

Brinkmanship: A game of Increasing Risk

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Abstract— A game is a situation of strategic interdependence: the result of a player's strategies (actions/choices) depends upon the strategies of other people (one or many), who are responding consciously in the given scenario. The negotiation strategy of Brinkmanship is an essence of competitive edge in business, politics, and everyday life, if practised effectively. This paper covers the application of Brinkmanship as a strategic response in various situations, alongside examining the impact in different scenarios. The paper also analyses and highlights the importance of balance while applying the strategic move of Brinkmanship to avoid the serious risk of miscalculation and dangerous escalations, through various real-time case studies. The analysis also helps to explain other incentives which are offered by the brinkmanship strategy to the players/agents along with an advantageous outcome. This paper shall also discuss the characterization of optimal behaviour and decision making in conflictive scenarios among different players.

Keywords— risk, brinkmanship, conflict, behaviour, trade-off, controlled loss, credibility, nuclear war, entrepreneurial brinkmanship, Nash Equilibrium, probabilistic situations, strategy, world peace, management, game theory

I. INTRODUCTION

Life, both personal and professional, is a constant stream of decisions. Corporate professions, politics, relationships, war, social work etc. all require active decision-makers, interacting with each other to make strategies and act accordingly. These strategies (good or bad) and interpersonal interactions have an important impact on the outcome of the decision scenario. The science of game theory provides various theoretical frameworks which help conceive social situations among competing individuals and produce optimal resolutions. Brinkmanship is one of the effective strategies of Game Theory.

Thomas Schelling, an American Economist, and pioneering Game Theorist defined Brinkmanship as “manipulating the shared risk of war”. Brinkmanship¹ is the practice of deliberate creation of risk and gradual increase to a sufficiently intolerable level for the opponent to induce a threat to eliminate the risk by following the adversary's wishes. But, to increase the size of threat is to increase the risk of misfortune or catastrophic crisis, especially in case of war and politics. Thus, the following paper focuses on understanding the art of practising Brinkmanship by balancing both, the optimal degree of threat fraught with dangers and likelihood of massacre. This paper discusses different case studies and examines the use of the Brinkmanship strategy in different scenarios and verticals. This paper also evaluates various factors of brinkmanship.

The major contributions of the paper are stated as follows:

1. Understanding the guiding principles of Brinkmanship
2. Understanding the concept of Brinkmanship in a single-player and multi-player setup
3. Highlighting the examples of two cases of successful implementation of Brinkmanship in an industry market space
a) to establish a monopoly b) to establish a secure and sizeable

market share amidst existing dominating giants.

4. Studying the implementation of effective Brinkmanship technique and its application through case studies of conflicts and disagreements across the world
5. Analyzing the successful Entrepreneurial Brinkmanship case studies
6. Reviewing the effectiveness of Brinkmanship in situations of nuclear wars and maintenance of world peace
7. Formulating a “Play It Safe” strategic plan for maintaining world peace

The paper is organized into VI sections. Following the introduction, discussed in this section, Section II provides a detailed explanation of the conceptual background of Brinkmanship and its underlying principles, while discussing a case study and the implementation of the concept therein. Section III discusses the multi-player Brinkmanship, evaluating the Oil Price war among major Oil importers of the world. Section IV highlights the successful Entrepreneurial Brinkmanship case studies of two major corporates. Section V discusses the application of the brinkmanship technique in the field of wars and analyzes the key features to attain world peace through powerful strategic decisions amidst scenarios as critical as a nuclear war. Finally, section VI gives the conclusion to this paper.

The major conclusions are as follows:

1. Summarizing the concept of Brinkmanship and its deciding parameters
2. Discuss the factors that lead to success or failure in the Brinkmanship strategic implementation in a scenario.
3. Analyzing Brinkmanship in the context of nuclear war threats and formulating a “Play It Safe” strategy for ensuring world peace.

II. CONCEPT BACKGROUND

A. *Credibility in Brinkmanship*

Brinkmanship is a strategic move that aims to influence others' actions by altering one's expectations. There are certain special features to carry out Brinkmanship successfully, one of which is credibility. Verbal promises, commitments, threats are not trusted if they are not credible. Credibility, as defined by the Oxford Dictionary, is "the quality that someone or something has that makes people believe or trust them." It can be understood as an action/ commitment that can be easily altered or an unconvincing threat that loses its strategic effect against another strategic opponent, who would then not be influenced and lookout out for tactical bluffing. Hence, the strategy of Brinkmanship would fail. To practice Brinkmanship credibly, the following principles can be applied:

1. Signing agreements or writing contracts to back up the commitments

A broken contract generally produces damages; therefore, the injured party is not willing to give up the contract for nil.

2. Establishing and using the means of reputation

Reputation as a strategy in decisions and proclaims that impact a larger audience, suffer irreparable damages if the declaration is acted contrary to what was initially upheld or promised. In the campaign for the 1988 presidency, George H.W Bush publicly declared: "Read my lips: no new taxes." But the economic situations and circumstances urged him to raise taxes a year later, and this contributed majorly to his defeated bid in the year 1992.[1]

3. Leaving the outcome beyond one's control, or chance

Limiting the ability to back out of a commitment is an art of introducing in the mind of the opponent a sense of fear by the means of irrevocable decisions, convincing enough for the rival to eliminate the risk by stepping down the pedestal of debate or disagreement.

4. Maintaining credibility through teamwork and employed agents

It is easier for a team to achieve credibility than for an individual. The authority to act as a negotiator on behalf of the agent is based on the supremacy of the power and position that annex to the level of compromise in the given conflict by the participating party.

B. *Indian Farm Laws 2020 Case Study:*

Evaluating the principles of credibility in brinkmanship, let's consider the 2020 amendment to the Indian Farm Laws [2] by the Government of India (GOI)². In June 2020, GOI announced 3 farm bills: aspired to liberalize and deregulate the agricultural sector market. The bills aimed to create opportunities for farmers to indulge in contract farming and expand their access to market outside APMC³, minimize the role of intermediaries, reduce wastage and unnecessary stockpiles and open farm market produce to private players. Farmers felt uneasy with new bill reforms and were worried about the same. They felt that this will place them at a disadvantage and at the mercy of

private/corporate companies who will dictate the prices of the select crops and might put them at the drawback of not receiving even the product's minimum support price. Farmers also feared that the new bills will limit their access to the market due to the transportation, logistics and availability of liquidity- how easily farm produce can be converted into cash. Strong resistance from the state and union territories government within India to the federal government's proposal of the bills also added to the bucket of the farmers' disagreement to the newly pronounced farm bills.

Examining the journey of the farm bills to farm laws, we can understand that the GOI added official credibility to their decision of introducing amendments to existing farm laws and not going back on their decision, initiating a strategy of brinkmanship against their debating opponents (farmers, state governments and other opponents or naysayers).

The three bills were introduced in the Parliament and the ordinances were passed by both Lok Sabha⁴ and Rajya Sabha⁵ by mid-September 2020. seek to transform agriculture in India. Farmers came out in protest of the newly approved farm ordinances, through various rallies and "bandhs" across India. In response, the GOI backed their words by another action and successively increased the risk for the competitor by making sure the farm bills got presidential assent, notified in the Gazette of India and became farm laws.

But this risk was not enough to deter the farmers from their decision and influence them. Farmers' union started protests, marching towards the capital of India, farmer leaders rejected the Union government's proposal to amend the three contentious laws. clashed with police during the tractor parade and performed various rallies at different protest sites for months.

To drag the farmers to the borderline of intolerance and induce them to eliminate the risk to their livelihood and safety, the government took to measures that would alleviate the notch of the risk and defiance won't work. For a complete year, the government indulged in different rounds of negotiations with the farmers' union, without agreeing to give up.

But even a yearlong protest didn't deter the farmers, who were moved to the level of intolerance by climatic challenges of rains, soaring temperatures, winter chills, police dispersals, lack of annual income through farming for the time spent on protest sites and rallies. This is the case of the failure of Brinkmanship attempt by the Government who had to finally give in to the demands of the farmers, despite being at the more advantageous position at the beginning of the conflict as the reputed body of leaders of the country, a political institution which was backed-up financially and enjoyed the support from different corporate companies and affluent private players. As the ruling political body of leadership in the democratic country of India, it becomes an obligatory duty for the GOI to make sure the conflicts are resolved the democracy and public opinion is upheld at majority for the smooth functioning of the country. More than a year-long protest was resolved by the Prime Minister announcing the repeal of the Farm laws on November 19, 2021. This example, despite the formally drafted laws and approvals from higher parliamentary bodies, reduces

the credibility and the reputation of the government for any future similar situations in implementing the brinkmanship strategy. A public declaration by the GOI by establishing the three farms bills passed as laws by the parliament did put the reputation of the government on the line in a public way and backing-off led to the loss of reputation for credibility for future instances on the same grounds of disagreement by the public. This can also be viewed from the perspective of the farmers, who raised the credibility of their decision by initiating an initial threat by going on strikes and thereby introducing the risk of food shortages and soaring prices for the select crops due to the demand-supply gap across the nation. The farmers' protest in response to the disagreement with the farm laws of 2020 introduced public pressure and responsibility of the citizens' well-being and accessibility to food grains, on the government. Refusal to the negotiated offers by the GOI also added to the list of credibility of farmers agenda to stick to their decision and drive their opposing "agent", i.e., the GOI to the level of risk intolerance.

The farmer's rejection of the government's proposal for one-and-half years despite the multiple joint committees set up to discuss the legislation also shows another special feature of brinkmanship i.e. "commitment" practised by the farmers against the government to stick to their decision and not alter. They were determined to drag the government to give in to their terms.

This was the scenario of the circumstance where the generalized fear that the "things may get out of hand" served as a deterrent for the government who decided to not accelerate the level of threat further and accepted the defeat against the farmer's protest. The Government passed the proposal on January 29, 2021, to suspend the farm laws.

C. Negotiating agent

According to Carnevale & Pruitt (1992, 1981), negotiation is defined as a procedure to resolve differing choices among parties involved in the discussion to attain an agreement. Negotiation has also been defined as a process that involves decision making in a conflict between two parties while working together to achieve a satisfactory outcome [3].

Considering the application of vending machines as a sales technique by retailers to sell their products to consumers in an attempt of deploying an automated mechanical agent in response to the negotiations by the consumers. A vending machine is an automated machine that provides commodities or products such as snacks, beverages, books, magazines, lottery tickets, clothes, toys etc. to customers

Selling products through the medium of mandated agents like vending machines, companies are reducing the overheads and struggle on price negotiations with customers to little. Eliminating the awkwardness of human interactions and quoting a fixed price for the product on purchase, leaves the consumer with no option other than to give in and buy the product at the sellers' quote. Retail sellers, in this scenario, have committed to a fixed price by using a mechanical agent and cutting-off the medium for communication with the consumers. In this way, sellers are using the principle of brinkmanship to change the game for the buyers by limiting their

ability to back out of a commitment of the fixed price. With the use of digital technology and inbuilt AI-ML features, vending machine economy is growing and machines working 24 hrs./day 7 days a week add on to the maximized efficiencies and cost savings.

Many major giants, across industries of food, beverages, electronics, merchandise including clothes, beauty, lifestyle etc. are investing in the vending machine model of distribution across masses. The strategic placement of these machines at places such as airports, hospitals, petrol-diesel stations etc. offers non-negotiable access to customer attention even at places, where setting up physical retail stores would otherwise be impossible. Giants like Apple, Canon, and the beauty product brands like Sephora are selling iPods, cameras and the season's best-selling mascara through these elegant automats, which, with their touch-screens and computer-arms carefully insert purchases into a gift bag before opening a little door from which the purchase can easily be taken.[4] The concept of vending machines is hugely popular, especially in Asia and the USA and has great potential in places such as an airport and/or a hospital where salespersons are not present physically to bargain at prices. The consumers, owing to the brand loyalty, quality guarantee and sometimes even the urgency of the requirement purchase the product at the displayed prices, which might be higher than the MRP in some cases.

D. Psychological effect in brinkmanship

Brinkmanship always leaves some things to chance. It involves the strategic use of probabilistic threat that has the potential to generate mutual harm for both the parties, i.e., the 'principal' who has issued the brinkmanship threat and the 'agent' who must decide whether to defy or comply with the posed threat. Brinkmanship threats stimulate psychological emotions of anxiety, fear, unpleasant discomfort and at times the adrenalin rush to rebel and defy the threat. Such a reaction might generate greater risk for both the parties and might lead to catastrophic outcomes for a larger audience that might be involved indirectly through the two opponents such as in a war or a political dilemma.

Any individual or organization planning to implement a brinkmanship strategy to resolve a conflict must analyze the surrounding constraints of the 'impact or effectiveness of the credibility of the threat on the opponent as well as the 'acceptability' of repercussions of the preemptive threat on self and related parties involved, in case the threat is refuted by the opponent. These factors involve analyzing the degree of the threat, which is both: a credible risk sufficient enough for the opponent to withdraw from his stand and a casual disorder that is not disastrous for self in case the plan turns otherwise.

Reviewing the published paper "A Brinkmanship Game Theory Model of Terrorism"[5] helps to understand and study the conditions under which two players, namely the Principal(Player 1): World leader such as the Secretary-General (or Security Council) of the United Nations (UN) and the Agent(Player 2): transnational terrorist organizations determined to acquire weapons of mass destruction (WMD), get involved in the strategy of Brinkmanship to resolve a

conflict of interest. The goal for player 1 is to examine conditions under which the Principal might be able to structure a preemptive brinkmanship threat that aligns the interests of the agent to that of the principal – which is to comply with a ban on the acquisition of Weapons of Mass Destruction.

Two “Credibility Constraints” are derived in the paper that must be satisfied for the United Nations before adopting a brinkmanship strategy against the terror organization. The first is the “Effectiveness Constraint”, which relates to the type of terrorist group the World is up against (Hard or Soft), and the second “Acceptability Constraint”, which relates to risks the World is willing to accept back with a brinkmanship policy of preemption, in case of failure. The equilibrium solution calculated using the above-mentioned factors and considering the logical assumptions and environmental constraints and depicted through graphical interpretation of the results, reveal when a brinkmanship threat of preemption is credible and when it is not.

The paper highlights the necessity that outside the two mentioned constraints, the UN should adopt other strategies to deter terrorists from acquiring WMD since a brinkmanship threat would either be too weak to be effective or unacceptably dangerous to the World community as a payoff of being credible. The paper also considers hazy information and imprecise control that can generate large risks in this model. What is left for future research in the paper is to examine the uncertainty that may arise in identifying the probability when the World faces a Hard terrorist type and the uncertainty associated with the UN being able to stick to the brinkmanship probability of preemption.

III. MULTI-PLAYER BRINKMANSHIP

The concept of Brinkmanship can be extended to a multi-player environment in real-world scenarios. Such a set-up can turn out to be more complex as it involves evaluating the ‘Credibility Constraints’(CC): Acceptability and Effectiveness for all the members involved in the Brinkmanship negotiation conflict. This could lead to more intricate or complicated decision trees for the Principal before raising the threat warnings against the multiple agents, who could respond in a mutually exclusive reaction that could create a deadlock⁶ series of undesirable explosions for the primary player in action.

A. Energy Brinkmanship: Evaluating the Oil Price War threats among Three players

Saudi Arabia, Russia and the United States have been the major oil-producing and oil-exporting countries for some time (as illustrated in Fig.1). These are the three parties involved in the brinkmanship strategy of the oil war to make the other two players accept its terms on oil prices and production and gain market dominance in the energy sector across the globe.

Country	Million barrels per day	Share of world total
United States	19.51	19%
Saudi Arabia	11.81	12%
Russia	11.49	11%
Canada	5.50	5%
China	4.89	5%
Iraq	4.74	5%
United Arab Emirates	4.01	4%
Brazil	3.67	4%
Iran	3.19	3%
Kuwait	2.94	3%
Total top 10	71.75	71%
World total	100.63	

* Includes crude oil as well as all other petroleum liquids and biofuels.
 * Production includes domestic production of crude oil, all other petroleum liquids, biofuels and refinery processing gain.
 * Most recent year for which data are available when this FAQ was updated.

Source: Trading Economics

Fig. 1 The 10 largest oil¹ producers and their respective share of total oil production² in 2019³

The crisis in the context of the global oil market began in the year 2014 when a new technology developed in the US. made it easier to extract US shale oil, which resulted in a subsequent increase in the US Shale oil production from 0.4 million barrels per day (BPD) to more than 4 million BPD. This made the US a major competitor in the oil production niche previously dominated by the OPEC⁷ cartel alongside the other non-OPEC countries, a cohort majorly led by Russia.

The entry of the US shale industry created a new global oil glut with an abundance of shale oil production. Saudi Arabia, which was not pleased with the emergence of a new competitor, namely, the US, consequently increased oil production, reducing oil prices to a low of \$26 per barrel from \$100 per barrel in 2016. As a result of the recession in the oil exporter economies in 2016 due to the dropped oil prices per barrel, an agreement was formulated between OPEC and non-OPEC countries together – creating OPEC+.

This encouraged Russia (and its oil allies) to sign a deal with Saudi Arabia (and OPEC) to “manage” the oil prices, by cutting production up to 2 million barrels a day (about 2% of world production).

The logic was based on market economics - when producers would agree to limit supply against the demand, creating a **supply shock**, prices will ultimately rise. The arrangement worked initially; oil prices rose from \$26 per barrel in 2016 to more than \$60 per barrel by the end of 2019.

In the background, Russia was playing a deceptive game. Russia’s oil wells are less flexible than Saudi’s, reasons related to climate and geology. Decreasing output in Russia would risk damaging wells and losing on oil fields for years. Thus, Russian oil companies kept on pumping far more than the country’s officials had promised in the agreement with OPEC. They pretended to cut on production, whereas in the background the drilling process maintained a significantly higher pace than what was agreed upon.

Russia also felt that it was depriving itself of potential revenue by cutting on oil production; while, on the other hand, high prices made the drilling of shale oil in the US economically feasible. shale producers, who were unbound by OPEC+, could pump as much as

they wanted and were increasing their world energy market share. US shale oil fulfilled the production gap that was artificially created by OPEC+ to keep the prices high. Thus, the US became the leading producer and consumer of oil products.

Initially, the agreement was profitable for Russia, as played in deception. The agreed-upon production cuts brought Russia hundreds of additional billion dollars in revenue.

The alliance between Saudi and Russia, forming the OPEC+ fulfilled the demands of developing countries, especially China, which requires crude oil to sustain its economic growth. However, the COVID-19 pandemic hit the oil markets hard due to decreasing demand for oil from Asian markets.

COVID-19 crisis shattered the financial markets and dwindled the world economy. Millions of Americans filed jobless claims. People stopped travelling. And Cities went into lockdown. Gasoline consumption dropped by more than 50%. Jet fuel consumption dropped even more. Etc., across the world. This was the **demand shock**, which resulted in a sharp plunge in oil demand. Oil prices began to decline at the start of 2020. It was predicted that oil prices could sink as low as \$10 BPD if OPEC and Russia did not agree on a deal.

At the beginning of the first quarter of 2020, China cut its oil imports by 20%. As Saudi Arabia is one of the main exporters of oil to China, it decided to increase prices to balance out its lost profit margins by cutting the production further. OPEC's (led by Saudi Arabia) initial decision was to cut an extra 1.5 million BPD to keep prices stable and respond to the plunging global demand. But Russia and other non-OPEC members rejected cutting its production.

This was the beginning point for the oil price war, initiated by Saudi Arabia as a Brinkmanship threat against Russia had refused to show accordance to further cut in the oil production. Saudi started the "Predatory Pricing"⁸ war against Russia and other non-OPEC countries.

Both the parties had their interest and the difference of opinion led to a disagreement between the two opposing players, who then started implementing the strategy of imposing a series of increasing threats to convince the opponent to their terms.

Analyzing the published paper "Energy Brinkmanship: Saudi Arabia, Russia and the Oil Price War" [6] by **Turan Gafarh**, the following inferences can be made regarding the Brinkmanship strategy implemented by the three top exporters in the oil price war:

1) *Brinkmanship threat by Saudi Arabia:* OPEC recommended oil production cuts of 1.5 million BPD—as an extension to existing cuts of 2.1 million BPD until the end of the year 2020—to cushion the market amid the slowing global demand. When Russia (and other non-OPEC allies) rejected to abide by this agreement, it meant the OPEC+ was falling apart and an oil price war was on the verge of commencement.

Both Russia and Saudi Arabia decided to flood the market with oil in April 2020, which pushed the oil prices down even further. Saudi decided to tank the world market with discounted oil- targeting the Russian oil market and US shale oil distribution by attracting the oil-importing countries to its lowest-priced oil, increasing the supply and production over and beyond the world demand. This resulted in the worst days in terms of prices of both WTI and Brent oil since 1991.

The basis of this aggressive and bold move was to push Russia to return to the negotiating table and agree to the oil production cuts to raise the oil prices.

2) *Acceptability constraint for Saudi Arabia to risk the failure of its Brinkmanship threat against Russia:* Saudi Arabia is better equipped to withstand the oil price fall — so it can bring more production at a faster rate and a more compensated price compared to the Russians. It has larger foreign cash reserves that can sustain deficit financing for at least five years. Saudi Arabia also has the strong financial support to balance out its economy and prevent it from falling apart for years altogether even at low oil prices per barrel. But, the "Fiscal Break-Even" (FBE) price – the price per barrel at which the country can balance its budget- also has a limit for the sustainability of the economy. The IMF and the Federal Reserve estimate the Saudi FBE to be in the range of \$70-90 per barrel. Losing control of the market to the US shale market, the Saudis were being squeezed. Their budget deficit would reach 13%, which can be considered tolerable, but painful and stressful for the economy. Also, Saudi Arabia appears less politically secure.

3) *Effectivity constraint for Russia of the Brinkmanship Strategy by Saudi Arabia:* The combination of demand shock caused by a coronavirus in 2020 and the subsequent attempt of OPEC to initiate a oil price war by flooding the oil market with an abundance of oil production caused a "**production shock**". Russia doesn't have a large foreign cash reserve as it cannot access foreign debt markets, unlike the sanctions-hit by the US. It cannot bear the low oil prices i.e. around \$10 per barrel or lower for a very long time. Russia's well-established distribution networks, quicker delivery times.

4) *Acceptability constraint for Russia to re-iterate the level of threat to Saudi Arabia and reject the threat posed by the former:* In terms of fiscal budget, Russia has prepared for FBE of \$30 per barrel, whereas for Saudi Arabia, the FBE is estimated to be around \$ 70-90 per barrel. Russia also has a more resilient socio-political realm. Saudi public may be even less willing to bear the costs of an oil price war, due to the reduction in inbound tourism and curtailing foreign investment (which are the primary reform programs for Saudi Arabia's economy) due to the COVID-19 pandemic. Gulf oil producers and Russia announced the increase of oil supply to recover the market share lost during OPEC+ agreement production curbs.

5) *Brinkmanship threat by the US:* The global supply surplus by OPEC countries became too large when the demand was low. There was a major risk that US production could be halved from 13 million BPD to 7 million BPD, which meant further bankruptcy of small-mid size shale oil companies [6].

The US shale industry was already facing bankruptcies, and the fear of a shutdown in production would mean unemployment for millions of people. Due to the upcoming elections at the end of the year 2020, President Donald Trump couldn't afford to have more jobs lost, especially in states such as Texas and North Dakota, which rely heavily on the oil business. This created pressure on President Trump from energy lobbyists. The oil producers demanded the White House to take strict measures, such as threatening Saudi Arabia with military aid cuts and tariffs on imports. For Russia, energy lobbyists urged a new wave of sanctions against Russia and

its oil industry. The United States, being a stakeholder in the global oil politics or oil price war, was required to take stringent efforts to make sure the oil production cuts agreement is agreed upon by both OPEC and non-OPEC countries and the price war comes to an end. The U.S. resorted to strict curbs, tightening policies on imports and establishing military aid curbs- trying to create pressure on the other 2 players: Saudi led OPEC formation and Russia led non-OPEC formation- to limit oil output. Pressure from the USA (world superpower) served as a strong brinkmanship threat for the other two parties, who finally agreed to resolve and signed the production cut agreement. The coordination between all major suppliers and producers could be viewed as a positive move for both the market and the energy sector since cooperation was the only way to prevent the free-fall in oil prices. The US was finally able to establish a strong threat strategy against the rivals who were involved in a global oil price war due to their egos and larger market dominance greed. In another view, Asian markets, particularly China and India, could be viewed as the price war's biggest winners as it allowed them to fill their reserves with cheap oil.

IV. "GO-BIG OR GO-OUT"

The art of implementing the strategy of Brinkmanship is not restricted to more than one person. Individually, a player, may it be a person or a whole organization, can practice Brinkmanship against the odds of surrounding forces, which might be sometimes environmental factors that may be not in human control or might as well be other institutional responses in accordance to laws and rights governing a geographical boundary. Businesses, especially start-ups that are planning to expand or grow to reach the next level, need to practice Entrepreneurial Brinkmanship – wherein the startup management must often make bold decisions, raise risk stakes and push events and initiatives to near disaster to achieve a favourable outcome. The art of combining brinkmanship with entrepreneurship has many successful cases to analyze.

A. "We are free to fly!"- FedEx

Fred Smith launched his new venture "Federal Express" in 1971. The booming growth and phenomenal customer response exceeded the capacity of the existing Falcon Jet assets that were in operation. FedEx needed to expand its business and acquire larger aircraft, permitted by Federal regulations and authorized by Civil Aeronautics Board (CAB) as the company's cargo enlarged its portfolio from shipping documents to finished and

unfinished inventory such as boxes carrying parts, electronics and other bigger, heavier products that required more cargo space. FedEx requested CAB to approve to use of larger aircraft (an exemption on public demand) for cargo services faced oppositions and rebuttals from all sides. Every giant U.S. airline carrier filed an opposition to the grant as they also shipped cargo. CAB also issued an order denying FedEx's request quoting that the agency did not have the statutory authority to grant exceptions under the regulatory regime established by Congress. To get approval from CAB, Smith had to first make sure that the Federal government doesn't restrict the authority of the CAB to grant the exemption. Therefore, Smith

decided to apply the art of brinkmanship to dysfunctional Federal regulations. Smith and the company initiated a full-court press to persuade Congress to eliminate regulations that were constraining public demand for air cargo services. The request for the amendment that would allow CAB to permit Federal Express and other carriers to operate larger aircraft failed due to strong opposition from the airlines, the Teamsters Union and the automotive industry, who sided for government regulations for protection from competition from imports.[7]

But Smith didn't step back and give in, rather he decided to raise the stakes and pursue the efforts to the next level. He wanted the government to allow competition and get out of the way.

In one of the deregulation hearings, Fred Smith attempted for a defining moment of Brinkmanship. He took the help of media, the public support through campaigns and attempted to go dramatic while tearing a 250-page Federal Aviation Act of 1958[8] book into half and insulting the opposition attorney for his baseless arguments.

Smith was determined and refused to quit. He was at no cost, ready to back out. He was in to raise all his stakes until situations favor him. His attempts at the strategy of Brinkmanship could have disrupted his already established reputation with the public and consumer demand and led to the downfall of his established startup if the risks and threats that he was taking didn't result in the way he calculated. But Smith kept continuing his efforts while raising his stakes in the fate of the amendment he proposed.

Finally, with a loud public crescendo, political influence on the newly elected President Jimmy Carter, and a lot of strategic moves, Federal Express won the battle. Federal Express Relief Bill, which would allow open-entry licensing to all air cargo carriers was amended and passed.

To take an entrepreneurial idea and the startup organization to the next level requires vision and the right strategy with a mix of risk-taking capabilities. A measured combination of Brinkmanship and Business leads to successful outcomes.

B. BestBuy risks to the brink!

Dick Schulze founded BestBuy- consumer electronics enterprise in 1966. BestBuy witnessed one of the key episodes of brinkmanship at the Consumer Electronics Show in Las Vegas in 1983. By then, BestBuy as a startup of nine small stores was facing strong competition from its competitors. To survive in the market, Best Buy needed to take a bigger step and stand out among the crowd with a competitive advantage that appeals to the consumers. Schulze decided to go big with the superstore concept- building stores that were three times the size of existing stores, and spreading them across the country, capitalize on emerging and exciting new consumer electronics categories. To transform his business, Schulze and his team had to convince the suppliers to trust them and support the plan with more inventory and credit lines. Schulze created his strategy of brinkmanship to approach the suppliers with two plans, namely Plan A and Plan B. Schulze and the leadership team arrived for the Consumer Electronics Conference in Las Vegas to win a potential fortune for their business or to go bankrupt. Meanwhile, there were rumours in the media that the company was soon going to shut down. The media and its story weren't much help for Schulze to convince the suppliers in his favour. But Schulze was ready to take the negotiation offer to the brink of risk which even meant filing bankruptcy and closing if the negotiations didn't proceed as planned. But if the strategy of brinkmanship becomes successful, then BestBuy

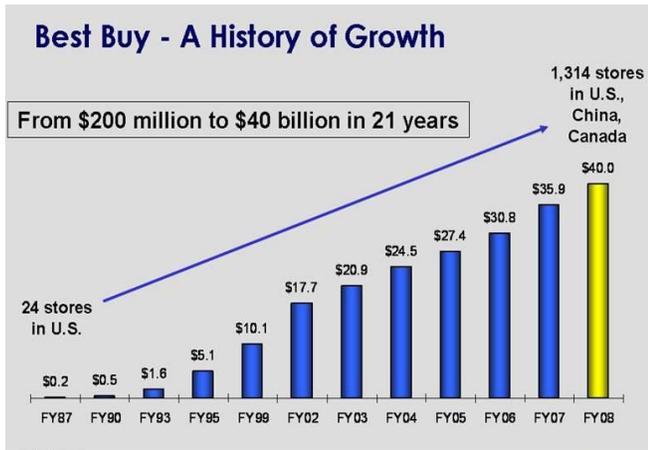


Fig. 2 BestBuy history of growth in terms of company valuation (\$ in billion)

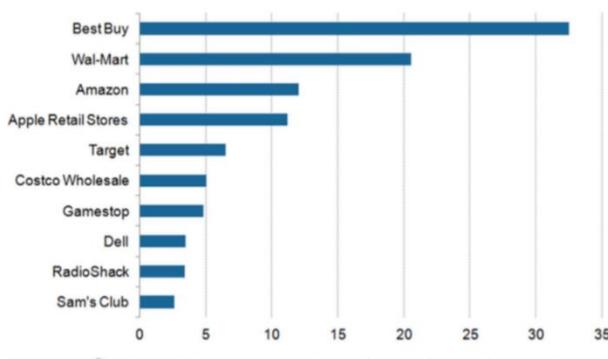


Fig. 3 Top 10 Consumer Electronics retailers (\$ in billions)

Source: Market Realist

would be able to re-emerge as a much stronger electronics enterprise in the market and transform into the market leader. The art of brinkmanship, i.e. the two plans devised by Schulze and the team must be measured and calculated in terms of their effectiveness towards their opponents, i.e. the suppliers who would grant extra credit to the company, to be successful. BestBuy was ready to go all-in and therefore approached the suppliers with two sets of plans, to raise their stakes and increase the risk to the suppliers in sequential offers that were being proposed.

Plan A was to reveal the vision for new stores to the suppliers and ask for support to the plan through capital and trust. The idea was to launch big box stores that would be around 25,000 square feet and that would expand to offer the full spectrum of consumer electronics, including computers, cameras, camcorders, VCRs and appliances. Presenting the market statistics and the target audience chart, BestBuy pitched a demographic that would expand from young males to a wider audience -- including females, who account for 50% of the consumer purchases. This bold move was inspired by the Tornado incident which shook the company but not the spirits of the leaders and the employees. The tornado ripped the roof off the music store and damaged a huge chunk of the inventory.[9]

The defining moment was to witness whether Schulze would get the suppliers to believe in his new, innovative vision for Best Buy? The

skepticism of suppliers, national sales managers, and credit managers made them reluctant to buy in the proposal made by Schulze. They were determined on the fact that BestBuy didn't have the capital to pursue the initiative and had a huge debt sum already to be returned. The only financial rebuttal that Schulze had was to use his home as collateral, which was not enough. To win the negotiation and the credit sum, Schulze entered his plan B which was to let the suppliers know that without their cooperation, BestBuy would have to file bankruptcy within a week and liquidate. This meant that the suppliers would get pennies for the dollars that they had lent as the company. Schulze boldly took it to the brink. He had proclaimed that either the suppliers must trust them, or they are going to have to file for bankruptcy. With the credibility and reputation of having always paid his bills for the past two decades, Schulze was able to achieve the win-win he needed from suppliers by offering a lose-lose alternative that no one wanted. Today BestBuy is more than a \$45 billion company. This would have not been possible if Schulze had not practised brinkmanship with his entrepreneurship. Best was again on the brink of bankruptcy in the year 2012. But the strong leadership and their bold strategic decisions -involving various game theory strategies, namely Brinkmanship, negotiations etc. - refocused the company back on track and the SWOT analysis in the 'BestBuy Client Report Sontag Solutions'[10] of the company highlights the strong leadership decisions of the company as its strengths. Many of BestBuy's competitors filed bankruptcy a decade back and shut down permanently or were taken over by other firms but BestBuy passed its distress times each time through its diligent business strategies, in part by changing its business model.

The following two figures related to BestBuy depicts the company's growth over the years and its dominance in the market among the leading giants in the consumer electronics space. Fig 2. Shows the BestBuy valuation growth from the year 1987 to 2008 and Fig 3. Highlights the data from 2014 wherein BestBuy remains ahead of its competitors in the consumer market space.

V. Brinkmanship and world peace equilibrium

In modern-day society, we wish to move in a direction that gives hope towards world peace. But with major world powers like the US, USSR and North Korea sitting with advanced Nuclear Technology, the threat is omnipresent surrounding us like clouds in the air. One spark and step in a different direction could lead to peace equilibrium being disturbed.

Does having advanced nuclear technology put you in a better stage of negotiation? Or Its the threat of mass destruction that gets you better deals? Will newer nuclear states be more aggressive in their approach to brinkmanship given their newfound high ground? The volatility of situations and strategies to win conflicts leads to irrational threats of mass destruction over small disputes. This is the beauty of brinkmanship the threats are evenly destructive for both parties. Even if party 1 initiates a nuclear war with a country equally equipped to fight back. They will trigger a similar situation for themselves as a response. Nobody wants to experience worse situations, and therefore even during the cold war despite multiple brinkmanship events and threats no nuclear war was initiated. The

unfavorable lose-lose result even if a country goes rogue and starts nuclear warfare leads to the parties with conflict reaching a middle ground in their conflicts. This opens doors for negotiations and solutions which are more efficient and keep the world peace equilibrium in order. The various things that are evaluated before executing brinkmanship strategies are as follows:

1. Risk-Reward

A Risk-Reward measure helps in quantifying the risk taken by the aggressor based on the perceived reward. Low Reward: No action taken. Low-risk High reward: Effective brinkmanship strategies employed High-risk High reward: Action is taken depending on circumstances and need.

2. Effort Reward

An Effort-Reward measure helps in quantifying the Effort required by the aggressor to gain the perceived reward. Low Reward: No action taken. Low-Effort High reward: Effective brinkmanship strategies employed. High-Effort High reward: Action is taken depending on circumstances and need.

3. The number of interconnected Participants

As the old saying goes divide and conquer!

As the number of interconnected participants grows so does the complexity of the strategy that can be executed. A careful examination of the consequence of the action by each connected participant must be evaluated before executing the strategy.

A. Play it Safe:

Our world should be a peaceful place of existence. And world peace equilibrium should be maintained. Keeping this in mind we try to devise effective strategies that can help maintain the same. We aim to devise a strategy for non-nuclear states to have better power of negotiation even with having a weaker hand at play. In all practical and probabilistic situations, large nuclear countries wouldn't want to threaten smaller countries that do not possess nuclear power unless they have a really big reason to do so. For scenarios where they have a conflict and require the use of a large threat if the smaller country doesn't agree in case of a conflict. Here are some ways to ensure world peace equilibrium is not disturbed. We use the fundamental principle of game theory to devise this strategy comparing world peace equilibrium as a Nash equilibrium [11] state. It will require an effort from the rest state to find a new equilibrium. If we try to make the existing equilibrium more favourable to all the parties involved. It will increase the likelihood of the situation returning under control. Here are some ways how we can do this:

1. Making the newly proposed state of equilibrium less rewarding

As mentioned earlier it requires some effort to disturb the existing state and try to reach a newer state of equilibrium. If a country does not want

to give in despite large threats can make it less rewarding for the aggressor. The aggressor will have to reevaluate the scenario considering the changed variables of Risk-Reward and Effort-Reward. Even if someone is confident of getting something by using brinkmanship they will consider if the effort is worth it. This might help avoid potential conflicts and situations of brinkmanship.

2. Reducing the cost to back down

In a lot of scenarios it has been observed that once an aggressor initiates their brinkmanship strategies it is seen as the move has been made and backing down from here would not be possible due to various reasons Ego, Demonstration of power to the world and sometimes for as small a reason as having nothing to lose. By making backing down very smooth and easier countries can uphold their stance and help resolve conflict without causing a lot of havoc in the game.

3. Connect and have strong ally chains

By introducing more number connected participants who will be invoked if brinkmanship strategy is initiated. This helps in increasing the Cost of executing the brinkmanship strategy by the aggressor. They will have to take an effective strategy amongst all your allies and not just you. It helps to provide a stronger ground that cannot be claimed by isolating and attacking. In "An analysis of Nuclear Brinkmanship as a diplomatic tool by Michael Dingman"[12], the author explores and evaluates whether brinkmanship is an effective choice or an unnecessary risk in situations of conflict. Wood, Georgia, "On the Brink: The Impact of Nuclear Weapons on Conflict Behavior Between States" (2021). CMC Senior Theses. 2593.[13], concludes that newer nuclear states will rely on bold brinkmanship strategies while older nuclear states will rely on deterrence. Non-nuclear states will use avoidance and deterrence when engaging in conflict with nuclear power.

VI. CONCLUSION

Examination of the effectiveness of the strategy of Brinkmanship and its application in different backgrounds and fields of work, ranging from resolving personal arguments in a social relationship, solving the disagreement among different political parties, countries, nations etc. over national, international issues to understanding the complexities of decision making in war and attainment of peace and mutual harmony, has been explored in this paper in depth through the analysis of various case studies and the review of different published papers in the context. The paper also explores the factors and principles that guide the strategy of Brinkmanship and help in evaluating the effectiveness of the strategy on the opponent, measuring the level of threat on self in case of failure of the strategy and in understanding the credibility of the threat posed from the perspective of the opposing agent. The paper explores Brinkmanship as a strategic tool that involves driving volatile engagements to the brink of active dispute, with the goal to achieve a positive and favourable outcome for the self.

The example of Standard Oil Company and Trust- American oil company and corporate trust shines bright as an exemplar of a successful Brinkmanship strategy. It was the industrial empire of John D. Rockefeller and his associates, controlling almost the entire oil production, processing, marketing, and transportation in the

United States from 1870- 1911.

The published paper 'Rethinking the economic basis of the Standard Oil refining monopoly: Dominance against competing cartels[14] aids in understanding how the firm of Rockefeller, Andrews and Flagler were operating the largest refineries in Cleveland by the 1870s. By 1880, it had eliminated its competitors through mergers, acquisitions, strategic decisions, negotiations, threat and risk alerts raised against competing corporations and through the use of favourable railroad rebates. To establish a monopoly, it acquired genius minds under the firm's leadership. Standard oil was controlling the process of refinement of 90 to 95 per cent of all oil produced in the United States by 1911 and was controlling the US Oil market exclusively as a major giant by following an effective Brinkmanship strategy. Entering the telecom market in India and stabilizing itself as a major player amidst the long-standing, reputable and already established companies such as Airtel and Vodafone, wouldn't have been successful for Reliance Jio if it had not practised a successful and efficacious Brinkmanship against its competitor players. The paper 'Analyzing the impact of Reliance Jio on the telecom sector of India '[15] is a relevant analysis of the same. The examples and case studies discussed in the paper and many other resolved conflicts that are recognized as the successes of Brinkmanship in the world, underline an effective and useful strategic technique to understand, appreciate, accept and implement to achieve conducive, beneficial and profitable results.

The paper concludes with defining and formulating a strategic plan for executing brinkmanship in regional/ national/ international war scenarios and ensuring the negotiations result in a mutual harmonious agreement rather than devastating chaos. There are several steering features of brinkmanship to improve its effectiveness in gameplay such as stirring up the misperceptions regarding the likelihood of the escalation of the threat, minimizing the opponent's resolve, and decreasing the costs involved in backing down or the benefits involved in staying adamant in the conflict, for the opponent. The paper on the one hand highlights through examples of different corporate success that when brinkmanship is pulled off successfully, it can yield more favourable outcomes, sometimes as high as beyond expectations. On the other hand, we can also witness cases, where Brinkmanship can create resentment or ruin long-term business relationships and bring great losses, when not implemented through the right decision parameters. We can observe and realize the brinkmanship strategy in any application where negotiations and pay-offs can be executed between two or more players in a counter-agreement conflict or in any scenario where a single player is trying to defeat the market and environmental forces and factors impacting a personal prospect.

Appendix A

¹Brinkmanship: "The practice, especially in international politics, of seeking advantage by creating the impression that one is willing and able to push a highly dangerous situation to the limit rather than concede." – American Heritage Dictionary (4th Ed. 2000)

²GOI: The Government of India, also known as the Central or Union Government or simply the Centre, is the Union government created by the Constitution of India as the legislative, executive and judicial authority to govern states and union territories (Wikipedia)

³APMC: Agricultural Produce Market Committee (APMC) is a marketing board established by the state governments in India to ensure smooth trade of farm produce and regulation of farm laws (Wikipedia)

⁴Lok Sabha: House of People- part of the Parliament of India, which is the supreme legislative body of the Republic of India (Wikipedia)

⁵Rajya Sabha: House of States- part of the Parliament of India, which is the supreme legislative body of the Republic of India (Wikipedia)

⁶Deadlock: A situation in which agreement in an argument cannot be reached because neither side will change its demands or accept any of the demands of the other side (Cambridge Dictionary)

⁷OPEC: The Organization of the Petroleum Exporting Countries is an intergovernmental organization or cartel of 15 countries. Currently, the Organization comprises 15 Member Countries – namely Algeria, Angola, Congo, Ecuador, Equatorial Guinea, Gabon, IR Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. (Wikipedia)

⁸Predatory Pricing: A situation in which a company offers goods at such a low price that other companies cannot compete with it (Cambridge Dictionary)

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