A CASE STUDY ON BLACK SWAN EVENTS IN INDIA

Abstract

This paper is a modest attempt to study the cases that have been considered Black Swan Events in the history of India. The study is based on secondary data collected from research articles newspaper cutting and online sources. The researchers have conducted an in-depth study of the cases about black swan events. The study shows that by learning from past black swan events, India has an opportunity to fortify its resilience and response mechanisms. However, the study is having certain limitations such as the number of events under consideration is less. Further study can conduct elongated research containing a greater number of studies and provide more in-depth view of problem identification.

Keywords: Black swan events, India, Case study, financial crisis, COVID-19, 1992 scam.

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I. INTRODUCTION

There are certain incidents with significant implications that occur often and unexpectedly, prompting individuals to critically evaluate the process of engineering risk assessments with a prudent level of doubt (Nafday, 2009). These events are termed the Black Swan events. The phrase in question was popularised by Nassim Nicholas Taleb, an esteemed academic in the field of finance, accomplished author, and former professional trader on Wall Street. In his book “The Black Swan: The Impact of the Highly Improbable” delineates a Black Swan event as possessing three discernible attributes: (a) being infrequent, widely recognized, and challenging to forecast, while exerting a disproportionately significant influence that surpasses typical expectations; (b) events with such minuscule probabilities that their computation becomes arduous; and (c) events and their causal relationships that tend to elude explanation until after their occurrence (Mishra, 2020). Taleb believed that individuals should always assume a black swan occurrence is possible and prepare appropriately. Why is it a Black Swan event? Most swans are white, thus black ones are unusual. Black swans were unbelieved until one was discovered. The lesson is that occurrences that seem extremely unlikely to us may be more common than we first thought.

Since the emergence of the Covid-19 pandemic, which has resulted in the loss of approximately 70,000 lives, the financial markets have been characterized by a pervasive sense of anxiety due to the prevailing ambiguity (Mohanty et al., 2020). But this is not the only reason for dismal, previous instances of unforeseen events have also resulted in the collapse of financial markets in India and other regions. India, like other nations, is vulnerable to unforeseen and rare catastrophes, sometimes referred to as black swan events, which have the potential to cause significant disruptions to its economy and culture. India has been subject to several black swan events that have had significant impacts. These events include pandemics, natural disasters, financial crises, geopolitical tensions, technological disruptions, environmental calamities, political instability, and energy price shocks.

Hence, the following article is a modest attempt to give an overview of all those events that have occurred in the history of India and could be termed as “Black Swan” events that affected the financial market to a large extent. The latter half of this paper is divided into the following sections. Section 2 states the broad area of the events. Section 3 Problem Identification followed by learning outcomes in section 4 and discussion questions in section 5. The conclusion is given in section 6.

II. BROAD AREA OF THE EVENTS

Some Black Swan Events In India And The Reason For Their Consideration:

1. **Harshad Mehta scam:** The Harshad Mehta Scam of 1992 is a prominent example of financial deception in the history of the Indian stock market. Harshad Mehta a stockbroker with an office in Mumbai, strategically exploited several vulnerabilities within the Indian banking and stock market frameworks to influence stock prices and generate substantial financial gains. Mehta's manipulations led to a fraud estimated to be worth approximately 5,000 crore rupees (Bengal & Sharma, 2014)**.** In April 1992, the State Bank of India uncovered the fact that the collateral provided by Mehta's firm, known as Grow More Research and Asset Management, was false, therefore revealing his deceptive practices (Singha & Mukherjee, 2021)**.** Both the Bombay Stock Exchange

(BSE) and the National Stock Exchange (NSE) saw a significant collapse due to a sudden decrease in share prices inside the stock market, therefore exposing investors' capital to potential risks. Multiple changes were made to the Securities and Exchange Board of India's governing statutes (SEBI Act, 1992) and several SEBI rules to address these flaws (Bengal & Sharma, 2014.)

The committee that was formed found Mehta culpable of embezzling Rs. 1439 crores ($3 billion), resulting in a scandal that cost Rs. 3542 crores ($7 billion) (Singha & Mukherjee, 2021). Further, the Harshad Mehta scandal had significant repercussions on the Indian economy, leading to many main outcomes.

- **Stock Market Volatility**: The scam led to extreme volatility in the stock markets as prices of certain stocks were artificially inflated, followed by a sharp correction when the manipulation was exposed.
- **Banking Sector Distress**: The use of fake bank receipts to divert funds from the banking system to the stock market has put immense pressure on the banking sector, leading to liquidity crises and credit supply disruptions as well as loss of credibility.
- **Regulatory Reforms**: The scam highlighted the need for stronger regulatory oversight of financial markets undermining reforms in the SEBI Act 1992 (Bengal & Sharma, 2014).
- **Legal Proceedings**: The scam resulted in legal proceedings against those involved, including Harshad Mehta. These legal battles and trials added to the time and resources spent on addressing the aftermath of the scam.
- **Rise to Corporate Governance Practices:** In India, the crucial need for CG was first realized with the Harshad Mehta scam. During the period, the characteristics of the country’s governance were believed to be feudalistic (Manna, 2009).
- **Investor Awareness**: The scam raised awareness among investors about the risks of market manipulation and the importance of due diligence when investing. It underscored the need for financial literacy.
- **Changes in Market Practices**: The scam prompted changes in market practices, including stricter regulations related to trading, disclosures, and transactions to prevent similar manipulation in the future.
- **Impact on Financial Industry Reputation**: The scam tarnished the reputation of the financial industry and underscored the importance of ethical behavior and integrity in financial transactions. Numerous investors committed suicide as a result of the fraud (Singha & Mukherjee, 2021).
- **Foreign Investor Sentiment**: The scam affected the perception of foreign investors toward the Indian market, potentially impacting foreign capital inflows and investments.
- **Government Intervention**: The government had to take measures to stabilize the financial system and restore investor confidence. This included steps to improve banking regulations, tighten market supervision, and address systemic weaknesses.

2. **Asia’s Currency Crisis:** A significant global financial crisis destabilized the Asian economy at the close of the 1990s before spreading to the rest of the world. Thailand was the epicenter of the 1997–1998 Asian financial crisis, which spread rapidly to neighboring economies. As a result of Bangkok's decision to decouple the Thai baht from the US dollar, a currency crisis characterized by a succession of currency devaluations

and significant capital outflows ensued. In the first six months, the value of the Indonesian rupiah decreased by 80%, the Thai baht by more than 50%, the South Korean won by nearly 50%, and the Malaysian ringgit by 45%. Throughout the most afflicted economies, capital inflows decreased by more than $100 billion in the first year of the crisis. India was also impacted. The glorious economic boom that followed the 1991 economic reforms came to an end, the rupee fell, and the amount of bad loans in the banking industry started to rise. The Indian economy didn't stabilize for five years.While India was not as severely affected as some other Asian countries, it did experience several notable effects from the crisis:

- **Currency Depreciation**: The crisis led to a general loss of investor confidence in Asian currencies, including the Indian rupee. India's currency also faced depreciation, which affected imports, inflation, and overall economic stability (KAWAI, 1998).
- **Trade Disruptions:** Economic downturns in Asian nations limited their capacity to acquire Indian products and services. This affected India's export industries, especially textiles and IT.
- **Foreign Investment Withdrawal:** The crisis caused Asian nations, particularly India, to withdraw their investments. India was less harmed by capital outflows than the worst-hit economies.
- **Financial Market Volatility**: Global financial markets, including India's, were disrupted by the crisis. The stock market experienced fluctuations, and investor confidence was shaken.
- **Financial Institution Impact:** Indian financial institutions with exposure to Asian markets experienced losses owing to currency devaluation and non-performing loans. The Indian government used policy measures such as fiscal austerity, currency rate management, and monetary tightening to easing the crisis. These steps stabilized the economy.
- **Foreign Exchange Reserves:** The crisis highlighted the need for adequate reserves to manage currency and balance of payments risks. This lesson led India to develop its foreign currency reserves in later years. The Asian currency crisis led to a worldwide economic downturn, impacting international commerce and Indian export demand.
- **Export Diversification:** The crisis highlighted the need to diversify export markets to lessen regional dependency. India was urged to seek commercial partners beyond Asia.

The crisis led India to expedite economic changes, including banking sector reforms and liberalization measures, to strengthen the economy against foreign shocks.

3. **2008 Mumbai Attacks:** In November 2008, a cohort of terrorists launched coordinated attacks on several locations inside Mumbai, the prominent financial hub of Indiathat lasted for almost four days and shocked the entire nation (Iqbal, 2015). They attacked several locations, including two opulent hotels, a Jewish center, a train station, a restaurant, and a hospital. Around 170 people—both foreigners and Indians—were killed, and 300 people were hurt. The walls and domes of the Taj Hotel were ablaze for two days and three nights. The Taj Hotel was the only location that the Mumbai Police and security forces did not secure on November 28, 2011. According to the START (Study of

Terrorism and Responses to Terrorism), a division of the United States Department of Homeland Security, more than 87,000 terrorist attacks occurred globally between 1970 and 2008, with over 2,100 terrorist groups being responsible. (Iqbal, 2015). The attacks finally put an end to the following day when National Security Guards (NSG) carried out Operation Black Tornado to eliminate every last terrorist inside the hotel. These entire events were unanticipated and unheard of (Kumar, 2021). These events had a profoundly negative effect on the world and became known as the "Black Swan Event" as a result. Following the Mumbai attacks in November 2008, all schools, colleges, and the majority of offices were closed. On November 27, 2008, both the Mumbai and Bombay stock markets were closed. Bollywood movie and TV series filming had also been put on hold in the city. It has affected business, profit, and stock prices as well as disrupted international financial resource flow. The attacks had significant implications for the Indian economy, though their direct economic impact was relatively limited compared to other sectors. The 2008 Mumbai attacks had several implications for the Indian economy:

- The assaults significantly impacted the tourist industry in Mumbai and India. Visitors worried about security hindered tourism, notably in Mumbai. Tourism-related companies declined due to hotel and restaurant cancellations.
- **Stock Market Volatility:** The market was very volatile during and soon after the assaults. The assaults did not immediately affect most sectors, but the uncertainty and panic caused market volatility.
- **Foreign Investor Sentiment:** Attacks prompted worries about India's security and stability regarding foreign investors. This mood briefly lowered foreign investor confidence, affecting capital inflows and investments.
- The assaults caused fear and insecurity among the Indian populace, affecting consumer sentiment. Consumer sentiment may affect expenditure, which may temporarily lower consumption. The Indian government allocated money to address urgent security issues and boost infrastructure. This siphoned funding from other development programs.
- **Insurance Claims:** The assaults led to severe property damage, business disruption, and other losses. Claimants affected insurance firms' finances and the industry.
- **Economic risk perception:** Attacks exposed India's security infrastructure weaknesses and terrorist susceptibility. This higher risk perception may affect investment and economic strategy.
- **Long-Term Investment**: The attacks underscored the need for the Indian government to invest in security infrastructure and intelligence capabilities. Such investments could impact budget allocations for long-term development projects.
- **Recovery and Resilience**: In the aftermath of the attacks, there was a renewed focus on recovering and rebuilding the affected areas, which required economic resources and government attention.

4. **Global Economic Crisis:** When a global economic crisis occurs, it has various effects on India due to its integration into the global economy. Here are some potential impacts. A global economic crisis often leads to a decrease in demand for goods and services worldwide. Since India relies on exports for a significant portion of its GDP, reduced global demand led to a decline in exports. Industries such as textiles, information technology, and automobiles are particularly affected. Remittances from India's diaspora overseas are significant. Job losses and economic uncertainty in other nations reduce

remittances during the economic crisis. This destroyed Indian family earnings and spending. Economic crises make investors risk-averse, reducing FDI and portfolio investment in India. This impacted infrastructure and economic development. Economic uncertainty causes currency volatility. The Indian rupee depreciated as investors moved out of developing countries like India during the crisis. It influenced imports, inflation, and foreign debt. Capital migrated towards safer assets during the global crisis, reducing capital inflows to India and raising borrowing prices. The crisis caused job losses, income cuts, and population anxiety. The fall in home consumption hurt sectors depending on local demand. It led to reduced economic activity, which in turn affected tax revenues for the government. This resulted in a higher fiscal deficit as the government needed to increase spending to stimulate the economy. The global economic crisis impacted the stability of the financial sector in India. It leads to increased non-performing assets (bad loans) in banks, affecting their lending capacity. When an economy is under stress, or when the government perceives a liquidity crunch, the central bank purchases a set number of government bonds and other assets to inject cash into the economy. 'Quantitative Easing' is the term used to describe this. When the Coronavirus pandemic hit, we witnessed this firsthand as all economies fell apart and manufacturing and production halted. The majority of central banks, including the US Fed and India's RBI, launched initiatives to resurrect the economy by lowering interest rates and increasing the amount of money in people's hands. While tapering refers to a banking strategy in which the central bank gradually ends the quantitative easing process. Simply put, tapering is when the central government gradually reduces its bond purchases to eventually wean the economy off the additional support and stop pumping money into the banks and economy.

5. **Taper Tantrum:** Because U.S. lending rates were low during the QE period, borrowers were ecstatic while lenders were anxious. The low interest rates worried lenders even though there was more money available for lending. It was necessary to use the additional stimulus that was being injected into the financial sector. American investors began putting money into Asian markets at that time, including developing markets like India. Foreign investment in India increased as a result. However, when the U.S. Fed began to tighten its monetary policy, American investors in India began selling off their holdings there because interest rates in the United States had started to rise and were providing them with a better return on their investment. The value of the rupee plummets and depreciates by a huge percentage as foreign investments cease. This forces RBI to overnight raise interest rates. As the US dollar strengthened even further, India's inflation rate increased.

   This sparked the investor exaggeration known as the Taper Tantrum phenomenon, which almost brought down developing economies.

6. **Covid-19 Crisis 2020:** The crisis is one of the greatest impacts on the global economy in decades, if not the entire twenty-first century. It had a noticeable impact on almost every country in the world. Eight of the ten largest single-day drops in the value of the S&P 500 have occurred in 2020 alone, and the crisis is predicted to worsen. Some individuals refer to the COVID-19 pandemic as a "Black Swan event" The majority of us were unprepared for this event. When the virus suddenly began to spread throughout the entire globe, everything was normal. It seemed to be a Black Swan occurrence. Although pandemics are not unheard of, it is irrelevant whether COVID-19's magnitude, spread, and effects

could have been predicted. The speed with which it swept through the majority of the world's nations, the strain it placed on the healthcare system, and the ferocity of its economic effects were probably incomprehensible. If our memories of the Spanish Flu from a century ago helped us predict the characteristics of the current pandemic, that is merely conjecture. According to many, the COVID-19 pandemic was a White Swan event rather than a Black Swan event because it was predictable. Regardless of the argument, we must debate ways to increase our resilience to adverse events, such as pandemics and other occurrences with disproportionately negative effects.

The coronavirus pandemic has predominantly disrupted economic activity and caused fatalities in India. Almost every industry has suffered as a result of the severe decline in domestic demand and exports, with notable exceptions where robust growth has been observed. An attempt is made to analyze the effects and potential solutions for several significant sectors.

The aviation sector and tourist sector contribute around 2.4% and 9.2% to the Gross Domestic Product (GDP) of our country, respectively. During the fiscal year 2018-2019, the tourist business catered to over 43 million individuals, providing its services. The first sectors that had significant repercussions as a result of the epidemic were the aviation and tourist industries. There seems to be a prevailing agreement that the COVID-19 pandemic will have a more substantial influence on these particular businesses in comparison to the effects seen during the 9/11 terrorist attacks and the 2008 Financial Crisis.

The pharmaceutical sector has seen significant growth, notably in India, which is recognized as the leading global manufacturer of generic pharmaceuticals, since the onset of the Covid-19 epidemic. In early 2020, the market value of hydroxychloroquine was at $55 billion, seeing significant growth in India. The country actively engaged in exporting this medication to other nations globally, with notable recipients being the US, UK, Canada, and the Middle East.

The implementation of a comprehensive countrywide lockdown resulted in a notable reduction in the demand for transportation fuels. This reduction primarily affected the oil and gas industry, which relies on transportation fuels for about two-thirds of its overall demand. The fall in demand may be attributed to the decline in both car and industrial production activities, as well as a decrease in bulk and personal transportation.

III. PROBLEM IDENTIFICATION

India, like any country, faces a range of challenges when it comes to effectively responding to and mitigating the impact of black swan events. Governance, infrastructure, readiness, and resource availability might cause these issues. Some issues India may encounter in combating black swans:

1. **Population Density and Vulnerability:** India's dense population might worsen catastrophes and crises. Providing timely aid, healthcare, and relief to many individuals is difficult.

- Insufficient infrastructure, especially in rural regions, might impair emergency response efforts.
- Poor roads, communication, and healthcare may delay emergency aid.

2. **Limited Healthcare Capacity:** Pandemics may strain India's healthcare system, revealing weaknesses in facilities, manpower, and resources.

3. **Social Inequality:** India's social differences might cause unfair access to resources and aid during disasters. The impoverished, migratory laborers, and marginalized may confront more obstacles.

   The bureaucracy and red tape in India may impede decision-making and response efforts during crises, possibly delaying essential interventions.

4. **Information Management:** Accurate and timely information is crucial for effective black swan reaction. Misinformation, lack of data sharing, and communication gaps might impair informed decision-making.

5. **Logistics Challenges:** Distributing resources, help, and relief supplies throughout India's varied environment may be challenging, especially during crises.

   Black Swan occurrences are unpredictable, leading to a lack of preparedness. Lack of readiness and planning for specific events might make response efforts harder.

6. **Policy Implementation and Enforcement:** Corruption and political problems may impair the effective implementation and enforcement of policies and programs.

7. **Financial Constraints**: Responding to black swan events requires financial resources. India's budget constraints might limit the extent of immediate response and recovery efforts.

8. **Coordination and Collaboration:** Coordination between government agencies, NGOs, and international organizations is frequently required for effective disaster response. Providing seamless collaboration can be difficult.

9. **Climate Vulnerability**: India's susceptibility to climate change-related events, such as droughts and extreme weather events, can increase the likelihood of black swan events and complicate response efforts.

10. **Dependency on Imports**: India's dependency on imports for critical goods, including medical supplies and technology, can be a vulnerability during global crises when supply chains are disrupted.

IV. VALUABLE LESSONS FROM THE EVENTS

India can learn several valuable lessons from the mentioned black swan events to better prepare for and respond to future crises. Here are some key takeaways:

1. **Invest in Resilience and Preparedness**: Black Swan events highlight the importance of being prepared for unexpected shocks. India can invest in building resilient infrastructure, healthcare systems, and disaster response mechanisms to better withstand and recover from crises.

2. **Enhance Healthcare Infrastructure**: The COVID-19 pandemic exposed vulnerabilities in India's healthcare infrastructure. Investing in medical facilities, equipment, and robust healthcare personnel can help the nation respond to future health crises more effectively.

3. **Strengthen Social Safety Nets:** Establishing comprehensive social safety nets can provide vulnerable populations with a safety cushion during crises. Programs addressing destitution, unemployment, and access to essential services can mitigate the effects of unforeseen occurrences.

4. **Improve Data Sharing and Communication**: Effective crisis response relies on accurate and timely information. India can work on improving data sharing, communication channels, and public awareness to ensure informed decision-making.

5. **Streamline Administrative Processes**: Simplifying bureaucratic processes and reducing red tape can enable quicker decision-making and implementation of emergency measures during crises.

6. **Promote Research and Innovation**: Black Swan events often require innovative solutions. Encouraging research and innovation in fields like healthcare, technology, and disaster management can yield tools and strategies for effective crisis response.

7. **Diversify Supply Chains**: Reducing dependency on single-source suppliers and diversifying supply chains can make India more resilient to disruptions in global trade and supply chains.

8. **Focus on Local Capacity Building**: Building local capacity in terms of healthcare, agriculture, and disaster management can empower communities to respond effectively when central resources are strained.

9. **Fund Digital Infrastructure:** The epidemic highlighted the need for digital technology for distant labor, education, and service delivery. India can respond to rapid service delivery changes by investing in digital infrastructure.

   Improving cooperation and coordination across government levels, NGOs, and international organizations may improve crisis response operations.

10. **Plan for Multiple Scenarios:** Develop scenario-based planning for a variety of crises to adapt and respond faster to unforeseen situations.

11. **Promote Public Health and Cleanliness:** Educating the public on basic cleanliness practices and health awareness helps reduce disease transmission during pandemics.

12. **Responsible Environmental Practices:** Recognize the connection between environmental deterioration and black swan incidents. Implement sustainable practices to reduce climate change risks**.**

13. **Embrace Flexibility and Adaptability**: The ability to adapt quickly to changing circumstances is crucial during crises. Encouraging flexibility and adaptability across sectors can improve resilience.

14. **Learn from Past Experiences**: Studying the response to previous black swan events can provide insights into what worked well and what areas need improvement. This can inform future planning and strategies.

By incorporating these lessons into policy and practice, India can work to minimize the impact of future black swan events and build a more resilient and adaptable nation.

V. QUESTIONS

- Q1. In what ways do Black Swan events challenge the resilience of India's financial markets and banking system?
- Q2. According to you, what possible steps could be taken to solve the Black Swan crisis' and resolve the state of emergency?
- Q3. What are the psychological and social implications of Black Swan events on the Indian population, and how do these events reshape cultural norms and values?
- Q4. Can you elaborate on the role of technological advancements and data analytics in predicting or responding to Black Swan events with in the Indian context?

VI. CONCLUSION

India, like any country, faces the unpredictable and far-reaching challenges posed by black swan events. These extraordinary occurrences, characterized by their rarity and unexpectedness, can disrupt every facet of society and the economy. From pandemics like COVID-19 to natural disasters and geopolitical upheavals, India has experienced its share of such events, each leaving indelible marks on its trajectory.

As India navigates the complexities of the 21st century, it becomes evident that preparedness and adaptability are paramount. Learning from past black swan events, India has an opportunity to fortify its resilience and response mechanisms. Strengthening healthcare infrastructure, investing in social safety nets, streamlining administrative processes, promoting innovation, and fostering collaboration are essential components of a comprehensive strategy.

While black swan events cannot be predicted, the lessons derived from these occurrences can shape a nation's ability to weather the storms they bring. By embracing the challenge of the unexpected, India can strive to transform adversity into opportunities for growth, innovation, and societal betterment. In a world characterized by uncertainty, India's response to black swan events will define its ability to adapt, rebuild, and emerge stronger, ensuring the well-being of its citizens and the sustained development of the nation.

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