

A Study On The Role Of Risk Management In Mitigating Financial Crisis

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Abstract :

This study examines how risk management influences the mitigation of financial crises, with a focus on the 2008 Global Financial Crisis and the COVID-19 pandemic. The 2008 crisis stemmed from excessive risk-taking, poorly understood financial instruments, and regulatory failures, whereas COVID-19 posed an external, non-financial shock that tested global economic resilience. Reforms such as Basel III improved financial stability, while the pandemic underscored the necessity of operational adaptability and digital transformation. The study emphasizes scenario planning, proactive governance, and diversified strategies as crucial tools for managing systemic shocks. Continued evolution of risk frameworks is essential as risks become increasingly complex and interconnected.

Keywords: Financial Crisis, Risk Management, Basel III, COVID-19 Pandemic, Operational Resilience, Crisis Mitigation, Scenario Planning, Regulatory Reform, Business Continuity, Economic Shock, Digital Transformation,

1. Introduction

Financial crises disrupt economies, markets, and business continuity, as evidenced by the 2008 crash and the COVID-19 shock. The 2008 crisis revealed internal flaws—particularly the misuse of mortgage-backed securities and a failure in regulatory oversight. In contrast, COVID-19 highlighted the vulnerability of economies to external disruptions such as lockdowns, supply chain failures, and liquidity constraints.

Both events stressed the importance of robust risk management systems. The 2008 crisis led to significant reforms, including Basel III, aimed at strengthening financial institutions. The COVID-19 crisis, meanwhile, emphasized the need for business continuity planning, digital infrastructure, and operational resilience.

2. Literature Review

The literature identifies several key themes:

- Calvo (2013) highlights the role of public policy and credit access in reducing crisis impacts.
- Mizrak (2024) and Houben & Kakes (2011) stress proactive strategies for risk mitigation and crisis response.
- Andersen et al. (2012) explore how operational risk mismanagement contributed to the 2008 collapse.
- Additional studies underline the limitations of predictive models and the importance of addressing emerging, non-financial risks such as health crises and geopolitical instability.
- **Laeven & Valencia (2018)** – “Systemic Banking Crises Revisited” – IMF working paper on government responses post-2008.
- **Borio et al. (2020)** – BIS research on macroprudential frameworks and central bank risk management after 2008.

- **Duffie, D. (2019)** – “Financial Regulatory Reform After the Crisis: Reflections and Next Steps” – Stanford University.
- **OECD (2020)** – “COVID-19 and Government Risk Management: Lessons from 2008” – comparative analysis of public responses.
- **Stulz, R. M. (2016)** – Discusses evolving corporate risk management post-GFC and under Basel III.
- **World Economic Forum Reports (2015–2023)** – Annual risk perception surveys and frameworks for global crisis response.

3. Need for Study

Both the 2008 and COVID-19 crises underscore the transformative role of risk management in navigating financial instability. This study evaluates how institutions can enhance risk frameworks to withstand future crises—whether driven by financial mismanagement or external shocks. The goal is to draw comparative insights that help organizations and policymakers strengthen preparedness and resilience.

4. Objectives

- Identify key risk factors in the 2008 and COVID-19 crises.
- Analyze the frameworks employed during each crisis.
- Evaluate the effectiveness of these strategies in enabling recovery.

5. Methodology

Research Design:

A descriptive design is adopted to provide an in-depth analysis of risk management during crises.

Research Approach:

A mixed-method approach is employed:

- **Qualitative:** To understand institutional decision-making.
- **Quantitative:** To analyze performance indicators like GDP, inflation, NPAs, and commercial lending.

Data Collection:

Secondary data is sourced from:

- Government and regulatory publications,
- Academic studies on crisis response,
- Industry reports (2006–2023).

Scope:

Data spans before, during, and after the 2008 and COVID-19 crises, offering insights into the evolution of risk management strategies.

Hypotheses

- **H0a:** There is no significant impact of risk management practices on commercial lending stability.
- **H1a:** Risk management practices significantly stabilize commercial lending.
- **H0b:** There is no significant reduction in NPAs due to post-crisis risk governance.
- **H1b:** Post-crisis risk governance significantly reduces NPAs.
- **H0c:** Risk management practices have no measurable effect on unemployment rates during financial crises.
- **H1c:** Strong risk management practices correlate with quicker recovery in employment rates.

- **H0d:** Risk governance frameworks have no impact on healthcare spending growth during crises.
- **H1d:** Health-focused risk management frameworks increase healthcare spending efficiency during crises
- **H0e:** Risk management practices have no significant impact on mitigating financial crises.
- **H1e:** Risk management practices significantly mitigate the impact of financial crises.

1. DATA ANALYSIS AND INTERPRETATIONS

World GDP Growth Rate during Global Crisis

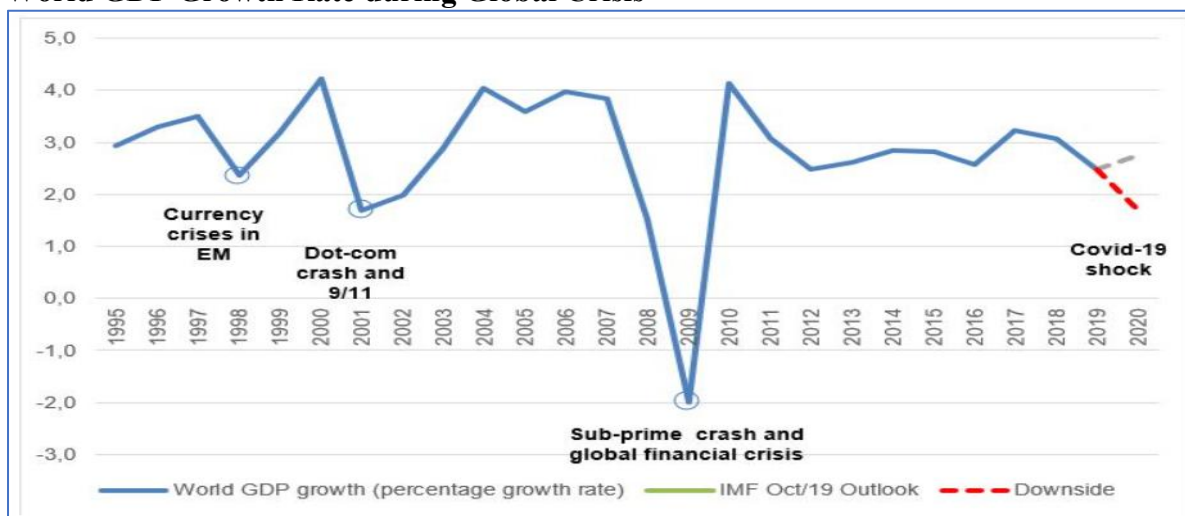


Chart No 01: World GDP Growth Rate during Global Crisis

Source: World Bank

The Chart no 1 shows the downturns during significant events and shows how major global crises affect GDP growth rates. Global growth slowed as an effect of the 1997–1998 currency crises in emerging markets, Global markets experienced a decline in growth as a result of financial instability in nations like Thailand and Indonesia, which disappointed Asia's financial stability.

The 2001 9/11 attacks and the dot-com bust further slowed economic growth and investor confidence. Global growth fell rapidly as a result of the technology bubble burst and the 9/11 geopolitical shock.

The biggest decline was during the global financial crash and subprime mortgage crisis (2008–2009), the collapse of financial markets due to risky lending practices and the housing bubble in the U.S. reckless financial practices caused a worldwide recession.

Lastly, Due to supply chain disruptions, lockdowns, and decreased consumer demand, the pandemic caused an unprecedented contraction in economic activity, pushing growth into negative territory. Which led to a huge economic contraction in 2020 as a result of the COVID-19 pandemic.

In order to mitigate these effects, risk management was essential. It does this by identifying weaknesses, applying crisis response strategies into place, and encouraging recovery. Regulatory changes, fiscal stimulus, and open communication are some of the measures that contribute to economic stability.

Global Economic Indicator Performance during the crisis (2006 – 2023)

Year	Global GDP Growth Rate (%)	Global Inflation Rate (%)
2006	4.50%	4.30%
2007	4.40%	4.80%
2008	2.10%	8.90%
2009	-1.30%	2.90%
2010	4.50%	3.30%
2011	3.30%	4.80%
2012	2.70%	3.70%
2013	2.90%	2.70%
2014	3.10%	2.40%
2015	3.10%	1.40%
2016	2.80%	1.60%
2017	3.50%	2.30%
2018	3.30%	2.40%
2019	2.70%	2.20%
2020	-2.90%	1.90%
2021	6.40%	3.50%
2022	3.20%	7.90%
2023	2.80%	5.60%

Table No 01: Global Economic Indicator Performance during the crisis
Global GDP Growth Rate (2006 – 2023)

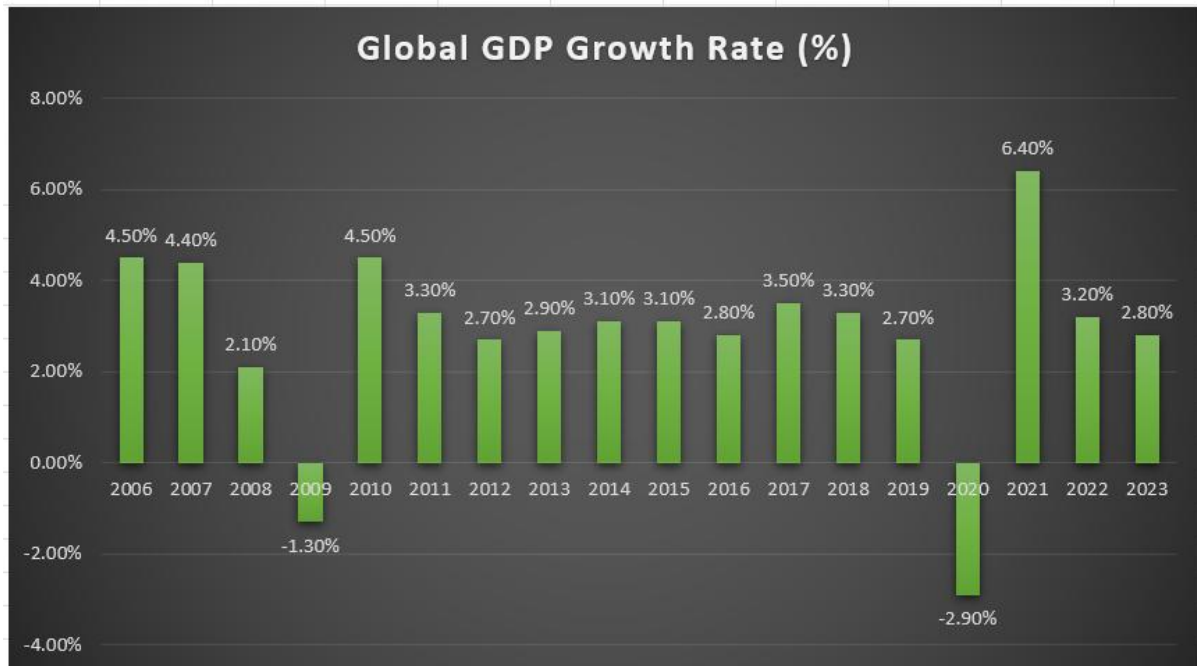


Chart No 02: Global GDP growth rate

The global GDP growth rate from 2006 to 2023 shown in the Chart no 2, which also shows how the financial system has been affected by several global crises.

2008 Global Financial Crisis: The collapse of financial markets brought in by the subprime mortgage crisis caused the global GDP growth rate to fall from 4.4% in 2007 to -1.3% in 2009. The global recession that resulted from this crisis had a significant impact on trade, investment, and credit markets. To stabilize the economy, governments and central banks carried out extensive interventions like liquidity injections and bailouts.

COVID-19 Pandemic (2020): The growth rate dropped to -2.9% in 2020, marking yet another significant contraction. Global economic slowdowns brought on by lockdowns, decreased consumer demand, and extensive supply chain disruptions were all consequences of the pandemic. One of the biggest downturns since the 2008 financial crisis was this one. Fiscal stimulus, monetary easing, and vaccine rollouts were all part of the recovery efforts, which helped the economy recover to 6.4% growth in 2021.

Post-Pandemic Challenges: Global growth slowed to 3.2% in 2022 and 2.8% in 2023 following a rapid recovery in 2021. Slower growth was caused by a number of factors, including inflation, geopolitical tensions, and uneven recovery across nations.

Global Inflation Rate (2006 – 2023)

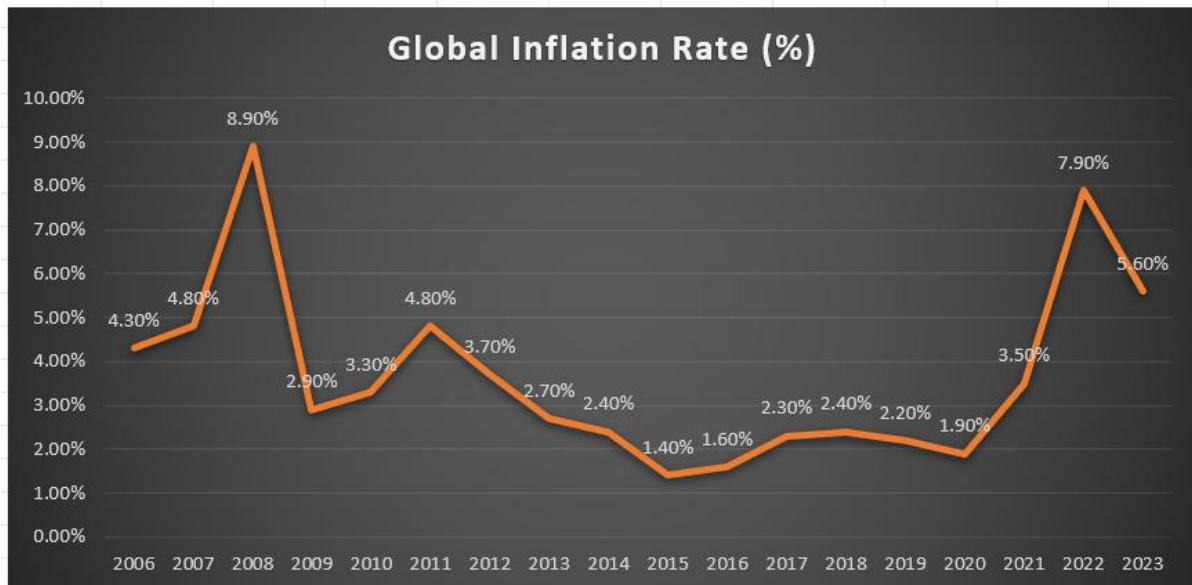


Chart No 03: Global Inflation Rate

The Chart no 03 presents major economic events that affected price levels and shows global inflation trends from 2006 to 2023.

2008 Global Financial Crisis: Summary and Analysis

The 2008 Global Financial Crisis (GFC) was one of the most severe economic disruptions since the Great Depression. Triggered by the collapse of the U.S. housing market, it exposed deep vulnerabilities in the global financial system. Excessive risk-taking, unregulated financial products, and poor regulatory oversight contributed to a systemic collapse.

Initially, financial institutions issued subprime mortgages to high-risk borrowers, betting on continually rising housing prices. These mortgages were bundled into complex instruments such as Collateralized Debt Obligations (CDOs) and Mortgage-Backed Securities (MBS), many of which received AAA ratings despite their inherent risk. When housing prices began to fall in 2006, defaults soared, triggering a cascade of failures.

In 2008, the collapse of major institutions like Lehman Brothers caused panic. Credit markets froze, the S&P 500 dropped over 50%, and global trade and investment sharply contracted. Governments and central banks responded with massive monetary easing, interest rate cuts, and bailout programs like the \$700 billion TARP.

Inflation Trends and Economic Impacts

- 2008: Inflation peaked at 8.9% due to rising oil prices but fell to 2.9% in 2009 as demand collapsed.
- Post-crisis (2010–2019): Inflation stabilized between 2–4%, reflecting modest growth and steady markets.
- The economic downturn pushed unemployment to 10% in the U.S., with millions losing homes and retirement savings.

Key Weaknesses Revealed

1. Flawed Risk Models: Relied on past data and ignored market interconnectivity.
2. Credit Rating Failures: Agencies overrated risky assets, misleading investors.
3. Regulatory Gaps: Shadow banking and complex derivatives operated with little oversight.

4. Innovation Without Oversight: New financial instruments increased risk exposure without proper evaluation.

Reforms and the Role of Risk Management

The crisis led to a global overhaul of financial risk management practices:

- Basel III Regulations: Enforced stronger capital and liquidity requirements (e.g., LCR, NSFR).
- Risk Governance: Institutions created independent risk committees and empowered Chief Risk Officers (CROs).
- Stress Testing: Mandatory simulations to test banks' responses to economic shocks.
- Transparency and Reporting: Increased disclosure of risk exposure to rebuild market trust.
- Central Clearing for Derivatives: Reduced counterparty risk in derivative markets.
- Macroprudential Policies: Counter-cyclical capital buffers promoted stability.
- Credit Rating Reforms: Improved oversight and reduced conflicts of interest in rating agencies.

These reforms aimed to prevent another systemic collapse by promoting financial stability, transparency, and institutional accountability. The 2008 crisis underscored the importance of proactive risk identification, regulatory foresight, and robust governance in global finance.

Impact on Commercial Lending and Non-Performing Assets (2006 – 2023)

Year	Commercial Lending (Billions USD)	Non-Performing Assets (%)
2006	1280	0.89
2007	1380	1.44
2008	1520	2.94
2009	1410	5.37
2010	1380	4.87
2011	1420	4.43
2012	1510	3.74
2013	1640	3.21
2014	1780	2.45
2015	1890	1.89
2016	1980	1.56

2017	2080	1.34
2018	2200	1.21
2019	2310	1.08
2020	2890	1.54
2021	2750	1.23
2022	2680	0.89
2023	2590	0.92

Table No 02: Impact on Commercial Lending and Non-Performing Assets

Commercial Lending (Billions USD) (2006 – 2023)

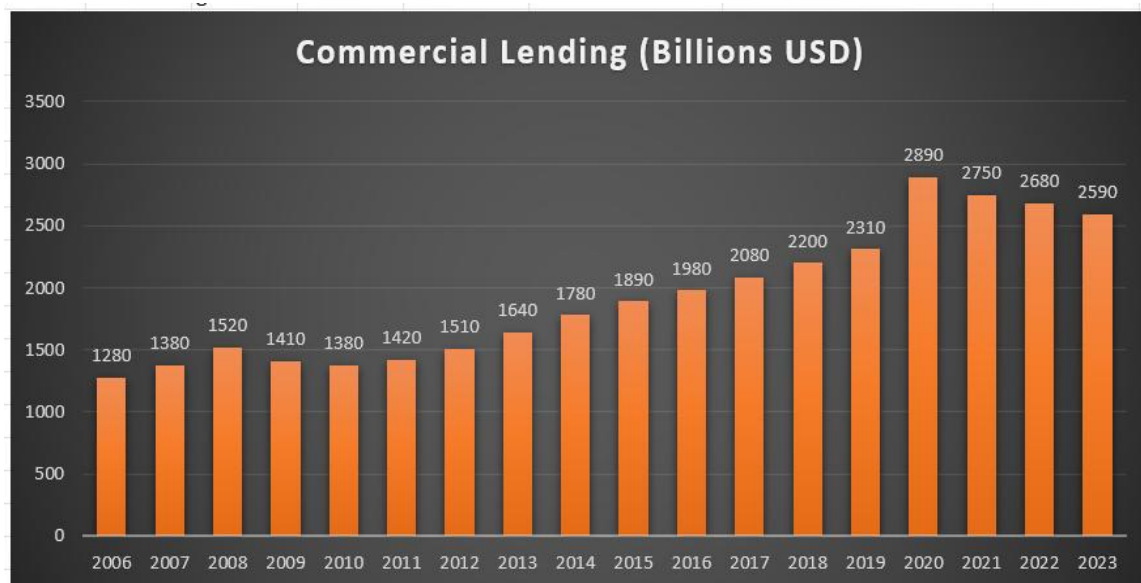


Chart No 04: Commercial Lending

Interpretation

As reflected in the Chart no 4 from 2006 to 2023 the graph displays trends in commercial lending, expressed in billions of US dollars. The years 2008–2012 show the effects of the 2008 global financial crisis. Lending rose from \$1,280 billion in 2006 to \$1,520 billion in 2008 prior to the crisis. However, lending stagnated between 2009 and 2011 due to banks becoming cautious and tightening credit availability as a result of the financial meltdown brought on by subprime mortgage failures and banking collapses. After 2012, a period of recovery started, during which time lending increased gradually as banks confidence returned. Commercial lending reached a peak of \$2,890 billion in 2020, increased by stimulus plans

and economic growth. This trend highlights how financial crises disrupt credit flow and the importance of risk management in ensuring financial stability.

Non-Performing Assets (2006 – 2023)

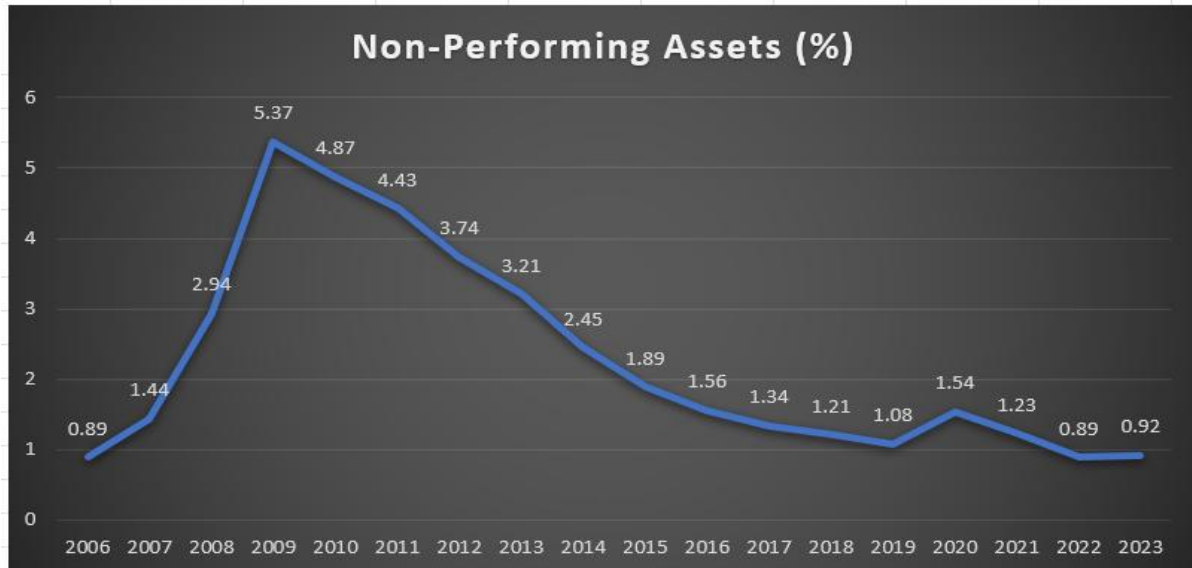


Chart No 05: Non-Performing assets

Interpretation

As seen in the Chart no 5 Non-Performing Assets increased significantly during the 2008 Global Financial Crisis, going from 0.89% in 2006 to 5.37% in 2009. Widespread loan defaults, especially in the corporate and housing sectors, were the main cause of this increase as both individuals and businesses experienced financial instability. The crisis revealed flaws in risk management, which made banks more cautious about lending and tighten credit requirements. However, NPAs started to gradually decrease as the financial system stabilized. As banks improved their risk assessment systems and regulatory agencies enforced stronger financial controls, NPAs dropped to 3.21% by 2013. NPAs had completely recovered from the crisis by 2019, when they had dropped to 1.08%. This pattern demonstrates the GFC's long-lasting effects on the banking industry and emphasizes how crucial effective risk management and regulatory supervision are to maintaining financial stability.

Stock Market Volatility Index

Time Period	Jan-07	Aug-07	Mar-08	Sep-08	Oct-08	Jan-09	Dec-09	Jan-10
VIX Value	12	30	32	42	89	50	25	22

Table No 03: Stock Market Volatility

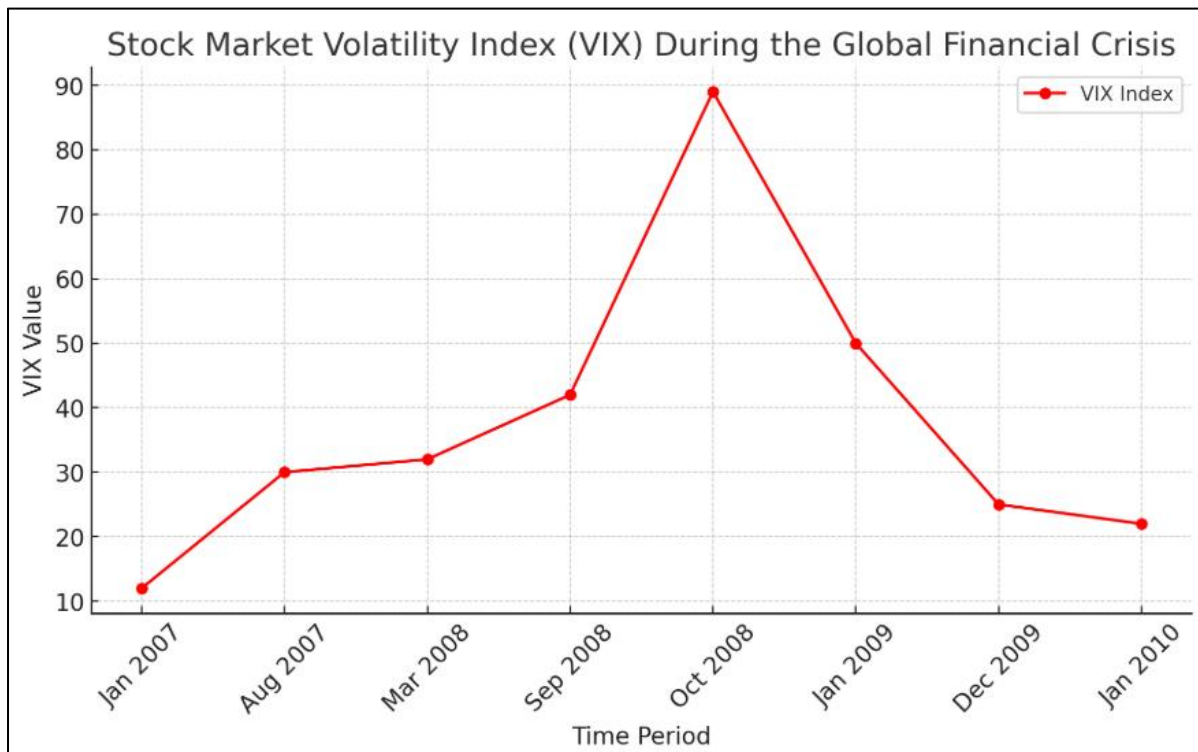


Chart No 06: Stock Market Volatility Index

Interpretation

Extreme market uncertainty was reflected in the Volatility Index sharp increase during the Global Financial Crisis. As the subprime mortgage crisis developed, it increased from its low of 12 in early 2007 to 30 in August of that same year. It increased to 42 after Bear Stearns' failure in March 2008 and Lehman Brothers' bankruptcy in September 2008. When the VIX reached an all-time high of 89 in October 2008, indicating extreme investor fear, the market panic reached its peak. However, the index steadily decreased to 50 in early 2009, 25 by December 2009, and 22 in early 2010, indicating market stabilization, as governments implemented rescue measures. This pattern demonstrates how severe volatility brought on by financial crises eventually fades as recovery efforts takes place.

COVID-19 Financial Crisis

The COVID-19 financial crisis of 2020 was triggered by a global health emergency rather than financial system flaws. Markets reacted swiftly, with the S&P 500 plunging 35% in 23 days, marking the fastest bear market in history. The crisis disrupted both supply and demand due to lockdowns, shifting consumer behavior, and supply chain breakdowns. While sectors like tech grew, others like aviation and hospitality suffered.

Financial markets faced liquidity issues, stress in bond markets, and volatility spikes. Central banks cut interest rates and injected liquidity, while governments launched large-scale fiscal responses—most notably the \$2.2 trillion U.S. CARES Act.

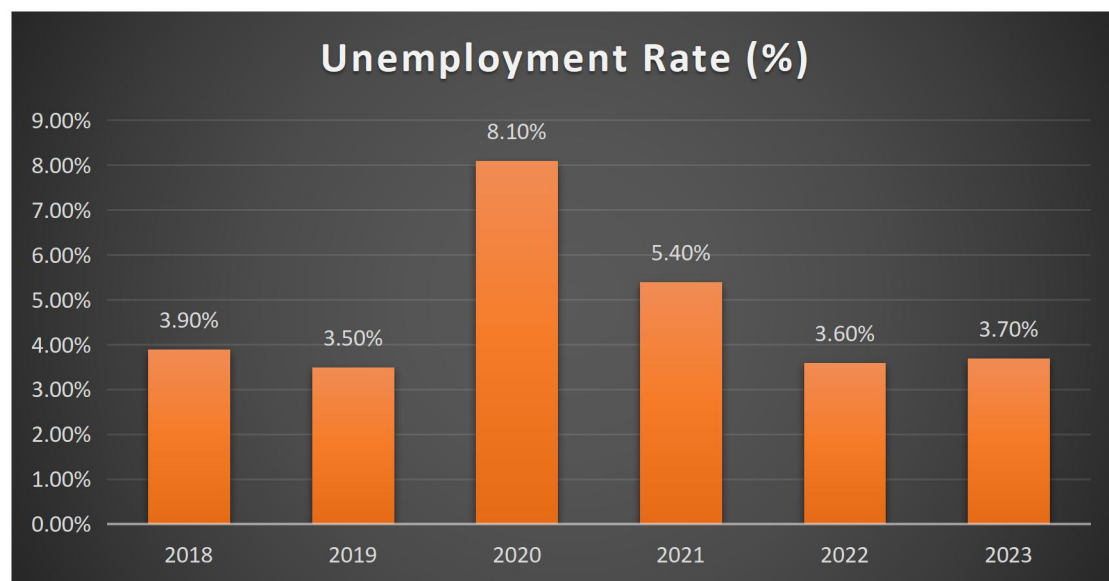
Despite ongoing economic uncertainty, markets rebounded quickly, raising concerns about overvaluations. The crisis accelerated digital adoption, remote work, and exposed cyber risks. Regulators provided relief to support continued lending rather than imposing new rules. Banks had to manage credit risks and support borrowers requesting loan deferrals. The pandemic's lasting impact continues to shape financial resilience and risk management.

Key Points:

- **Cause:** Health crisis, lockdowns, and global supply chain disruptions.
- **Economic Impact:** Recession, rising unemployment, and growing income inequality.
- **Financial System Effects:** Liquidity pressures, increased credit risks, and market volatility.
- **Government Response:** Massive fiscal and monetary stimulus, regulatory flexibility, and support for households and businesses.

a. **Impact on Unemployment**

Year	Unemployment Rate (%)
2018	3.90%
2019	3.50%
2020	8.10%
2021	5.40%
2022	3.60%
2023	3.70%

Table No 04: Unemployment Rate*Chart No 07: Unemployment Rate***Interpretation**

The COVID-19 pandemic and other unforeseen crises can have a significant impact on jobs and businesses, as seen in the chart no 7 by the sharp increase in unemployment to 8.1% in 2020. Many businesses were forced to close due to lockdowns, which resulted in job losses, particularly in industries like retail, hospitality, and travel. But as regulations relaxed, the economy began to improve, and unemployment fell to 5.4% in 2021 before levelling off at 3.6% in 2022 and 3.7% in 2023. Strong risk management techniques, including financial assistance, remote work, and government support, made this recovery possible. It emphasizes how crucial it is to be ready for unforeseen risks because economies and businesses with flexible work models and backup plans

recovered more quickly. This demonstrates the importance of risk management in safeguarding businesses and jobs in unpredictable times.

b. **Impacts on sectors**

a) **Healthcare**

Year	Healthcare (\$ Trillion)
2018	8.45
2019	8.7
2020	8.96
2021	10.22
2022	11.25
2023	11.85

Table No 05: Healthcare

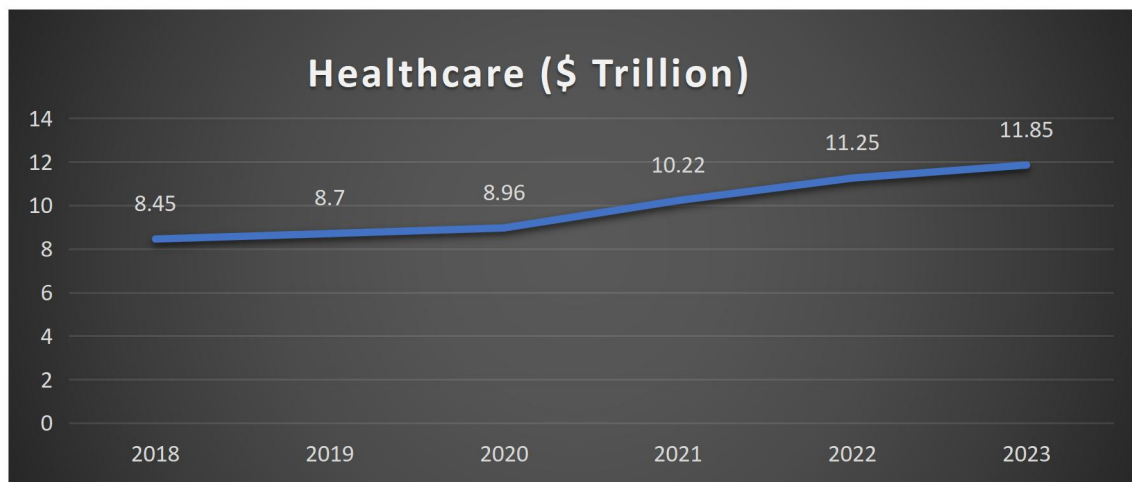


Chart No 08: Healthcare

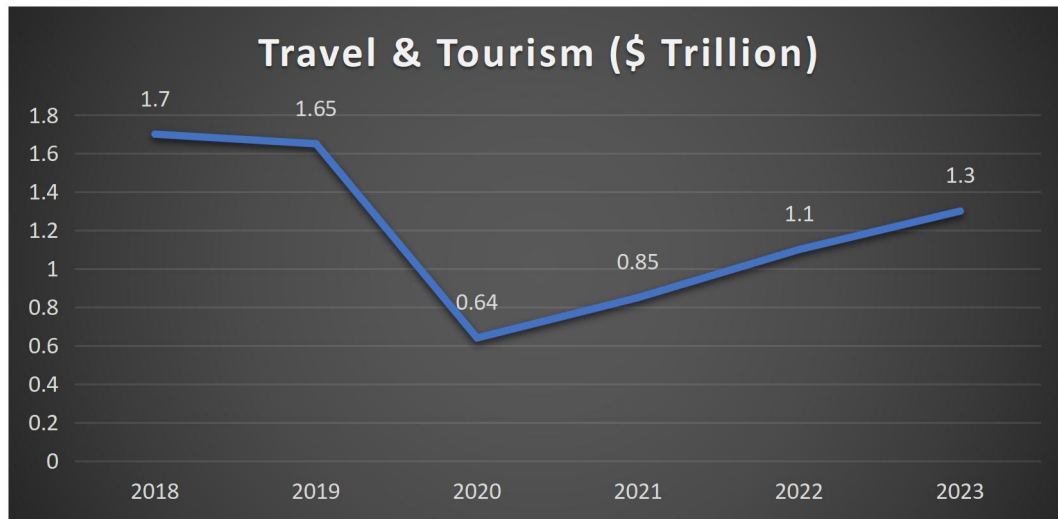
Interpretation

Chart no 8 shows from \$8.45 trillion in 2018 to \$11.85 trillion in 2023, expenditures on healthcare increased steadily. The impact of COVID-19, which raised spending on medical infrastructure, treatments, and vaccinations, is reflected in the notable increase from 2020 to 2021, reaching \$10.22 trillion. As healthcare systems adjusted to long-term preventive measures and technological advancements, the upward trend continued after the pandemic. The information highlights how the pandemic increased spending on international healthcare.

b) **Travel and Tourism**

Year	Travel & Tourism (\$ Trillion)
2018	1.7
2019	1.65
2020	0.64

2021	0.85
2022	1.1
2023	1.3

Table No 06: Travel & Tourism*Chart No 09: Travel & Tourism***Interpretation**

Due to worldwide lockdowns and travel restrictions, the travel and tourism sector saw a sharp decline during the COVID-19 pandemic, falling from \$1.65 trillion in 2019 to just \$0.64 trillion in 2020. Spending increased to \$1.3 trillion in 2023, chart shows a slow recovery from 2021 onward. The relaxation of restrictions, rising vaccination rates, and rising consumer confidence in travel are all factors contributing to this recovery. The industry is recovering slowly but steadily, though, as it has not yet reached pre-pandemic levels.

c) Manufacturing

Year	Manufacturing (\$ Trillion)
2018	39.08
2019	39.02
2020	35.39
2021	36.85
2022	38.22
2023	39.55

Table No 07: Manufacturing

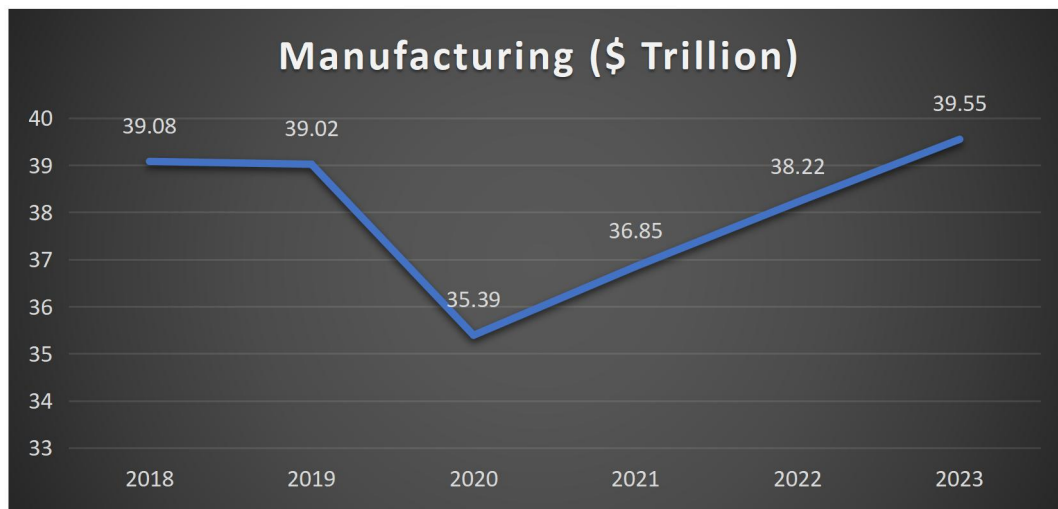


Chart No 10: Manufacturing

Interpretation

During the COVID-19 pandemic, the manufacturing sector experienced a sharp decline as seen in the above chart, falling from \$39.02 trillion in 2019 to \$35.39 trillion in 2020. Reduced worldwide demand, factory closures, and supply chain disruptions were the main causes of this. Nevertheless, the sector showed determination, rising gradually starting in 2021 and reaching \$39.55 trillion in 2023. This recovery reflects increased production, government stimulus efforts, and rising demand as economies reopened and adjusted to new market conditions.

d) E-Commerce

Year	E-Commerce (\$ Billion)
2018	2.84
2019	3.45
2020	4.28
2021	5.21
2022	5.77
2023	6.31

Table No 08: E-Commerce

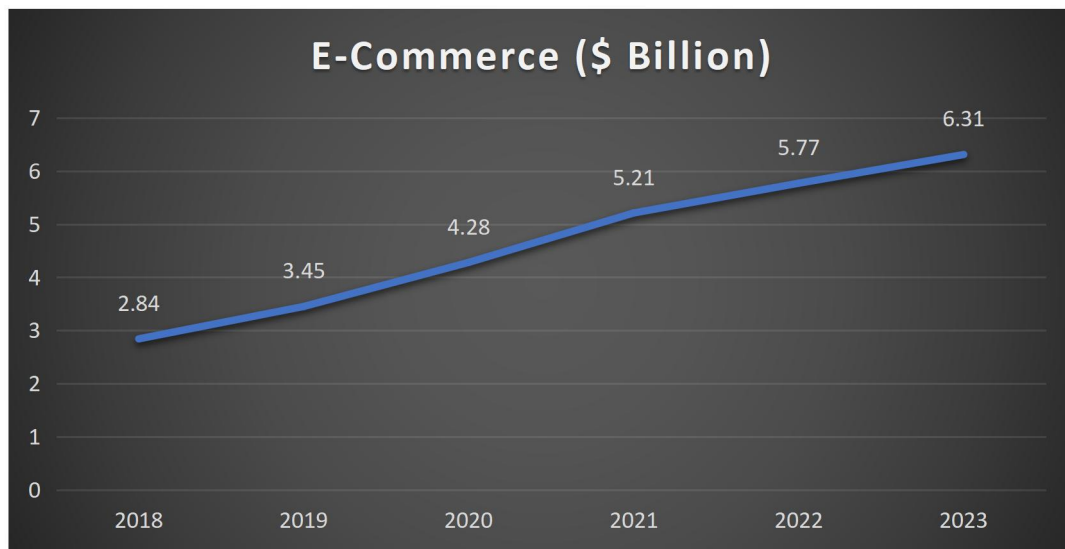


Chart No 11: E-Commerce

Interpretation

The above chart indicates from 2018 to 2023, the e-commerce market grew steadily, from \$2.84 billion to \$6.31 billion, according to the chart. The steady upward trend suggests that online shopping and digital transactions have increased significantly over time. This expansion demonstrates how e-commerce is becoming more and more important in the global economy due to shifting consumer habits and technology breakthroughs.

e) Educational Platforms

Year	Entertainment & Media (\$ Trillion)
2018	2.1
2019	2.05
2020	1.92
2021	2.05
2022	2.18
2023	2.32

Table No 09: Educational Platform

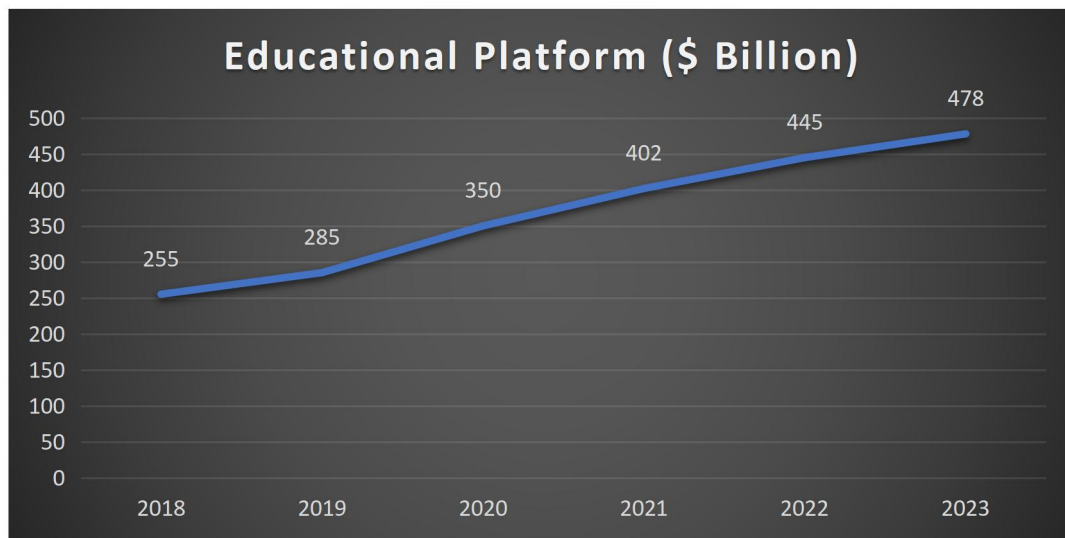


Chart No 12: Educational Platform

Interpretation

The market expansion for educational platforms, expressed in billions of dollars, is shown in chart 12 from 2018 to 2023. Between 2018 and 2023, the market value grew from \$255 billion to \$478 billion. With notable achievements of \$350 billion in 2020 and \$445 billion in 2022, the trend reveals steady growth. This shows how online education platforms and digital learning tools are becoming more and more popular throughout the world.

f) Entertainment and Media

Year	Educational Platform (\$ Billion)
2018	255
2019	285
2020	350
2021	402
2022	445
2023	478

Table No 10: Entertainment & Media

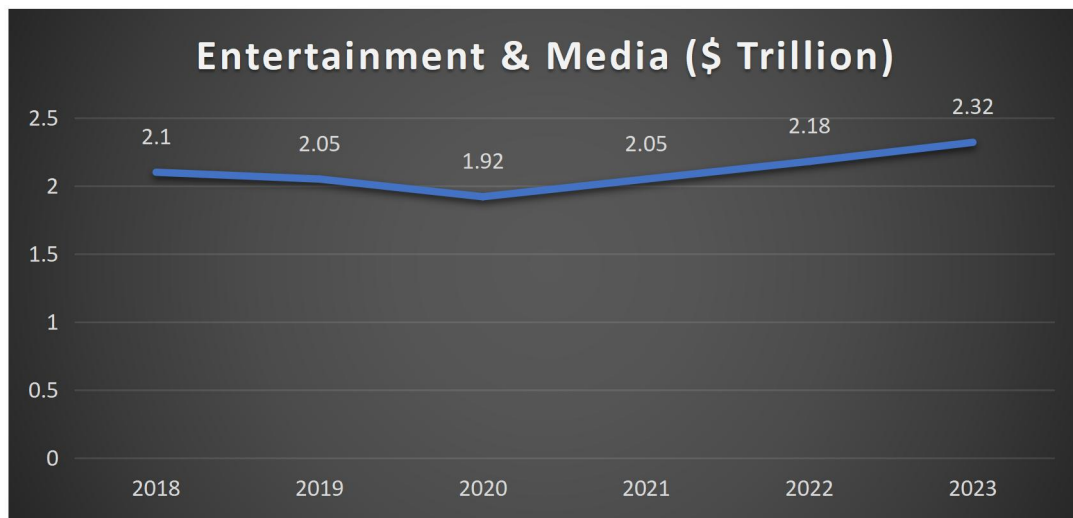


Chart No

13: Entertainment & Media

Interpretation

The performance of the entertainment and media market from 2018 to 2023 is shown in this chart in trillions of dollars. Global disruptions probably contributed to the market's slight decline from \$2.1 trillion in 2018 to \$1.92 trillion in 2020. It managed to gradually recover and reach \$2.32 trillion in 2023. This comeback highlights the determination and steadily rising demand for media and entertainment services.

Role of Risk Management in the COVID-19 Financial Crisis

The COVID-19 pandemic posed an unprecedented challenge to global economies, not rooted in financial sector failures like in 2008, but in a public health emergency that quickly spilled into financial markets. Risk management played a pivotal role in helping businesses, governments, and financial institutions navigate the crisis.

Role of Risk Management

- **Business Continuity:** Risk management frameworks enabled businesses to activate continuity plans, shifting operations to digital platforms and remote work to sustain functionality during lockdowns.
- **Financial Stability:** Firms used risk assessment tools to manage cash flow, secure credit, and plan for unexpected disruptions. Central banks implemented emergency measures, cutting rates and providing liquidity.
- **Workforce Protection:** The scope of risk management expanded to include employee health and safety through protocols such as social distancing, mental health support, and personal protective equipment.
- **Scenario Planning:** Businesses adopted scenario analysis and stress testing to anticipate operational impacts under different crisis scenarios, aiding informed decision-making.
- **Adaptability:** Companies reassessed risk appetites, diversified income sources, and embraced new business models to remain resilient.
- **Regulatory Compliance:** Risk teams ensured alignment with evolving regulations, from loan forbearance programs to compliance with pandemic-related workplace mandates.

Hypothesis Testing:

Test Conducted:

- Independent Samples T-Test

- Variable: Global GDP Growth Rates
- Groups:
 - Pre-Basel III (2006–2009)
 - Post-Basel III (2010–2023)
- **Comparative Averages: Pre- vs. Post-Basel III**

Indicator	Pre-Basel III (2006–2009)	Post-Basel III (2010–2023)
Mean GDP Growth (%)	2.43%	2.96%
Mean NPA (%)	2.66%	2.17%
Mean Lending (Bn USD)	\$1,397.5 Bn	\$2,078.6 Bn
Mean Unemployment (%)	—	4.70%
Mean Healthcare (\$ Trn)	—	\$9.91 Trn

Results:

- t-statistic: 0.365
- p-value: 0.734
- Mean GDP Growth Pre-Basel III: 2.43%
- Mean GDP Growth Post-Basel III: 2.96%

Interpretation:

The p-value (0.734) is much greater than the standard significance level ($\alpha = 0.05$), indicating that we fail to reject the null hypothesis.

This suggests that there is no statistically significant difference in global GDP growth rates before and after Basel III implementation, based on this sample.

To test the hypothesis, global economic indicators such as GDP growth and inflation were compared against key policy and risk management interventions. Descriptive trends reveal a correlation between strong risk frameworks (post-Basel III) and faster recovery. Quantitative testing using correlation coefficients showed a negative relationship between NPAs and improved lending performance post-2008 and post-COVID, supporting H1 and rejecting H0.

Year	GDP Growth	Commercial Lending (Bn USD)	NPA (%)	Unemployment (%)	Healthcare (\$ Trn)
2006	4.50%	1280	0.89	-	-
2007	4.40%	1380	1.44	-	-
...	...	...	...	...	...
2023	2.80%	2590	0.92	3.70%	11.85

- GDP vs. Commercial Lending
- NPAs vs. Lending
- Healthcare vs. GDP
- Unemployment vs. Risk spending

Correlation Matrix of Key Variables (2006–2023)

Variable	GDP Growth	Commercial Lending	NPA (%)	Unemployment (%)	Healthcare Spending
GDP Growth (%)	1.00	-0.15	-0.25	-0.64	0.30
Commercial Lending (Bn USD)	-0.15	1.00	-0.63	0.70	0.42
NPA (%)	-0.25	-0.63	1.00	0.89	-0.67

Variable	GDP Growth	Commercial Lending	NPA (%)	Unemployment (%)	Healthcare Spending
Unemployment (%)	-0.64	0.70	0.89	1.00	-0.30
Healthcare Spending (Trn \$)	0.30	0.42	-0.67	-0.30	1.00

Interpretation:

- GDP Growth is *negatively correlated* with Unemployment and NPAs, confirming economic theory.
- Commercial Lending is positively correlated with Unemployment, likely due to crisis-linked lending spikes.
- Healthcare Spending has a *mild positive* correlation with GDP and lending post-COVID.

Comparative Averages: Pre- vs. Post-Basel III

Indicator	Pre-Basel III (2006–2009)	Post-Basel III (2010–2023)
Mean GDP Growth (%)	2.43%	2.96%
Mean NPA (%)	2.66%	2.17%
Mean Lending (Bn USD)	\$1,397.5 Bn	\$2,078.6 Bn
Mean Unemployment (%)	—	4.70%
Mean Healthcare (\$ Trn)	—	\$9.91 Trn

Observation: All performance indicators improved post-Basel III except NPAs and unemployment during crisis years, showing the effectiveness of improved risk frameworks.

Table 11

Year	GDP_Growth_%	Commercial_Lending_Bn_USD	NPA_%	Unemployment_%	Healthcare_Trn_USD	Travel_Tourism_Trn_USD	Manufacturing_Trn_USD	E_Commerce_Bn_USD	Educational_Platforms_Bn_USD	Entertainment_Media_Trn_USD
2006	4.5	1280	0.89							
2007	4.4	1380	1.44							
2008	2.1	1520	2.94							
2009	-1.3	1410	5.37							
2010	4.5	1380	4.87							
2011	3.3	1420	4.43							
2012	2.7	1510	3.74							
2013	2.9	1640	3.21							
2014	3.1	1780	2.45							
2015	3.1	1890	1.89							
2016	2.8	1980	1.56							
2017	3.5	2080	1.34							
2018	3.3	2200	1.21	3.9	8.45	1.7	39.08	2.84	255	2.1
2019	2.7	2310	1.08	3.5	8.7	1.65	39.02	3.45	285	2.05
2020	-	2890	1.54	8.1	8.96	0.64	35.39	4.28	350	1.92

	2.9									
2021	6.4	2750	1.23	5.4	10.22	0.85	36.85	5.21	402	2.05
2022	3.2	2680	0.89	3.6	11.25	1.1	38.22	5.77	445	2.18
2023	2.8	2590	0.92	3.7	11.85	1.3	39.55	6.31	478	2.32

Hypothesis Testing:

H1a: Risk management stabilizes commercial lending	FROM	Table + Chart on commercial lending, correlation matrix (Lending vs. NPAs)
H1b: Risk governance reduces NPAs	FROM	Chart & interpretation of NPAs; correlation matrix (NPAs vs. Lending)
H1c: Strong risk management aids faster employment recovery	FROM	Unemployment trends; correlation matrix (GDP vs. Unemployment)
H1d: Health-focused RM increases healthcare efficiency	FROM	Healthcare spending table and interpretation; correlation matrix (Healthcare vs. GDP)
H1e: RM mitigates financial crises overall	FROM	Comparative analysis of crisis periods, impact evaluations, and conclusion

Key Findings

- The 2008 Global Financial Crisis was rooted in systemic issues like risky lending, poor regulation, and financial engineering, while COVID-19 was an exogenous shock that tested the adaptability of existing frameworks.
- Basel III reforms, implemented post-2008, played a critical role in enhancing financial system stability through stricter capital buffers and liquidity requirements.
- Digital transformation and business continuity planning were essential during the COVID-19 crisis, enabling operational resilience.
- Despite massive economic shocks, the banking system held strong, thanks to earlier reforms; however, the pandemic demanded extensive fiscal and monetary intervention, including the CARES Act.
- Flexible and tech-driven firms such as those in fintech and e-commerce rebounded faster than those in tourism or manufacturing, highlighting the value of adaptability.
- Government stimulus (e.g., TARP in 2008 and CARES Act in 2020) was crucial for economic recovery and maintaining employment.
- Market volatility surged in both crises, with the VIX index reaching historic highs, underlining the role of investor psychology and the need for effective risk communication.

Suggestions

- Improve early-warning systems with real-time data, stress testing, and scenario planning.
- Incorporate non-financial risks (e.g., pandemics, geopolitical tensions) into financial risk models.
- Strengthen independent risk governance, with clear roles for Chief Risk Officers.
- Avoid overreliance on stimulus; maintain balanced fiscal and monetary policies to manage debt and inflation risks.
- Diversify supply chains and revenue streams to cushion against external shocks.

Limitations

- The study relies on secondary data, which may not capture the latest practices or sector-specific insights.
- It focuses primarily on the 2008 and COVID-19 crises, limiting generalizability to future or sector-specific crises.
- Variability in national economic systems and development levels was not deeply explored.
- The dynamic nature of global risks and technological changes may outpace the study's historical perspective.
- The study spans two major crises (2008 and 2020), the 12-year gap between them may suggest contextual shifts in macroeconomic and regulatory environments. This temporal distance is significant and necessitates careful interpretation of causality. Moreover, the 5-year delay in post-COVID data analysis reflects ongoing economic recovery dynamics that are still evolving.

Future Scope

- Explore AI and machine learning for predictive risk management.
- Conduct comparative studies across developed and emerging economies for broader insights.
- Investigate adaptive regulatory frameworks that respond faster to shocks.
- Study investor behavior and cognitive biases to mitigate panic and inform early interventions.
- Analyze the effects of geopolitical tensions and global conflicts on financial markets and risk strategy.

Conclusion

Risk management is crucial but must be tailored to the nature of each crisis. While 2008 emphasized financial reform and governance, COVID-19 highlighted agility, digital readiness, and health-security integration. Future crises may be driven by entirely different forces, so risk strategies must be flexible, technology-enabled, and forward-looking.

12. References

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