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Paradigm Shift in Finance: Insights from COVID 19



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# Paradigm Shift in Finance: Insights from COVID 19

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Abstract

**Purpose:** This paper analyzes the literature and findings on the COVID-19 impact on the economy and provides insights and policy formulations for future pandemic-like crises.

**Methodology:** Our paper follows secondary research analyzing existing literature on COVID-19 and its impact on the global economy. Our paper adopts a methodical literature survey approach to analyze peer-reviewed finance research articles. This approach has helped to evaluate the policy responses to the pandemic by analyzing studies on fiscal stimulus, monetary interventions, and public health measures. Further, it helps identify common trends, patterns, and gaps in knowledge.

**Findings:** The COVID-19 pandemic has driven a paradigm shift in finance, reshaping how financial institutions operate, how consumers interact with financial services, and how markets function. These changes will likely have lasting effects, driving continued innovation and transformation in the financial sector. A forward-looking fiscal and monetary policy is vital for long-term economic care. The policies include investing in healthcare infrastructure, the digital economy, and education to prepare for future crises.

Unique Contribution to Theory, Practice, and Policy: The COVID-19 pandemic undeniably created upheavals in the financial world. It forced a reevaluation of many long-held assumptions and accelerated trends already underway. Our paper demonstrates that future pandemic policies need to be more flexible and adaptable based on the economic structure and intensity of the crisis, along with international cooperation. The COVID-19 highlighted the economic vulnerabilities, transformed consumer behavior, and altered market structures. The paper's insights provide a mechanism and illustration of how to mitigate and minimize such a crisis. Traditional economic and monetary policies are ill-suited. Countries should be ready for responsive policies and adjustments to manage pandemic-like crises; hence, this paper provides the groundwork for more adaptable policies.

**Keywords:** COVID-19 Pandemic, Financial Markets, Digital Technology, Economy





# 1.0 INTRODUCTION

Global finance has experienced significant upheavals induced by the COVID-19 pandemic. Neoclassical economics has been a cornerstone of economic thought and policy for decades, particularly in global finance. The recent pandemic is not only testing the paradigm of neoclassical economics but also of neoliberalism. Both economic philosophies promote and foster the strength and choice of market forces, deregulation, opening national markets to trade and capital, and minimizing the government's role in the economy. Post-COVID-19 pandemic, there is a visible shift in global finance, with potential scarring effects on economic fundamentals, structural change, and technological innovations such as generative AI.

When a pandemic surges through countries, it upends critical structures of societies, such as health infrastructure, economic life, socioeconomic class structures, institutional arrangements, and daily life (Gormsen & Koijen, 2023). Academicians and practitioners have started discussions over new financial and economic models to address the challenges exposed by the pandemic, including market vulnerabilities, inequality, and the need for sustainable growth. Covid-19 has had an asymmetric effect on businesses and across economies, and the unprecedented changes it brought will have a long-lasting impact on the global economy (Arriola et al., 2022; Adrian et al., 2023). These concerns necessitate a broader recognition that the global economy must adopt emerging economic models to be more resilient, sustainable, and inclusive in response to the lessons learned from the COVID-19 pandemic.

#### 1.1 Statement of the Problem

The Global Risk Report 2024 states that economic factors and human resilience are slowly being chipped away, making the world vulnerable to rapid shocks from novel and resurgent sources. The analysis of reports, academic articles, and newspaper articles demonstrates that the COVID-19 pandemic has profoundly affected the global economic system. It highlights a severe need for more consistent and equal response capacity across the sectors in both developing and developed countries. Mainstream economics has propagated the cutback in state role in economic activities and increasing globalization - both make a crisis like pandemics so devastating.

Our paper explores the global financial landscape in COVID-19-induced economic models. Developed and emerging economies will have short-term disruptions and long-term implications on their fiscal and monetary policies and international cooperation. Therefore, the paper analyzes the transition and economic systems suddenly unfolding beyond their limit. It evaluates the emerging models of economies dealing with diverse economic forces. Though there is a low probability of a new pandemic and economic consequences, the new economic model and strategy underway provide unique opportunities to rebuild trust, optimism, and resilience in our institutions and societies.

#### 2.0 LITERATURE REVIEW



# 2.1 Empirical Review

Researchers document that the COVID-19 pandemic has devastated the economy and financial markets more than any previous pandemic and crisis. The massive increase in systemic risk has nearly eliminated safe havens for investors (Baker et al., 2020; Sharif et al., 2020). Governments implemented various measures, such as lockdowns, monetary policy adjustments (interest rate cuts, quantitative easing), and fiscal stimulus to mitigate the pandemic effect on the economy. Several studies examined the economic impact of the pandemic and government measures. Some studies have explored its effects on various asset classes, including international and domestic equities, commodities like gold and oil, cryptocurrencies, debt markets, and mutual funds (Umar & Gubareva, 2020; Bakas & Triantafyllou, 2020; Ji et al., 2020; Mirza et al., 2020).

The literature demonstrates that governments responded to the pandemic with a range of policy measures, such as social containment (workplace, school, and travel restrictions), monetary actions (lowering interest rates, quantitative easing, and targeted refinancing operations), and fiscal initiatives (income support and debt relief). Research findings indicate that government policies had mixed effects on financial markets. Lockdowns negatively impacted liquidity in emerging markets, while information campaigns boosted trading activity. The transmission of monetary policy to financial markets weakened during the pandemic. Government restrictions generally harmed stock markets and increased market uncertainty. Economic support measures positively affected stock markets in G7 countries (Zhang et al., 2020; Hale et al., 2020; Wei & Han, 2021; Narayan et al., 2021; Caporale et al. 2022). Arriola et al., (2022) conclude that the COVID-19 pandemic exerted significant pressure on the global economy, resulting in differential impacts on consumption, output, and trade across different countries and sectors. Gormsen and Koijen (2023) note that existing theories on market shocks, macroeconomic risks, or economic fundamentals cannot explain financial market fluctuations during the COVID-19 pandemic.

#### 2.2 Economic Policies and Their Effects

The economic effect of a pandemic depends on multiple factors, such as the intensity of the pandemic, economic structures, market interconnectedness, and government response. Countries deeply integrated into global markets may experience more significant economic disruptions. The COVID-19 pandemic produced significant market volatility and prompted central banks worldwide to implement unprecedented monetary policies. Baker et al. (2020) analyze the financial market responses to the current pandemic in this context. They find that market response is stronger to this pandemic than previous pandemics. They argue that uncertainty about economic policy and news explosion are generating more volatility and an increasingly more significant number of stock market jumps in the United States.

Based on the COVID-19 experience, the International Monetary Fund produced a special series of notes to delineate the central bank's policies to intervene promptly during a crisis. They suggest that central banks should have clearly defined conditions and trigger points while intervening in



the market. The conditions and triggers should be identified descriptively and quantitatively, using price-based or quantity-based indicators that signal distress. Transparency and clear communication during a crisis help to mitigate the unintended consequences in the short and long term. The policy's effectiveness requires the central banks to collaborate with fiscal authorities, simultaneously maintaining their independence and being held accountable for their actions. Ultimately, their goal is to mitigate the impact of crises on the financial system and support economic recovery.

#### 2.3 Banking Institutions, Economic Policies, and Risk Spillover

Banking institutions play a pivotal role in any economic crisis by alleviating the impact of the crisis on business, community, and economy. They ensure a stable flow of credit, support business operations, and foster economic growth. The banking sector's role in channeling credit to households and businesses is vital for economic growth and development. It became vital during a crisis like the COVID-19 pandemic to support businesses and the broader economy through credit facilities and providing essential financial support to households and businesses during challenging times. The sudden global pandemic outbreak starkly undermined national and international economic activities, resulting in financial disruptions and losses.

Strong banks are better equipped to absorb shocks, maintain lending, and contribute to economic recovery efforts during crises. Conversely, weakened banks can exacerbate economic downturns by restricting credit and amplifying financial instability, making it harder to fight and recover from economic crises. Shabir et al. (2023) analyze the financial health of banks across countries and find that the COVID-19 pandemic most adversely impacted the performance and stability of smaller, undercapitalized, less diversified, foreign, and government-owned banks. These findings are visible across the different regions. They note that a robust regulatory environment, high institutional quality, and advanced financial development helped mitigate the pandemic shocks. Their study stresses the importance of resilient banking regulations, strong institutions, and financial development in countries sensitive to economic and financial risks during periods of crisis.

The COVID-19 pandemic served as a stress test for the banking industry, revealing the critical role of undrawn credit lines in shaping bank performance and investor sentiment. Examining the banking stocks and credit lines offered, Acharya et al. (2021) conclude that banking institutions with higher pre-pandemic exposure to undrawn credit lines and those with larger subsequent drawdowns experienced significant negative returns. The market viewed these banks as more vulnerable during the crisis, leading to more significant declines in their stock values.

Several research have examined the pandemic's impact on bank lending, stability, and financial performance. They highlight the slowing down of bank loan disbursement, with the impact varying based on pandemic severity in different countries. COVID-19 heightened the fragility and systemic risks across countries through government interventions. Overall, the banking industry had



detrimental effects on financial performance and stability. Financial sector policy responses, such as liquidity support, borrower assistance programs, and monetary easing, have mitigated some of the negative impacts, but their efficacy varied significantly across different banks and countries (Çolak and "Oztekin 2021; Demirgüç-Kunt et al., 2021; and Duan et al. 2021)

To manage the spread of the pandemic, governments responded with health and non-health policies, such as social distancing, travel bans, and business closures, severely affecting businesses and households. Literature shows that these disruptions undermined businesses, increased their cost of functioning and income, and increased job losses for households, reducing their ability to service debt and increasing the risk of defaults. These effects spilled over to banks, increasing the non-performing loans and reducing their capital, profits, and solvency. The pandemic reduced noninterest income, lowered demand for capital, and heightened credit risks, all contributing to greater systemic fragility in the banking sector (Samitas et al., 2022; Duan et al., 2021; Foglia et al., 2022; Elnahass et al., 2021; Beck & Keil, 2021). These researchers show that the crisis generated by the pandemic ruined the banking sector considerably. Government measures included deglobalization, such as border lockdowns, to contain the spread of the virus. Such measures negatively affected trade, travel, and businesses, decreasing the demand for banking products and services. Empirical evidence shows that credit standards tightened, loan demand fell during the pandemic, with the intensity varying by country. Loan growth reduction and heightened systemic risk were more pronounced among large, highly leveraged, and undercapitalized banks. However, some studies noted an initial positive shock to the demand for U.S. bank loans at the start of the pandemic (Li et al., 2020).

Tan et al. (2022) analyze the financial market risk spillover and show that increasing interconnectedness and risk contagion produced risk reversal post-pandemic; developing countries became major risk exporters, while developed countries absorbed risks. The risk spillover diminished as the pandemic weakened. They argue that there is a shift in spillover effects with Brazil, Canada, and Russia emerging as new risk centers. The increase in China's financial influence has mostly affected developed economies. During the pandemic's peak, the U.S. was the primary source of global financial risk, while Europe absorbed some of this risk.

# 3.0 LEARNING FROM PANDEMIC INDUCED ECONOMIC POLICIES

Our paper analyzes the existing literature to examine the impact of COVID-19 on the global economy. This approach is centered on reviewing and examining studies. It provides a comprehensive understanding of how the pandemic disrupted economic systems worldwide. Through this systematic review, the paper gathers insights from various finance-related studies, offering a broad yet detailed perspective on the global economic repercussions of the COVID-19 crisis. One of the key areas of analysis in the paper is the evaluation of policy responses to the pandemic, particularly in fiscal stimulus and monetary interventions. It also identifies gaps in knowledge, particularly in areas that need further exploration, such as the long-term effects of



specific policy interventions and the interplay between public health measures and economic performance.

#### 3.1 Impact of Policies on the Economy

Our study reveals that pandemic-induced economic and monetary policies eased the financial conditions and boosted output in the short term. These policies could threaten future macrofinancial stability in the long term, encouraging excessive risk-taking and increased financial vulnerabilities, such as higher nonfinancial sector leverage and stretched asset valuations. Accommodative monetary policies worldwide, combined with sizeable fiscal support and supply-side shocks, contributed to inflation levels not seen in decades. Emerging markets and developing economies have experienced new challenges through the cross-border effects of these monetary policies, particularly capital flow volatility as a spillover effect of monetary policies pursued by the developed countries. The market turmoil in March 2020 revealed unintended consequences of regulatory reforms, leading to risk flows to less regulated segments of the financial system (**Zhao et al, 2023**).

The global economy has experienced a severe strain arising out of COVID-19 and continues to have lingering effects on broader economic activities. The interconnectedness of supply chain disruptions, labor market fluctuations, productivity, and technological shifts underscore the need for resilient and adaptable economic systems. Our paper analyzes the broader macroeconomic effects of policy actions during the COVID-19 pandemic, evaluating both their intended impacts and critical unintended consequences. The pandemic effects persist, lingering vulnerabilities of the global financial system influence global policy decisions, and the importance of maintaining prudent policy frameworks to cushion future shocks is emphasized (**The Global Risk Report 2024**). This analysis will identify immediate policy priorities at both national and international levels to protect global financial stability, particularly in the current environment of enduring inflationary pressure.

#### 3.2 Financial Flexibility and Resiliency

Financial flexibility is pivotal for an individual, company, or government to mitigate unexpected financial challenges or opportunities and effectively use financial resources in the face of dynamic financial environmental changes. Since COVID-19 was a sudden and swift shock to the economy, Fahlenbrach, Rageth, and Stulz (2021) examine the significance of financial flexibility during the pandemic. They find that highly exposed firms managed the pandemic well and had a better value. Their findings indicate that financial flexibility serves as a buffer during economic downturns, allowing entities to maintain operations, avoid distress, and capitalize on market opportunities that arise during challenging times.



The global economic and financial system demonstrated resilience during the COVID-19 pandemic despite a significant economic slump and initial market turmoil in March 2020. Adrian et al. (2023) explain that this resilience was mainly due to the swift and decisive actions taken by major central banks, which helped ease financial conditions and maintain the flow of credit to the economy. However, they argue that while these policies were crucial in preventing severe financial outcomes, they have brought potential unintended consequences to the fore. Prolonged monetary support and targeted regulations could pose risks to future financial stability when applying specific segments of the economy.

#### 3.3 Future Pandemic Risk

One of the frontier risks has become more pronounced: bioweapon, human-engineered pandemic, or synthetic pandemic, which is arising at the cutting edge of technological advancements. The risk is particularly challenging because either unknown likelihood, unknown impacts, or both characterize them. The genuine possibility of such frontier risks persists across the world. Nelson et al. (2021) note that rapid advancements in synthetic biology and biotechnology have significantly altered the landscape of biological risks and are significant contributors to potential future threats. Thus, from an economic perspective, expanding our understanding to encompass emerging threats beyond the current pandemic is crucial for effective risk mitigation. By anticipating and preparing for these potential risks, economies can better allocate resources, develop targeted policies, and implement measures to safeguard against future challenges. Using the learning from the pandemic experience enhances resilience and supports sustainable economic stability in the face of evolving threats.

#### 4.0 MANAGING ECONOMY: FUTURE PANDEMIC

#### 4.1 Policy Formulations: Dealing with Future Pandemic Economy

The COVID-19 pandemic has emphasized the need for governments to build more resilient economies capable of withstanding future pandemic shocks and mitigating their impact on public health and economic stability. Economic policies would be based on national economic development. Governments in developing nations should integrate pandemic prevention with financial risk supervision. Ensuring universal health care to all can mitigate the economic burden on households and prevent widespread financial distress. They should promote mutual risk prevention within the region by properly coordinating fiscal and monetary policies.



# **Economic Policy Instruments to Mitigate Future Pandemics**

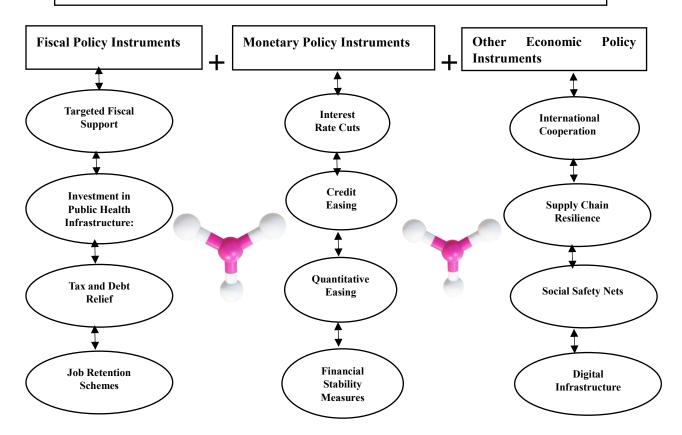


Figure 1: The illustration shows the policy instruments, governments can adopt to better prepare for and respond to future pandemics, mitigating their economic impact and promoting a faster recovery.

The figure 1 illustrate the major policy instruments for a government. However, these economic policies must be implemented swiftly and be adaptable to changing circumstances. Governments should focus support on those most affected by the pandemic to maximize the impact of policies. They should consider the long-term economic consequences of the pandemic and design policies accordingly. Lastly, they should coordinate economic policies with public health measures for maximum effectiveness.

#### 4.2 Financial Landscape and Insights: The Impact of COVID-19

The COVID-19 pandemic has brought momentum in reshaping financial markets and institutions, consumer interactions, and digital adaption, driving innovation across the global financial sector. Developing economies are adapting transformative changes to meet future challenges and requirements.



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- Reshaping and Operational Changes in Financial Institutions: COVID-19 pressed financial institutions to redefine their products and services. The financial sector is going through an upsurge in digital acceleration and adoption, investing significantly in technology, infrastructure, and newer products. They are evolving and innovating to meet the work models, organization structure, communication, and operation. Further, they are forced to reassess their risk management and contingency planning to better prepare for future crises in light of the reevaluation of regulatory frameworks.
- Shifting Consumer Behavior and Expectation: Consumers have embraced digital offerings, with increased reliance on mobile payments, online transfers, and digital investments. Even traditionally reluctant demographic groups, such as older consumers, adopted these technologies. The pandemic has boosted the fintech's growth to meet the changing needs of consumers. The success of fintech during the pandemic has intensified competition in the financial sector, pushing traditional institutions to innovate and collaborate with these new players. While digital adoption swelled, data privacy and cybersecurity concerns are prompting financial institutions to prioritize building trust with consumers through robust security measures (Adrian et al., 2023).
- Financial Market Function and their Transformation: The COVID-19 pandemic disrupted financial market function, leading to long-term structural changes. The market volatility and uncertainty highlighted the need for flexible risk management strategies and underscored the importance of market liquidity. Central banks worldwide implemented unprecedented monetary policy measures to stabilize markets and support economies. These interventions have influenced financial markets significantly, affecting asset prices, credit conditions, and investor behavior. The pandemic has brought in the significance of sustainable finance and environmental, social, and governance (ESG) investing.
- Long-Term Implications for the Financial Sector: The pandemic has driven the financial sector to become more resilient with the acceleration of digital footprints across products and services. They will continue to invest in technology to improve efficiency, enhance customer experiences, and create new digital products and services. The increased use of artificial intelligence, blockchain, and big data analytics will further transform how financial services are delivered. Institutions will likely focus on building more resilient operations, including robust cybersecurity measures, diversified supply chains, and flexible workforce arrangements. Traditional institutions must continue innovating and collaborating with fintechs to stay competitive. The rise of decentralized finance (DeFi) platforms, which leverage blockchain technology to offer financial services without intermediaries, may further disrupt the industry. The experience of the pandemic may lead to a more flexible and dynamic regulatory environment (Tan et al., 2022).

#### 4.3 Emphasis on Health Infrastructure, Education, and Strengthening Institutions



Every crisis provides an opportunity to learn and prepare for future crises if they happen. Countries must adapt economic models to predict and respond to future pandemics and recessions. They must update their macroeconomic frameworks, replacing outdated models with new ones to accurately reflect current economic realities. Protecting populations and economies will require newer fiscal and monetary measures, including tax changes, interest rate adjustments, and safety nets for households and small businesses. A resilient economy prioritizes investments in enhancing people's capabilities. This involves focusing on education and health, building and upgrading physical and digital infrastructure, and fostering innovation. By doing so, economies can better equip themselves to handle future challenges.

A pandemic brings an unprecedented health and economic crisis that requires a coordinated and multifaceted policy response. Governments must tailor strategies based on specific circumstances, including health-sector capacity, fiscal space, and financial development. Key policies should include health and social protection, fiscal and monetary policies, and financial, industrial, and trade policies. While health-related policies should be the top priority, countries must address the economic challenges with utmost care. Delayed, weak, or uncoordinated responses could have long-lasting consequences. The critical aspect of an effective response is the early rollout of social, fiscal, and financial policy measures. However, guiding the economy back to normalcy is equally vital in the broader crisis management strategy.

# 4.4 COVID-19 and the Future of International Economic Security

The COVID-19 pandemic has highlighted gaps in coordination and strategy in combating the crisis at the international level. Every country will have its own policy to deal with the pandemic. However, countries will have similar challenges and prospective policies in managing the future pandemic. The impact of a pandemic will vary across nations and economic sectors, depending on factors such as the diversification of value chains and production systems. Speed and efficiency of support measures are critical to a country's success in crisis management. Countries that can adapt quickly will benefit the most. Increased international cooperation is essential to deal with any pandemic. In the future, greater attention must be given to financing global public goods, such as health response systems and vaccine development, and addressing global challenges like climate change. Globalization's effects require not just national government action but also involvement from international organizations. By coordinating efforts across different sectors and countries, the global community can better prepare for and respond to future pandemics and other global challenges.

Conclusions: Our paper shows that the pandemic-like crisis is severe economically in the short term and has a long-term persistent negative consequence in trade and investments. The healthcare and social sectors go through acute disorder and vary from country to country. Therefore, the experience and learning from the COVID-19 pandemic become imperative to prepare for future challenges. Countries must update their economic models and macroeconomic frameworks to



respond effectively to such events. They should adopt responsive fiscal and monetary measures, investing in education, health, and infrastructure using innovative ways for the twenty-first century.

Recommendation: The pandemic has shown the economic costs among nations, increased inequalities globally, and exposed the differences in international cooperation. Based on the findings, we recommend that future pandemic policies be more flexible, adaptable, and responsive to the unique countries' economic systems and development. Traditional financial and monetary policies, which often rely on fixed frameworks, are insufficient for addressing the unprecedented and rapidly evolving challenges of pandemics. The paper advocates for proactive policy planning, which prepares countries for swift adjustments, minimizing economic vulnerabilities and mitigating the long-term impacts of crises like COVID-19. At last, increased global cooperation is essential, especially in financing public goods and addressing international challenges like climate change. Further, countries must tailor their strategies based on specific circumstances, including health-sector capacity, fiscal space, and financial development.

#### **Reference:**

- Acharya, V., Engle, R., and Sascha, S. (2021). Why did bank stocks crash during COVID-19? *NBER Working Paper*.2021, 28559.
- Adrian, T., Natalucci, F.M., and Qureshi, M.S. (2023). Macro-Financial Stability in the COVID-19 Crisis: Some Reflections, *Annual Review of Financial Economics*, 2023, 15:29–54.
- Arriola, C., Kowalski, P., and Tongeren, F. (2022). Understanding Structural Effects of COVID-19 on the Global Economy: First Steps, OECD Publishing, 2022.
- Baker, S.R., Bloom, N., Davis, S.J., and Sammon, M.C. (2021). What triggers stock market jumps? *NBER Working Paper*. 28687.
- Bakas, D. and Triantafyllou, A. (2020). Commodity price volatility and the economic uncertainty of pandemics, *Economics Letters* 193 (2020), 109283.
- Baker, S., Bloom, N., Davis, S.J., Kost, K., Sammon, M., and Viratyosin, T. (2020). The unprecedented stock market reaction to COVID-19, *The Review of Asset Pricing Studies*, Vol 10, 2020 Pages 742–758, <a href="https://doi.org/10.1093/rapstu/raaa008">https://doi.org/10.1093/rapstu/raaa008</a>.
- Beck, T. and Keil, J. (2021). Have banks caught corona? Effects of COVID on lending in the U.S. Journal of Corporate Finance, Vol 72, 2022, <a href="https://doi.org/10.1016/j.jcorpfin.2022.102160">https://doi.org/10.1016/j.jcorpfin.2022.102160</a>
- Caporale, G.M., Gil-Alana, L., and Arrese Lasaosa, I. (2022). The impact of the Covid-19 pandemic on persistence in the European stock markets, *Heliyon* 8 (11) (2022).
- Çolak, G., "Oztekin, "O. (2021). The impact of COVID-19 pandemic on bank lending around the world. Journal of Banking and Finance. <a href="https://doi.org/10.1016/j.jbankfin.2021.106207">https://doi.org/10.1016/j.jbankfin.2021.106207</a>
- Demirgüç-Kunt, A., Pedraza, A., and Ruiz-Ortega, C. (2021). Banking sector performance during the COVID-19 crisis. Journal of Banking and Finance. Volume 133, December 2021, 106305 <a href="https://doi.org/10.1016/j.jbankfin.2021.106305">https://doi.org/10.1016/j.jbankfin.2021.106305</a>



- Duan, Y., El Ghoul, S., Guedhami, O., Li, H., and Li, X. (2021). Bank systemic risk around COVID-19: A cross-country analysis. Journal of Banking and Finance. Volume 133, 106299 https://doi.org/10.1016/j.jbankfin.2021.106299
- Elnahass, M., Trinh, V.Q., and Li, T. (2021). Global banking stability in the shadow of Covid-19 outbreak. *Journal of International Financial Markets, Institutions and Money*, 72. https://doi.org/10.1016/j.intfin.2021.101322
- Fahlenbrach, R., Rageth, K., and Stulz, R.M. (2021). How valuable is financial flexibility when revenue stops? Evidence from the COVID-19 crisis. *Review of Financial Studies* 34:5474–521.
- Foglia, M., Addi, A., and Angelini, E. (2022). The Eurozone banking sector in the time of COVID-19: Measuring volatility connectedness. *Global Finance Journal*, 51.
- Gormsen, N. and Koijen, R. S. (2023) Financial Markets and the COVID-19 Pandemic, Annual Review of Financial Economics Volume 15, 2023. <a href="https://doi.org/10.1146/annurev-financial-110821-020444">https://doi.org/10.1146/annurev-financial-110821-020444</a>
- Hale, T., Petherick, A., Phillips, T., and Webster, S. (2020). Variation in Government Responses to COVID-19, vol. 31, *Blavatnik School of Government Working Paper*, 2020, p. 11, 2020.
- International Monetary Fund 2022. Central Bank Support to Financial Markets in the Coronavirus Pandemic, *Special Series on COVID-19*, 2022.
- Ji, Q., Zhang, D., and Zhao, Y. (2020). Searching for safe-haven assets during the COVID-19 pandemic, *International Review of Financial Analysis* 71 (2020), 101526.
- Mirza, N., Naqvi, B., Rahat, B., and Rizvi, S.K.A. (2020) Price reaction, volatility timing and funds' performance during Covid-19, Finance Research Letters 36 (2020), 101657.
- Narayan, P.K., Phan, D.H.B., and Liu, G. (2021). COVID-19 lockdowns, stimulus packages, travel bans, and stock returns, *Finance Research Letters* 38 (2021), 101732.
- Nelson, C., Adiguzel, I., Florin, M.V., Lentzos, F., Knutsson, R., Rhodes, C., et al. (2021). "Foresight in synthetic biology and biotechnology threats," in *Emerging threats of synthetic biology and biotechnology: addressing security and resilience issues*. Editor B. D. Trump (Dordrecht (DE): Springer).
- Samitas, A., Kampouris, E., Polyzos, S. (2022). Covid-19 pandemic and spillover effects in stock markets: A financial network approach. *International Review of Financial Analysis*, Vol 80, 2022 https://doi.org/10.1016/J.IRFA.2021.102005.
- Shabir, M., Jiang, P., Wang, W., and Işık, O. (2023). COVID-19 pandemic impact on banking sector: A cross-country analysis, *Journal of Multinational Financial Management*. 2023 Mar; 67: 100784.
- Sharif, A., Aloui, C., and Yarovaya, L. (2020). COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: fresh evidence from the wavelet-based approach, *International Review of Financial Analysis* 70 (2020), 101496. https://doi.org/10.1016/j.irfa.2020.101496.



- Tan, X., Ma, S., Wang, X., Feng, C., and Xiang L. (2022) The impact of the COVID-19 pandemic on the global dynamic spillover of financial market risk. *Front. Public Health* 10:963620. doi: 10.3389/fpubh.2022.963620.
- The Global Risk Report 2024, Insight Report, World Economic Forum, 2024.
- Umar, Z. and Gubareva, M. (2020). A time–frequency analysis of the impact of the Covid-19 induced panic on the volatility of currency and cryptocurrency markets, *Journal of Behavioral and Experimental Finance* 28 (2020), 100404.
- Wei, X. and Han, L. (2021). The impact of COVID-19 pandemic on transmission of monetary policy to financial markets, *International Review of Financial Analysis* 74 (2021), 101705.
- Zhang, D., Hu, M., and Ji, Q. (2020). Financial markets under the global pandemic of COVID-19, *Finance Research Letters* 36 (2020), 101528.
- Zhao, L., Rasoulinezhad, E., Sarker, T., and Taghizadeh-Hesary, F. (2023). Effects of COVID-19 on Global Financial Markets: Evidence from Qualitative Research for Developed and Developing Economies *The European Journal of Development Research* (2023) 35:148–166 <a href="https://doi.org/10.1057/s41287-021-00494-x">https://doi.org/10.1057/s41287-021-00494-x</a>



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