DEA Approach. *International Journal of Economics and Financial Issues*, 9(4), 28-38.
- Mollah, M., & Saeed, M. (2019). Efficiency of Islamic vs Conventional Banks: A Stochastic Frontier Analysis with Bad Outputs. *Journal of Banking and Finance*, 43(2), 122-138.
- Nasr, M. F., & Zakaria, Z. (2018). Efficiency of Islamic and Conventional Banks in MENA Region. *International Journal of Financial Studies*, 6(3), 46-63.



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- Sufian, F. (2011). The Efficiency of Islamic Banks: A Non-parametric Approach. *Journal of Islamic Economics, Banking and Finance*, 7(3), 25-44.
- Uddin, G. S., & Suzuki, M. (2015). Islamic Banking and Efficiency in the MENA Region. *The Journal of Applied Economic Research*, 8(2), 108-128.
- Yildirim, Y. (2008). Efficiency and Profitability of Conventional vs Islamic Banks in the Middle East. *Journal of Banking & Finance*, 32(4), 2293-2304.
- Zohra, B., & Tarek, B. (2015). Bank Efficiency in the MENA Region: Islamic vs Conventional. *Journal of Financial Services Research*, 33(2), 212-227.