

Resilience and Recovery: Comparing Private and Public Mutual Funds Post-COVID

Neetu Chauhan¹, Manu Chauhan²

¹Department of Management, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand.

²Department of Applied Psychology, Sri Aurobindo College (Evening), University of Delhi.

Abstract

COVID-19 pandemic, a global crisis that profoundly impacted human health, economies, and social structures worldwide. This study investigates the comparative resilience and recovery of private and public mutual funds following the COVID-19 pandemic. Analysing pre-pandemic performance, the impact of market volatility, and post-COVID recovery patterns, we explore how these two fund types responded to unprecedented economic challenges. The research examines key performance indicators, risk management strategies, and adaptability to market changes in both fund categories. By assessing the influence of economic recovery, government policies, and shifting consumer behaviour, we identify factors crucial to post-pandemic fund performance. Our analysis reveals distinct recovery trajectories and highlights the relative strengths of private and public mutual funds in navigating economic turbulence. The paper concludes with insights into emerging trends in fund management and offers guidance for investors in the evolving financial landscape. This paper also highlights key takeaways that have particular relevance for the Indian mutual fund market

Keywords: Covid-19, Public-Private Mutual fund, Recovery.

Introduction

Mutual funds have long been a cornerstone of investment portfolios, offering investors a professionally managed and diversified approach to participating in financial markets. These investment vehicles pool money from multiple investors to purchase a variety of securities, including stocks, bonds, and other assets [1]. By providing access to diversified portfolios, mutual funds have democratized investing, allowing individuals to benefit from professional management and potentially reduce their overall investment risk.

The global financial landscape, however, experienced an unprecedented shock with the onset of the COVID-19 pandemic in early 2020. As the virus spread rapidly across the globe, governments implemented stringent lockdown measures, bringing economic activities to a

near standstill [2]. This sudden disruption sent shockwaves through financial markets worldwide, leading to one of the most volatile periods in recent history.

The impact of COVID-19 on financial markets was both swift and severe. In March 2020, major stock indices experienced dramatic declines, with the S&P 500 falling by 34% from its February peak in just 33 days [3]. This sharp downturn was accompanied by extreme volatility, as investors grappled with uncertainty surrounding the pandemic's duration and economic consequences.

Mutual funds, as significant players in the financial markets, were not immune to these turbulent conditions. Many funds experienced substantial outflows as investors sought safer havens, while others grappled with the challenge of maintaining liquidity in a rapidly changing market environment [4]. The crisis also highlighted the differences in performance and risk management strategies between various types of mutual funds, particularly when comparing private and public offerings.

As the world gradually adapted to the new reality imposed by the pandemic, financial markets began to recover, albeit unevenly across different sectors and regions. This recovery phase brought new challenges and opportunities for mutual funds, forcing managers to reassess their strategies and adapt to the evolving economic landscape [5].

The post-COVID-19 era has ushered in a period of reflection and reevaluation within the mutual fund industry. Investors and fund managers alike are now scrutinizing the performance of different fund types, seeking to understand which strategies proved most resilient during the crisis and which are best positioned for the future.

This article aims to explore the performance of private versus public mutual funds in the post-COVID-19 era, examining how these two categories of funds navigated the crisis and adapted to the changing financial landscape. By analyzing their respective strengths, weaknesses, and adaptability, we seek to provide insights into the evolving role of mutual funds in a world transformed by the pandemic.

Overview of Private and Public Mutual Funds

Mutual funds, broadly speaking, are investment vehicles that pool money from multiple investors to purchase a diversified portfolio of securities. However, the distinction between private and public mutual funds lies in their structure, accessibility, and regulatory requirements.

A-: Public Mutual Funds: Public mutual funds, also known as open-end funds, are the most common type of mutual funds available to retail investors. These funds are:

1. Publicly traded and widely accessible to individual investors.
2. Priced daily based on their Net Asset Value (NAV).
3. Required to maintain high liquidity, allowing investors to buy or redeem shares at any time [1].

4. Subject to strict regulatory oversight by bodies such as the Securities and Exchange Commission (SEC) in the United States.

Public mutual funds offer transparency through regularly published holdings and performance data. They typically have lower minimum investment requirements, making them more accessible to a broader range of investors [2].

B-: Private Mutual Funds

Private mutual funds, often referred to as hedge funds or closed-end funds, operate under a different set of rules:

1. They are not publicly traded and are typically only available to accredited or institutional investors.
2. Pricing may occur less frequently, often monthly or quarterly.
3. They may have lock-up periods, restricting when investors can withdraw their money.
4. They often employ more complex investment strategies and may use leverage or derivatives [3].

Private funds generally require higher minimum investments and may charge performance fees in addition to management fees. They offer less transparency compared to their public counterparts but potentially higher returns and more sophisticated risk management strategies [4].

Regulatory Environments: The regulatory landscape for mutual funds varies significantly between public and private offerings:

Public mutual funds operate under stringent regulatory frameworks:

1. In the U.S., they are governed by the Investment Company Act of 1940, which mandates strict disclosure and operational requirements [5].
2. They must register with regulatory bodies (e.g., SEC in the U.S.) and provide detailed prospectuses to investors.
3. There are limits on the use of leverage and derivatives, and restrictions on the types of securities they can hold.
4. Regular audits and reporting requirements ensure transparency and protect investor interests.

Private funds operate under more relaxed regulatory conditions:

1. In the U.S., they often rely on exemptions from the Investment Company Act, such as those provided by Sections 3(c)(1) or 3(c)(7) [6].
2. They have more flexibility in their investment strategies and can use higher levels of leverage.
3. Disclosure requirements are less stringent, although recent regulations have increased reporting obligations for larger funds.

4. They are typically restricted to accredited investors or qualified purchasers, assuming these investors have the sophistication to understand the associated risks.

The regulatory environment continues to evolve, with authorities seeking to balance investor protection with the need for market innovation. The Dodd-Frank Act in the U.S. and AIFMD in Europe have introduced additional oversight for private funds, narrowing the regulatory gap between private and public offerings to some extent [7].

Understanding these fundamental differences and regulatory landscapes is crucial for analyzing the performance and risk profiles of private versus public mutual funds, especially in the context of major market disruptions like the COVID-19 pandemic.

Pre-COVID-19 Performance Comparison

The performance of private and public mutual funds in the years leading up to the COVID-19 pandemic provides crucial context for understanding their behavior during and after the crisis. Historically, both types of funds have shown distinct patterns in their performance and risk profiles.

Public mutual funds, particularly those tracking broad market indices, experienced a prolonged bull market in the decade preceding the pandemic. From 2009 to 2019, the S&P 500 index, a common benchmark for many public equity mutual funds, delivered an annualized return of approximately 13.6% [1]. This period was characterized by:

1. Low interest rates, which drove investors towards equity markets in search of higher returns.
2. Steady economic growth in many developed countries.
3. Technological advancements and the rise of tech giants, which significantly contributed to market gains.

However, actively managed public mutual funds often struggled to outperform their passive counterparts consistently. A study by S&P Dow Jones Indices found that over the 10-year period ending December 2019, 89% of actively managed U.S. equity funds underperformed their benchmarks [2].

Private mutual funds, including hedge funds, showed a more mixed performance during this period:

1. Some strategies, particularly those focused on tech and growth stocks, delivered strong returns.
2. However, the overall hedge fund industry underperformed the S&P 500 in most years from 2009 to 2019 [3].
3. Private equity funds generally outperformed public markets, with a median internal rate of return (IRR) of 14.9% over the 10-year period ending in 2019 [4].

The underperformance of many hedge funds during this period led to increased scrutiny of their fee structures and value proposition.

Comparison on Key parameters reveals some general trends in the pre-COVID era:

1. Public index funds typically showed lower fees, lower volatility, and returns closely tracking their benchmarks.
2. Actively managed public funds often had higher fees and struggled to consistently outperform their benchmarks after accounting for these fees [5].
3. Private funds, particularly hedge funds, showed higher volatility and fees but also the potential for higher returns and lower correlation with public markets [6].
4. Private equity funds often displayed higher returns but with less liquidity and longer investment horizons.

As we move into the analysis of the COVID-19 impact, understanding these pre-pandemic trends provides a crucial baseline for assessing how different types of funds navigated the crisis and adapted in its aftermath.

Impact of COVID-19 on Mutual Funds

The COVID-19 pandemic triggered unprecedented volatility in global financial markets, significantly impacting both private and public mutual funds. This section examines the immediate effects of the pandemic on fund performance and investor behavior.

The onset of the COVID-19 pandemic in early 2020 led to a sharp market downturn:

1. Between February 19 and March 23, 2020, the S&P 500 index plummeted by approximately 34% [1].
2. The CBOE Volatility Index (VIX) reached an all-time high of 82.69 on March 16, 2020, indicating extreme market fear [2].
3. Bond markets experienced significant stress, with even U.S. Treasuries seeing unusual volatility [3].

Public mutual funds faced several challenges during this period:

1. Equity funds experienced steep declines, with some sectors (e.g., travel, energy) hit particularly hard.
2. Many bond funds, typically considered safer, also saw significant losses due to liquidity issues in fixed-income markets [4].
3. Some money market funds required support from the Federal Reserve to maintain their \$1 per share value [5].

Performance varied widely based on fund strategy and asset allocation:

- Growth-oriented funds, particularly those with significant technology exposure, generally fared better than value funds.
- Sector-specific funds saw divergent performance, with healthcare and technology outperforming, while energy and real estate underperformed [6].

Private funds, including hedge funds and private equity, showed mixed results:

1. Many hedge funds outperformed the broader market during the initial downturn, with the HFRI Fund Weighted Composite Index falling 9.4% in Q1 2020, compared to the S&P 500's 19.6% drop [7].
2. Certain strategies, such as macro and managed futures, performed particularly well during the heightened volatility.
3. Private equity funds faced challenges in valuing portfolio companies and executing exits, leading to a slowdown in activity [8].

Post-COVID-19 Performance Analysis

The period following the initial COVID-19 shock has been characterized by a remarkable market recovery, albeit with significant disparities across sectors and fund types. This section analyzes the recovery patterns and sector-specific performance of both private and public mutual funds in the post-COVID era.

Public Mutual Funds in the post-COVID era

1. **Rapid Rebound:** Despite the severe downturn in March 2020, many public equity mutual funds experienced a swift recovery. The S&P 500 index, a benchmark for many U.S. equity funds, reached new all-time highs by August 2020.
2. **Divergence in Fund Types:** Growth-oriented funds, particularly those with significant technology exposure, generally outperformed value funds in the initial recovery phase. Large-cap funds tended to recover faster than small-cap funds, reflecting investor preference for established companies during uncertain times.
3. **Fixed Income Funds:** After initial volatility, bond funds stabilized, benefiting from low interest rates and Federal Reserve support. High-yield bond funds saw strong performance as risk appetite returned.

Private Mutual Funds in the post-COVID era

1. **Hedge Funds:** Many hedge funds demonstrated resilience, with the HFRI Fund Weighted Composite Index posting a 11.6% gain in 2020, outperforming the S&P 500's 18.4% return when accounting for lower volatility.
2. **Private Equity:** Initial challenges in deal-making and exits gave way to increased activity in the latter half of 2020 and into 2021. Dry powder (un-invested capital) reached record levels, positioning funds for potential opportunities.
3. **Venture Capital:** VC funds focused on technology and healthcare saw strong performance, with increased interest in digital transformation and biotech investments.

Factors Influencing Post-COVID-19 Performance

The performance of mutual funds in the post-COVID-19 era has been shaped by a complex interplay of economic, policy, and social factors. This section examines the key drivers influencing fund performance across both private and public sectors.

A: The pace and nature of economic recovery have significantly impacted fund performance:

1. The uneven nature of the recovery has led to divergent performance across sectors and asset classes .Technology and e-commerce-focused funds benefited from accelerated digital adoption. Funds exposed to travel, hospitality, and traditional retail faced prolonged challenges.
2. The rapid job loss and subsequent recovery influenced consumer spending patterns and corporate earnings .Funds with exposure to gig economy and remote work beneficiaries often outperformed.
3. Global supply chain issues affected various industries, impacting fund performance differently .Funds focused on semiconductor manufacturers and logistics companies often saw positive results.Those heavily invested in automotive and certain consumer goods faced headwinds.
4. As economies reopened, inflation fears began to influence market sentiment and fund flows. Bond funds, particularly those with longer durations, faced challenges as interest rates began to rise. Value stocks and funds with exposure to commodities saw renewed interest.

B: Government interventions played a crucial role in shaping the economic landscape and, by extension, fund performance:

1. Central bank actions, including near-zero interest rates and quantitative easing, supported asset prices broadly. This environment particularly benefited growth-oriented equity funds and high-yield bond funds.
2. Massive government spending programs in many countries boosted consumer spending and corporate revenue. Funds with exposure to infrastructure and green energy saw increased interest due to targeted stimulus measures.
3. Evolving regulations, particularly around ESG disclosures, influenced fund strategies and investor preference. Funds with strong ESG credentials often saw increased inflows and competitive performance.
4. Government support for vaccine development and healthcare infrastructure benefited related sector funds. Biotech and healthcare innovation funds often saw strong performance.

C: The pandemic catalysed significant shifts in consumer behaviour, which in turn affected fund performance:

1. Accelerated adoption of e-commerce, digital payments, and cloud services boosted related tech-focused funds [9].Funds with significant exposure to traditional brick-and-mortar retail often underperformed.
2. Increased attention to personal health benefited funds focused on fitness, nutrition, and mental health technologies [10].
3. The shift to remote work and online education supported funds invested in videoconferencing, cybersecurity, and e-learning platforms.

4. Changed housing preferences (e.g., suburban migration) influenced real estate funds differently based on their property type exposure.

D: Rapid technological progress continued to shape market dynamics and fund performance:

1. Funds leveraging AI for stock selection or focused on AI-centric companies often saw strong performance.
2. The on-going 5G deployment benefited funds with exposure to telecom infrastructure and related technologies.
3. The rise of digital banking, cryptocurrencies, and blockchain technology influenced performance of financial sector funds and specialized fintech funds [16].

E: Global political dynamics also played a role in shaping fund performance:

1. Ongoing tensions affected funds with significant exposure to Chinese stocks or US companies reliant on Chinese supply chains.
2. The finalization of Brexit terms influenced the performance of European-focused funds and those with UK exposure.

Understanding these multifaceted factors is crucial for both fund managers and investors in navigating the post-COVID-19 investment landscape. The interplay of these elements has created a complex environment where adaptability, sector selection, and risk management have become increasingly important for fund performance.

Comparative Analysis: Private vs Public Mutual Funds

The COVID-19 pandemic and its aftermath have highlighted both similarities and differences in how private and public mutual funds navigate market turbulence. This section provides a comparative analysis of these two fund types, focusing on their A) risk management strategies, B) adaptability to market changes, and C) performance characteristics in the post-COVID era.

A: Risk Management Strategies

Public Mutual Funds

1. Public funds typically maintain broader diversification across sectors and assets, which helped mitigate some COVID-related risks.
2. Many public funds increased cash holdings during the initial pandemic shock to manage redemptions and volatility.
3. Subject to stricter regulations, public funds had less flexibility in employing complex risk management tools.

Private Mutual Funds

1. Private funds, especially hedge funds, often employed more sophisticated hedging techniques, which proved beneficial during market volatility.

2. Many private funds used leverage more extensively, amplifying both gains and losses during market swings.
3. Private equity funds' exposure to illiquid assets presented valuation challenges but also insulated them from short-term market fluctuations.

B: Adaptability to Market Changes

Public Mutual Funds

1. Public funds, especially ETFs, demonstrated the ability to quickly rebalance portfolios in response to market shifts.
2. Many public funds launched or repositioned as thematic funds to capitalize on pandemic-driven trends (e.g., work-from-home, e-commerce).
3. Regular disclosure requirements allowed investors to see how public funds were adapting, potentially influencing fund flows.

Private Mutual Funds

1. Private funds often had more flexible investment mandates, allowing quicker pivots to new opportunities.
2. Many private equity and hedge funds capitalized on market dislocations to acquire distressed assets or enter new sectors.
3. Private equity funds' longer investment horizons allowed them to weather short-term volatility and focus on long-term value creation.

C: Returns and Volatility

Public Mutual Funds

1. While index funds closely tracked market performance, actively managed public funds showed wide performance dispersion.
2. Technology and healthcare-focused public funds generally outperformed, while energy and real estate funds struggled.
3. Public equity funds experienced high volatility, particularly during the initial pandemic shock and subsequent recovery.

Private Mutual Funds

1. Many hedge funds outperformed during the downturn and recovery, with the HFRI Fund Weighted Composite Index returning 11.6% in 2020.
2. Despite initial challenges, private equity funds showed resilience, with median net IRRs of 10.2% for 2020 vintage funds.
3. Private funds' returns often appeared less volatile due to less frequent valuations, especially for illiquid assets.

This comparative analysis highlights that while both public and private mutual funds faced challenges during the COVID-19 pandemic, they often employed different strategies to navigate the crisis. The distinct characteristics of each fund type influenced their ability to

manage risk, adapt to market changes, and generate returns in the volatile post-COVID environment.

As the world emerges from the COVID-19 pandemic, the mutual fund industry is poised to undergo further transformation, driven by evolving investor preferences, technological advancements, and regulatory shifts. This section highlights the key trends and potential changes that may shape the future performance and dynamics of private and public mutual funds.

1. Continued Growth of ESG and Sustainable Investing
2. Increased Thematic and Sector Specialization
3. Advancements in Alternative Data and AI-Driven Strategies
4. Greater Focus on Risk Management and Resilience
5. Democratization of Alternative Investments
6. Regulatory Landscape Shifts
7. Evolving ESG Disclosure Requirements
8. Potential Changes to Accredited Investor Standards
9. Heightened Focus on Systemic Risk Monitoring
10. Evolving Tax Policies

As the mutual fund industry navigates this evolving landscape, fund managers in both the public and private spheres will need to demonstrate agility, innovation, and a keen understanding of investor preferences to thrive in the post-COVID-19 era.

Takeaways for the Indian Mutual Fund Market

While the analysis in this article has primarily focused on the global mutual fund landscape, there are several key takeaways that have particular relevance for the Indian mutual fund market:

1. **Diversification and Adaptability are Crucial-** The COVID-19 pandemic has underscored the importance of diversification and adaptability for mutual funds, regardless of whether they are publicly traded or privately managed. Indian fund managers should look to enhance the diversification of their portfolios, both across sectors and asset classes, to better withstand future market shocks.
2. **Increased Focus on Risk Management-** The heightened volatility experienced during the pandemic has emphasized the need for robust risk management frameworks. Indian mutual funds, both public and private, should strengthen their liquidity management, stress testing, and hedging strategies to build resilience.
3. **Emergence of Specialized and Thematic Fund-** The growing investor appetite for specialized and thematic funds, as observed globally, is also likely to be reflected in the Indian market. Fund providers should consider expanding their product offerings to cater to investor demand for funds focused on disruptive technologies, healthcare, sustainability, and other emerging themes.
4. **Regulatory Evolution and ESG Integration-** As in other markets, Indian regulators are expected to introduce more comprehensive ESG disclosure requirements for mutual

funds. This will necessitate Indian fund managers to enhance their ESG integration and reporting capabilities to meet evolving investor preferences and regulatory standards.

5. **Potential Shifts in the Private Fund Landscape-** While the private fund industry in India is relatively smaller compared to public mutual funds, the country may see increased interest in alternative investment strategies, such as hedge funds and private equity, as investors seek diversification and specialized investment opportunities. Regulators may also revisit the definition of accredited investors, potentially expanding access to private funds.

By understanding these global trends and their relevance to the Indian market, Indian mutual fund providers can position themselves to navigate the evolving landscape and deliver competitive performance to investors in the post-COVID-19 era.

Conclusion

The COVID-19 pandemic has served as a true test for the mutual fund industry, exposing both the resilience and vulnerabilities of public and private fund structures. This analysis has highlighted the distinct paths taken by these two fund categories in navigating the crisis and adapting to the evolving post-pandemic landscape.

Public mutual funds, particularly index-tracking funds, demonstrated the value of diversification and the ability to rapidly rebalance portfolios. However, the performance dispersion among actively managed public funds underscored the importance of selective stock-picking and thematic positioning in volatile markets.

In contrast, private mutual funds, such as hedge funds and private equity, leveraged their flexible mandates and sophisticated risk management strategies to navigate the downturn and capitalize on market dislocations. Their longer investment horizons and focus on illiquid assets also provided a degree of insulation from short-term volatility.

Looking ahead, the mutual fund industry is poised for further transformation, driven by evolving investor preferences, technological advancements, and regulatory changes. Trends such as the growth of ESG and thematic investing, the increased use of alternative data and AI, and the potential democratization of alternative investments will shape the competitive landscape.

As fund managers in both the public and private spheres adapt to this dynamic environment, their ability to demonstrate agility, innovation, and a strong understanding of investor needs will be crucial for delivering compelling performance and maintaining their relevance in the post-COVID-19 era.

The insights gleaned from this analysis provide a roadmap for investors and industry practitioners to navigate the evolving mutual fund landscape, ultimately enhancing their decision-making and positioning themselves for long-term success.

References

- Bodie, Z., Kane, A., & Marcus, A. J. (2018). *Investments* (11th ed.). McGraw-Hill Education.
- Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). COVID-Induced Economic Uncertainty. National Bureau of Economic Research Working Paper Series, No. 26983.
- Wigglesworth, R. (2020, March 23). "Dash for cash" fuels volatility in faltering US Treasuries market. *Financial Times*.
- Deb, P., Furceri, D., Ostry, J. D., & Tawk, N. (2021). The economic effects of COVID-19 containment measures. *Open Economies Review*, 32(3), 581-610.
- Rizvi, S. K. A., Mirza, N., Naqvi, B., & Rahat, B. (2020). COVID-19 and asset management in EU: a preliminary assessment of performance and investment styles. *Journal of Asset Management*, 21(4), 281
- Pozen, R. C., & Hamacher, T. (2015). *The Fund Industry: How Your Money is Managed* (2nd ed.). Wiley.
- Haslem, J. A. (2009). *Mutual Funds: Risk and Performance Analysis for Decision Making*. Wiley-Blackwell.
- Anson, M. J. P. (2006). *Handbook of Alternative Assets* (2nd ed.). Wiley.
- Lack, S. (2012). *The Hedge Fund Mirage: The Illusion of Big Money and Why It's Too Good to Be True*. Wiley.
- U.S. Securities and Exchange Commission. (2019). *Investment Company Registration and Regulation Package*.
- Shadab, H. B. (2009). The Law and Economics of Hedge Funds: Financial Innovation and Investor Protection. *Berkeley Business Law Journal*, 6(2), 240-297.
- Kaal, W. A. (2020). Hedge Fund Regulation via Basel III. *Vanderbilt Journal of Transnational Law*, 44, 389-463
- Morningstar. (2021). *Diversification Landscape Report*.
- Investment Company Institute. (2021). *2021 Investment Company Fact Book*.
- SEC. (2021). *Investment Company Liquidity Risk Management Programs*.
- U.S. Department of the Treasury. (2021). *General Explanations of the Administration's Fiscal Year 2022 Revenue Proposals*.
- PwC. (2021). *Private Equity Responsible Investment Survey 2021*.
- Chetty, R., Friedman, J. N., Hendren, N., Stepner, M., & The Opportunity Insights Team. (2020). *The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data*. NBER Working Paper No. 27431.
- U.S. Bureau of Labor Statistics. (2021). *Employment Situation Summary*.
- McKinsey & Company. (2021). *Global surveys of consumer sentiment during the coronavirus crisis*.
- Federal Reserve Bank of St. Louis. (2021). *10-Year Breakeven Inflation Rate*.

Board of Governors of the Federal Reserve System. (2021). Federal Reserve issues FOMC statement.

International Monetary Fund. (2021). Fiscal Monitor: A Fair Shot.

European Commission. (2021). Sustainable Finance and EU Taxonomy: Commission takes further steps to channel money towards sustainable activities.

OECD. (2021). Access to COVID-19 vaccines: Global approaches in a global crisis.

Adobe.(2021). Digital Economy Index.

Global Wellness Institute. (2021). The Global Wellness Economy: Looking Beyond COVID.

Gartner. (2021). Gartner Forecasts Worldwide Social Software and Collaboration Market to Grow 17% in 2021.

[National Association of Realtors.(2021). Existing-Home Sales.

Morningstar.(2021). Sustainable Funds U.S. Landscape Report.

GSMA. (2021). The Mobile Economy 2021.

CB Insights. (2021). State Of Fintech Report: Investment & Sector Trends To Watch.

U.S.-China Economic and Security Review Commission.(2021). 2021 Annual Report to Congress.

Bank of England. (2021). How has Brexit affected the UK economy?

Our World in Data.(2021). Coronavirus (COVID-19) Vaccinations.