A Case Study on Black Swan Events in India

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1. 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. Nassim Nicholas Taleb, a professor of finance, author, and former Wall Street trader, popularised the phrase. 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 led to a substantial loss of around 70,000 lives, financial markets have been characterized by a pervasive sense of apprehension due to the prevailing uncertainty (Mohanty et al., n.d.). 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 lot 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. Conclusion is given in section 6.

2. Broad area of the events:

2.1 Some Black Swan events in India and the reason for their consideration:

2.1.1 Harshad Mehta scam: The Harshad Mehta Scam of 1992 stands out as a highly notable instance of financial fraud within the annals of the Indian stock market. Harshad Mehta, a stockbroker headquartered 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 whose net worth is estimated to be around 5000 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)**.** The Bombay Stock Exchange (BSE) and 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. Several revisions were introduced to the governing legislation of the Securities and Exchange Board of India (SEBI Act, 1992) and several SEBI rules to address these flaws (Bengal & Sharma, 2014.)

The committee that was formed found Mehta guilty of embezzling Rs. 1439 crores ($3 billion), causing 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 had 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. As many investors committed suicide because of the scam (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.

2.1.2 Asia's currency crisis: At the end of the 1990s, a significant global financial crisis destabilized the Asian economy before spreading to the rest of the world. Thailand was the epicenter of the 1997–1998 Asian financial crisis, which quickly spread to the economies of its neighbors. When Bangkok delinked the Thai baht from the US dollar, a series of currency devaluations and significant capital outflows started as a currency crisis. The value of the

Indonesian rupiah fell by 80%, that of the Thai baht by more than 50%, that of the South Korean won by almost 50%, and that of the Malaysian ringgit by 45% in the first six months. In the first year of the crisis, capital inflows decreased by more than $100 billion across the most affected economies. 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: The crisis caused turbulence in global financial markets, including India's. 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 ease the crisis. These steps stabilised 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 as banking sector reforms and liberalization measures, to strengthen the economy against foreign shocks.

2.1.3 2008 Mumbai Attacks: In November 2008, a cohort of terrorists launched coordinated attacks on several locations inside Mumbai, the prominent financial hub of India that 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 Study of Terrorism and Responses to Terrorism (START), which is a division of the United States Department of Homeland Security, more than 87,000 terrorist attacks took place worldwide between 1970 and 2008, attributed to over 2,100 terrorist groups (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 had 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 on 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 syphoned funding from other development programmes.
- 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.

2.1.4 Global economic crisis: When a global economic crisis occurs, it had 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.

2.1.5 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.

2.1.6 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. A "Black Swan event" is how some people refer to the COVID-19 pandemic. Most of us were completely unprepared for this event. Everything was as it should be when the virus suddenly began to spread throughout the entire world. It seemed like a Black Swan occurrence. Although a pandemic is not unheard of, it is irrelevant if the size, spread, and effects of Covid-19 could have been foreseen. The way it swept through the majority of the world's nations, the strain it put on the healthcare system, and the ferocity of its economic effects were likely unimaginable. If our memories of the Spanish Flu from a century ago helped us foresee the characteristics of the current pandemic, that is pure speculation. The COVID-19 pandemic, according to many, was a White Swan event rather than a Black Swan one because it was predictable. Whatever the argument, we need to discuss how to improve our resilience to adverse events, including pandemics and other occurrences that have a disproportionately negative impact.

The coronavirus pandemic's effects on India have primarily disrupted economic activity and resulted in fatalities. Almost every industry has suffered as domestic demand and exports have sharply decreased, with some notable exceptions where strong growth has been seen. Analysis of the effects and potential remedies for some important sectors is attempted.

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 recognised 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 United States, United Kingdom, 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.

3. 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:

- 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.
- Limited Healthcare Capacity: Pandemics may strain India's healthcare system, revealing weaknesses in facilities, manpower, and resources.
- Social Inequality: India's social differences might cause unfair access to resources and aid during disasters. The impoverished, migratory labourers, and marginalised may confront more obstacles.
- The bureaucracy and red tape in India may impede decision-making and response efforts during crises, possibly delaying essential interventions.
- 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.
- 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.
- Policy Implementation and Enforcement: Corruption and political problems may impair the effective implementation and enforcement of policies and programmes.
- Financial Constraints**:** Responding to black swan events requires financial resources. India's budget constraints might limit the extent of immediate response and recovery efforts.

- Coordination and Collaboration**:** Effective disaster response often requires coordination among various government agencies, NGOs, and international organizations. Ensuring seamless collaboration can be a challenge.
- 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.
- 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.

4. 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:

- 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.
- Enhance Healthcare Infrastructure**:** The COVID-19 pandemic exposed gaps in India's healthcare infrastructure. Investing in medical facilities, equipment, and a robust healthcare workforce can help the country respond more effectively to future health crises.
- Strengthen Social Safety Nets**:** Establishing comprehensive social safety nets can provide a safety cushion for vulnerable populations during crises. Programs that address poverty, unemployment, and access to essential services can mitigate the impact of unexpected events.
- 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.
- Streamline Administrative Processes**:** Simplifying bureaucratic processes and reducing red tape can enable quicker decision-making and implementation of emergency measures during crises**.**

- 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.
- 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.
- 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.
- Fund Digital Infrastructure: The epidemic highlighted the need of digital technology for distant labour, 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.
- Plan for Multiple Scenarios: Develop scenario-based planning for a variety of crises to adapt and respond faster to unforeseen situations.
- Promote Public Health and cleanliness: Educating the public on basic cleanliness practices and health awareness helps reduce disease transmission during pandemics.
- Responsible Environmental Practices: Recognize the connection between environmental deterioration and black swan incidents. Implement sustainable practices to reduce climate change risks**.**
- 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.
- 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.

5. 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 within the Indian context?

6. 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.

References:

Bengal, W., & Sharma, A. (n.d.). *FROM HAWALA SCAM TO COALGATE: AN ANALYSIS OF SCAMS IN INDIA White Collar Crime*. http://ssrn.com/abstract=2395931https://ssrn.com/abstract=2395931Electroniccopyavailableat:http://ssrn.com/abstract=2395931

Iqbal, M. Z. (2015). The media–terrorism symbiosis: a case study of Mumbai attacks, 2008. *Asian Journal of Communication*, *25*(2), 197–212. https://doi.org/10.1080/01292986.2014.944924

KAWAI, M. (1998). THE EAST ASIAN CURRENCY CRISIS: CAUSES AND LESSONS. *Contemporary Economic Policy*, *16*(2), 157–172. https://doi.org/10.1111/j.1465-7287.1998.tb00509.x

Kumar, J. (2021). *Economics Impact of Terrorism in India*.

Mishra, P. K. (2020). COVID-19, Black Swan events and the future of disaster risk management in India. *Progress in Disaster Science*, *8*. https://doi.org/10.1016/j.pdisas.2020.100137

Mohanty, S., Patnaik, B. C. M., & Satpath, I. (n.d.). A STUDY ON INDIAN AND GLOBAL FINANCIAL MARKETS DURING THE COVID-19 PANDEMIC. In *PJAEE* (Vol. 17, Issue 6).

Sathe, D. (1998). Asian currency crisis and the Indian economy. *Economic and Political Weekly*, 1003-1005.

Shkvarya, L., Grigorenko, O., Strygin, A., Rusakovich, V., & Shilina, S. (2016). THE IMPACT OF THE GLOBAL ECONOMIC CRISIS ON ASIAN TECHNOLOGY MARKETS (INDIA AND CHINA). *Central Asia & the Caucasus (14046091)*, *17*(2).

Singha, Seema S., & Mukherjee, S. (2021). Indian Ethos, Ethics & Management. In *Indian Ethos, Ethics & Management*. Eureka Publications. https://doi.org/10.52416/eureka.2020.1.1.p01-614

https://www.financialexpress.com/market/four-share-market-black-swan-events-that-sunk-sensex-more-than-half-in-last-three-decades/1920105/

https://www.businessworld.in/article/Black-Swan-How-India-Should-Be-Ready-On-RBI-s-Prediction-/08-07-2022-436144/

https://taxguru.in/finance/harshad-mehta-scam-analysis-indias-infamous-financial-fraud.html

https://www.britannica.com/topic/recession

https://taxguru.in/finance/harshad-mehta-scam-analysis-indias-infamous-financial-fraud.html https://www.businessworld.in/article/Black-Swan-How-India-Should-Be-Ready-On-RBI-s-Prediction-/08-07-2022-436144/

https://www.inventiva.co.in/trends/the-black-swan-event-in-india-boon-or-bane/

https://groww.in/blog/all-you-need-to-know-about-taper-tantrum

https://groww.in/blog/all-you-need-to-know-about-taper-tantrum

https://www.adb.org/sites/default/files/publication/156019/adbi-wp164.pdf