The Influence of Behavioral Economics on Decision Making in Operational Risk Management

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Abstract. Behavioral economics reveals the potential cognitive biases and systematic judgment errors of companies in encountering risks. Apple company, as a worldwide famous technology enterprise, experiences risks of uncertainties. The objective of this research is to combine behavioral economics and corporate operational risk theories from an interdisciplinary perspective and evaluate their applied values in risk management and their real meanings. This research mainly discusses how behavioral economics affects decision-making in Apple's management of its operational risks. To make this research reliable and convincing, it is necessary to provide empirical evidence of Apple's real-time decision-making case in the past two years. Furthermore, Apple's supply chain management, product pricing, and consumers' psychological behaviors will be identified in the process of its actual business strategies and decision-making by emphasizing some cognitive biases, like loss aversion, anchoring effect, endowment effects and so on. The research results reveal that apart from effectively discovering internal decision-making biases in enterprises, behavioral economics is also a strategic tool to support enterprises in decision-making in a highly complex global competition, and improve their risk resilience and strategic adaptability. It also shows the strategic value of behavioral economics in the complex global market.

1 Introduction

1.1 Research background

As the global economic landscape becomes more and more complex and unstable, enterprises now face mounting risks of uncertainty. In this case, the traditional rational decision-making model fails to cater to the rapidly changing business environment. Therefore, it is important to introduce the theoretical framework of behavioral economics, which can facilitate the understanding and improvement of corporate decision-making behavior. The reason why the concept of behavioral economics is elicited is due to the failure of traditional risk management. Traditional risk management, as an effective method, is used to identify, evaluate, alleviate and monitor risks in different fields, including finance,

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business, project management and safety. These methods are mainly systematic and structural with an emphasis on minimizing negative impacts. Traditional risk management is a failure, because the models like SWOT analysis, PESTEL analysis and so on, just underestimate the systematic failures by ignoring the behavioral elements, such as the COVID-19 pandemic, irrational decisions, etc. From another perspective, the traditional risk management methods are reactive, not proactive. Reactive risk management pays attention to the known or existing risks based on the previous data or information and past events, and it fails to predict the unknown risks that need to be included in the operational risk management process [1, 2]. For instance, most companies adopt traditional risk management methods, so they fail to prepare for the emergency of the COVID-19 pandemic that is beyond their expectation. In addition, traditional risk management models deal with risks in a separate manner. Namely, a huge number of companies treat risks in the financial sector, operational sector and sales sector individually, and they never consider combining them as an integrated system [3].

Above all, the traditional risk management methods follow the step-by-step process and the linear approach to find, evaluate and mitigate risks. However, the traditional risk management methods make companies unable to predict unknown and unstructured risks. Therefore, behavioral economics comes into being for its function. The significance of behavioral economics used to solve companies' operational risks is to tackle human biases, irrational decisions and organizational behaviors that are ignored by traditional risk management methods. From another perspective, it demonstrates that behavioral economics deals with human errors as the most prominent cause of operational risks. This new method can help enhance risk controls effectively by identifying how people perform in order to encourage companies to design better safeguards to some extent.

2 Research problems

Risk management plays a critical role in corporate strategy. Traditional methods, which usually utilize statistical models and insurance mechanisms, overlook the behavioral differences in both supplier and consumer decisions. Traditional risk management highlights the importance of diversification and financial hedging, but psychological leverage points receive little attention, like cognitive biases, nudges, loss aversion, social norms and peer influence, short-term ways of thinking, etc. As a complementary perspective, behavioral economics reveals that behavior prediction, influence and control all benefit from biases and heuristics. Apple Inc., a company famous for its strategic vision, uniquely exemplifies business operations based on behavioral insights. The reason why Apple is selected is due to its complicated global supply chain, product innovation and risks, cybersecurity and data privacy, brand loyalty risks, etc.

This study aims to explore the factors influencing Apple's behavioral approaches to perception and decision-making processes, and to examine the comparative strengths of these behavioral strategies over traditional methods, particularly in terms of risk alleviation, consumer response, and decision-making efficiency.

This research has the following several objectives:

This study aims to analyze Apple's operational risk management practices through the lens of behavioral economics, assess the effectiveness of its application in this context, and evaluate how these methods influence the company's future behavioral patterns.

The significance of this research is to understand the behavioral operational risk management in tech giants with the case of Apple, Inc. and provide suggestions to other companies in dealing with their operational risks.

3 Literature review

3.1 Summary of existing research on business risk management solutions

There are many other strategies and methods to solve business risks, like prospect theory and behavioral economics [4-6]. Kahneman et al. explain how the prospect theory focuses on how people make wiser decisions in the face of risks in a critical manner [4]. They identify the major findings, like framing effects, endowment effects and status quo bias. The prospect theory offers a realistic model of decision-making process in the face of risks. The reason why this research is mentioned is that it has critically analyzed the prospect theory. It has challenged traditional expected utility theory by supporting people's irrational behavior in evaluating probabilities and outcomes. On the contrary, this theory reflects the systematic biases and their deviations from the normative models. Therefore, it is necessary to propose some new theories to alleviate business risks, like behavioral economics. Bazerman et al., argue that behavioral economics recognizes the reasons behind internal distortions like overconfidence, selective attention, and confirmation bias. The application of behavioral methods can also stimulate the proposal of more effective incentives, like adopting default options to enhance employee engagement and alignment [5]. This study also discusses motivation blindness by ignoring the immoral actions when they fail to conform to employees' benefits. Different from the study by Kahneman et al., Bazerman et al. directly reveal the benefits of behavioral economics to solve problems and perform ethically in terms of making decisions [5].

Thaler and Sunstein explore how the minor changes in the way of presentation remarkably affect decisions based on the unlimited freedom selection [6]. This study makes implications for consumer behaviors and strategic applications. The nudging requires businesses to establish choice architectures and offer subtle direction for consumer decisions, like through pricing anchors, scarcity hints, or option framing, which will enhance the effectiveness of managing demand-side risks. This research explains the necessity of adopting behavioral economics to deal with problems or issues.

The recent studies involve the risk management models constructed based on the behaviors. This model collaborates with psychological insights and economic variables. The models aim to predict the mistakes and systematic errors of organizations' possible strategic decisions.

3.2 Comparison between traditional and behavioral strategies

To solve business risks, there are different methods and approaches. This section compares traditional strategies with behavioral strategies in Table 1 to highlight behavioral approaches to problem solving.

Table 1. Comparison between traditional and behavioral strategies

Dimension	Traditional Strategy	Behavioral Strategy
Theoretical Basis	Assumes rational agents with full information making optimal decisions	Assumes bounded rationality [7] and decisions influenced by biases and heuristics
Risk Perception	Treats risk as objective and quantifiable through probability	Perceives risk subjectively, often shaped by cognitive distortions like Loss Aversion
Decision-Making Approach	Based on logic, formal models, and cost-benefit analysis	Focuses on intuition, bias recognition, and psychological levers
Goal Orientation	Prioritizes profit maximization and efficiency	Balances economic goals with behavioral consistency, satisfaction and trust
Response Mechanism	Builds structured processes, rules and control systems	Applies “soft” behavioral interventions like nudges, defaults and social norms
Performance Metrics	Measured via financial indicators (e.g., ROI, KPIs)	Evaluated using both financial and behavioral metrics (e.g., compliance rates, trust, engagement)

To conclude, the goal of behavioral strategies is not to substitute traditional approaches but to improve them. This is particularly true in uncertain, fast-changing environments, as behavioral economics provides a complementary basis for understanding and navigating decision-making. Firms that deal with the "human factor" in business can become more resilient, more risk-resistant, and strategically more adaptable. There are few studies on the behavioral strategies in solving business operational risks, and this research will fill the gap.

4 Practice analysis

4.1 The background of Apple and business performance

Apple Inc., founded in 1976, is a US multinational corporation and technology enterprise with its headquarters in California. Its major services include consumer electronics, software and services. Apple remains popular and competitive as a global technological leader. In 2024, Apple is regarded as the largest technology enterprise in terms of its total revenue adding up to 1.04 billion dollars.

As for the case of Apple, in 2022, Apple prepaid approximately $13 billion to its upstream suppliers—including TSMC, Foxconn, and Pegatron— to expand its production line and procure equipment [8]. This seemingly expensive action was not purely transactional but also an intentional behavioral strategy to change the risk of supply chain interruption into a psychological commitment embedded in sunk costs. In terms of loss aversion, Apple provided early production guarantees and meanwhile exerted behavioral pressure on its suppliers – starting from the capital investment, both sides would bear huge psychological and financial withdrawal costs.

This method shows that Apple understands the nuances of partner psychology. By reframing a potential disruption (an external objective risk) into a sunk investment (a subjective internalized commitment), Apple engineered mutual dependency. Suppliers had a lower chance of delaying production not only because of contract enforcement, but because of the emotional weight and perceived "wastefulness" of abandoning large sunk investments. However, competitors like Samsung adopted more flexible contract-based methods, which were financially safer but lacked the same behavioral lock-in. Consequently, Samsung underwent delays in several flagship models during the pandemic, while Apple released the iPhone 13/14 series as scheduled.

Apple's strategy can therefore be viewed as a behavioral conversion of loss risk—external uncertainty is made internally through commitment devices that change decision frames for key stakeholders. It is not only about prepayment but also about preemptive psychological alignment.

4.2 Endowment effect and user churn: virtual assets as behavioral anchor

By providing 5GB of free iCloud storage by default, Apple builds a virtual space for users to store highly personalized and emotionally salient data like photos, contacts, and documents. As time goes by, this accumulation generates a strong feeling of digital ownership, even if it is free of charge. The endowment effect shows that individuals treasure what they "own" far more than identical items not belonging to them. Apple's strategy here showcases the power of perceived irreversibility. Even without a direct financial investment, users have made a cognitive and emotional investment. Changing to a different cloud provider now brings not only technical costs (e.g., data migration, compatibility loss), but psychological loss as users may feel like they are "giving up" something of theirs.

This subtle utilization of the endowment effect triggers a non-contractual psychological contract: users are not forced to stay but feel unease when leaving [9]. Compared to many Android-based competitors who provide similar or greater free storage without an integrated ecosystem, Apple’s tight linkage between device, OS, and cloud establishes an emotionally cohesive system. This ends up reducing user churn not through monetary incentives, but through behavioral inertia.

4.3 Anchoring bias and price stability: perception as a hedge

The product lines of Apple remain consistent in the high-end pricing structure. For example, in 2024, the iPhone 15 Pro Max's base price remained at $1,199 regardless of inflation and component cost pressures. However, the prices of brands like Xiaomi and OnePlus experienced frequent fluctuations. Apple gains advantages from the anchoring effect, whereby the first price that users see determines how they perceive the entire value.

This price anchoring establishes a lingering mental framework in consumers' minds: "Apple = high value = expensive but worthwhile." Even if the competitors' products have the same functions with a discounted price, Apple's pricing is "standard" or even "fair" for consumers as they are anchored to the models' price tags and the representative value of the brand. It prevents price fluctuation from a cognitive perspective.

Above all, Apple can better navigate negative risks thanks to this anchoring. The company can address input cost rises or currency shocks without the cost of price reduction, which enables margin protection. In traditional pricing models, pricing features dynamic improvement. For Apple, pricing is a psychological narrative construction [10], where both predictability and brand capital benefit from alignment.

4.4 Scarcity bias and inventory risk: behavioral control of demand

When releasing products like AirPods Pro or iPhone mini-series, Apple purposely limits early-stage provision. A broader hunger marketing strategy manifests in the POS (point-of-sale) limits (e.g., two units per customer) and step-by-step releases in different places. The scarcity bias tells us that people prefer products that they think are scarce and exclusive. Apple's strategy generates desirability out of inventory limits. Apple considers limited supply, which stands for demand, quality, and social status, as a behavioral magnifier instead of an issue. In this way, customers will purchase more urgently and share more in social settings (e.g., unboxing videos, wait-time bragging), which further consolidates demand cycles.

However, there are also behavioral risks brought by this mechanism. Excessive utilization of scarcity may have perverse effects, making consumers disappointed or destabilizing channels, especially in secondary markets. Knowing such risks, Apple normalizes post-launch supply and maintains caution in the media narrative to maintain a balance. Contrarily, the mass production of companies like Huawei to secure the market in the early stage undermines and introduces overstocking risks. Although at first there are more restrictions in Apple's behavioral method, the methods can turn potential overstocking risk into a controlled effective strategy as it unleashes maximum perceived value from limited units.

4.5 Summary

According to the case analysis mentioned above, a paradigm transition from rational management to behavioral engineering manifests in Apple's practices. Apple adopts various methods like sunk costs, emotional ownership, price framing, and scarcity perception to go beyond risk management. It also predicts stakeholders' possible reaction to that risk [11]. This exemplifies behavioral governance that turns objective uncertainties into subjective certainties. However, traditional methods of competitors, like contract enforcement, pricing flexibility and scale-based production, all involve rational risks. Apple is advantageous in that it changes from external risk minimization to internal behavior management. Although this often remains unnoticed, this is actually a strong foundation for competitive resilience. Behavioral economics has supplemented traditional risk management, by considering other non-predicted elements. In addition, this case is simple and industries have their particular characteristics, so this case analysis has its limitations.

5 Recommendations

There are several strategic suggestions for companies aiming for higher resilience amid uncertainties based on Apple Inc.'s behaviorally aware risk management practices:

5.1 Institutionalize behavioral intelligence

Firms should build risk and management teams that include behavioral economists or cognitive strategists. They differ from traditional analysts in their emphasis on latent psychological elements related to supplier behavior, consumer loyalty, and internal decision-making. This interdisciplinary combination can help reveal not only "what might go wrong," but also why crisis scenarios might cause people's irrational behavior.

5.2 Leverage sunk cost structuring for supplier stability

Companies relying on supply chains can follow Apple's example, showing commitment through strategic prepayments. Although this means making investments ahead, the psychological effect of sunk cost logic can boost supplier alignment, especially in the face of global disruption (e.g., pandemics and geopolitical shocks).

5.3 Redesign ecosystem products for endowment lock-in

Digital platforms, especially SaaS and subscription-based services, should offer entry-level services involving high perceived customization (e.g., saved data, interface customization, identity). Consequently, the endowment effect comes into play and switching resistance improves, which assists in churn reduction and ensures the stability of price or marketing costs.

5.4 Employ behavioral anchoring in pricing strategy

Companies should avoid radical discounting or promotional fluctuation. Instead, they should build price anchors based on brand values. They can refer to initial high-value product releases to guarantee stable margins over the long term even in the face of price competition from competitors. Anchoring is both a revenue tool and a consumer perception hedge.

5.5 Use scarcity responsibly to shape demand trajectories

By adopting behavioral scarcity strategies like limited early access or exclusivity-based pre-orders, companies can trigger urgency and social proof. However, the balance between the strategies and post-launch supply stability is important for preventing resistance or secondary-market disruption [12]. By leveraging scarcity, companies can better deal with demand cycles and inventory risks.

6 Conclusion

This study focuses on how Apple Inc. comprehensively manages the corporate risk based on behavioral economics. The company turns objective uncertainties into subjective psychological commitments, proving that managing behavior matters as much as managing figures. This research mainly answers the three research questions. Firstly, there are several factors that affect Apple's methods of coping up wtih the process of perception and decision making, including the lower chance of suppliers, delaying production, abandoning large sunk investments, and intense competition. Secondly, the strengths of behavioral strategies Apple need to adopt turn out to be the behavioral economics in comparison with the traditional methods. Thirdly, behavioral strategies are measured by identifying the uncertainties, like anchoring bias and price stability, scarcity bias and inventory risk, in terms of risk alleviation, consumer response and decision efficiency.

Apple has shown that behavior risk governance is a valid strategy through various real-world practices like supplier prepayments to generate sunk cost effects and consumer-focused methods based on endowment, anchoring, and scarcity biases. Behavior methods differ from traditional strategies built upon rational improvement it that they redefine risk perception and stimulate stakeholder behavior, which enables preconditioning instead of post-reaction.

To sum up, behavioral economics goes beyond theoretically complementing corporate decision-making. It serves as a strategic tool offering both predictive power and intervention methods. If companies aim for resilience and adaptability amid global uncertainties, they should combine behavioral insights with operational strategy, which is not a suggestion but a necessity.

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