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The Impact of IP Co-branding on Enterprises Income – Based on Game Theory

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Abstract: With the development of internet technology, a lot of IP images have been loved by the public, and the commercial value derived there from has gradually emerged. Faced with a multielement consumer market, more and more companies want to get more benefits launching co-branded products through IP collaborations. The essence of IP collaboration is cooperative game between two enterprises. they will strive for optimal resource allocation through continuous strategy formulation and adjustment, jointly enhancing their respective brand values, broadening market shares, and ultimately achieving a win-win situation. This paper employs cooperative game theory to quantitatively analyze the decision-making behaviors of two enterprises in IP collaboration. By constructing a game matrix, it intuitively reveals the positive impact of IP collaboration on corporate revenue growth. Then, this paper analyzes the reasons for the success of the collaboration between Luckin Coffee and Moutai through the cooperative game approach, focusing on aspects such as partner selection, resource sharing, and strategy formulation, and finally puts forward corresponding suggestions.

Keywords: IP co-branding, cooperative game, quantitative analysis.

1. Introduction

Since 2015,the potential value of IP has become more and more clear. IP economy tends to rapidly increase. With the deeper research of the commercial value of cultural IP, lots of companies begin to explore the new ways to co-brand,forming the commercial pattern of IP co- branding [1]. According to the data of IP co-branded consumption report,the share of IP co-branded goods in total sales continues to rise. Until 2023, the total retail sales of global entertainment role-authorized products are as high as $147.6 billion.Under the wave of the Internet and the digital economy, IP has gradually moved from a synonym for intellectual property to the core driving force of business development. IP co-branding has gradually become the dominant brand joint industry, which has brought significant market effects to the brand itself and played a more and more important role in the economic activities [2]. Since 2024, the launch frequency of brand co-branded products has accelerated significantly, such as UGG and 13DEMARZO, Zhoushengsheng and DIMOO (Pop Mart) which shows the diversity and innovation of brand alliance. Co-branding products are becoming more and more popular especially in the catering industry. Luckin coffee launched a total of 12 co-branding products in 2023. However, Luckin coffee has launched 25 co-branding products in the first three quarters of 2024 which fully demonstrates the great potential of IP co-branding in enhancing brand influence and revenue. IP co-branding uses consumers' preferences and loyalty to the brand to increase their earnings through deep cooperation with brands. Besides, IP co-branding has deep influence on three aspects of the company [3]. First of all, IP co-branding enhances its own value by enhancing its brand image. Secondly, IP co-branding can enable enterprises to exploit more users and expand the audience. Finally, IP co-branding can expand the scope of brand publicity and reduce the publicity cost of enterprises. It is worth nothing that the impact of IP co-branding on enterprises is not entirely positive. If the choice or method of co-branding is not appropriate, it may have a negative impact on the brand image. Therefore, when choosing a co-branding, brands need to fully consider factors such as complementarity, fit, target audience and market positioning between the two ensure the positive impact of cooperation.

Game theory is a process of modeling strategic interactive behavior, and its application scope extends far beyond the field of economics. Politics, sociology, anthropology, psychology, and many others also get ideas from it. The core of game theory is providing a multifunctional tool for analyzing multi-agent decision-making situations involving interdependence. Whether it is the exploration of strategic incentives or the analysis of behavior prediction and decision-making processes, game theory offers a rigorous structural analysis method to ensure the accuracy and depth of the analysis. Concepts such as the "prisoner's dilemma" and "repeated games" in game theory reflect new thinking on trust and cooperation [4]. Research in game theory can effectively construct trust and cooperation mechanisms to promote the common development of individuals and society.

In the process of IP co-branding by enterprises, there are also issues such as decision-making choices and brand collaboration. Therefore, this paper aims to analyze the revenue impact of IP co-branding on two enterprises through simple cooperative game theory. This paper will select Luckin Coffee and Moutai as research objects and explore them from the perspective of game theory.

2. Concept Definitions

2.1. Overview of IP Co-branding

The full name of IP is Intellectual Property, referring primarily to the property rights enjoyed by the creator over their intellectual labor results. In the entertainment industry, IP has various forms, including literature, anime, film, television, games, physical products and so on. In addition, an IP image which can activates a brand's visual system successfully will build a bridge between the brand and consumers quickly, promoting the brand and enhancing corporate profits. IP co-branding refers to the collaboration between a brand and an IP to achieve complementary advantages and resource sharing, with the ultimate aim of creating economic benefits. At the same time, the value of the co-branded product is higher than the value of each of them in the market alone [5]. IP co-branding has become a new cross-border marketing model. More and more enterprises adopt this method to increase their benefits.

2.2. Cross-border Marketing

The importance of cross-border marketing is finding perfect and ideal collaboration partners. Cross-border marketing is the process of breaking traditional information dissemination ways through innovative strategies, achieving synergy through multi-field integration, and thus attaining ideal marketing results. IP cross-border marketing involves fusing IPs with modern marketing models based on both parties having similar target consumers and achieving a win-win marketing model through multi-field complementarity and multi-directional coverage [6]. The collaboration between Luckin Coffee and Moutai is a successful example of cross-border marketing.

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2.3. Fundamentals of Game Theory

Game theory was jointly proposed by John von Neumann and Oskar Morgenstern in the 1940s. As a mathematical theory, game theory aims to analyze the behavior of decision-makers in situations where they interact with each other, predict the behavior of participants in specific scenarios, and seek the best strategies to achieve their respective goals [7,8]. Game theory is widely applied in economic and business fields, such as pricing strategies, market competition, and investment decisions.

Cooperative game theory is a branch of game theory. Cooperative game theory primarily refers to games where some participants engage in cooperation or form alliances. In cooperative games, participants may not necessarily cooperate, but there is an external mechanism to punish non-cooperators. Cooperative games are also known as positive-sum games, where the interests of both parties increase, or at least one party's interests increase without harming the other party's interests, thus increasing the overall social benefits. Cooperative game theory emphasizes collective rationality, namely efficiency, fairness, and impartiality. In cooperative games, participants distribute the cooperative surplus generated through cooperation, and the distribution rules should satisfy the Pareto improvement property, meaning that each member receives no less than the benefits they would have obtained without joining the alliance.

The application of cooperative game theory in the economic and business fields is mainly reflected in corporate strategic alliances, joint ventures, and cooperative research and development. Through cooperation, enterprises can share resources, reduce costs, improve production efficiency, and achieve a win-win situation.

3. Analysis of Cooperative Game Theory of IP Co-branding on Enterprise Revenue

In order to understand the decision-making logic of enterprises within a cooperative framework and its potential impact on revenue, this article constructs a cooperative game matrix, as shown in Table 1.

Assume that there are two players which are Player 1 and Player 2. When both Player 1 and Player 2 choose to cooperate in IP co-branding. During this process, if they trust each other and share resources, both parties can obtain significant benefits. These benefits are not only reflected in significant sales growth but also in enhanced brand awareness. The benefits also can increase consumer loyalty and expand market share. Therefore, it is assumed that in this case, the benefits for both parties are a ($a > 0$). Because the market has a situation of information asymmetry and trust deficiencies. So when one party chooses to cooperate, the other party may choose to refuse, because of its self-interest. As a result, the party cooperating may incur costs without getting the expected market returns, leading to losses. So assuming the benefit is -b ($b > 0$), while the benefits of the non-cooperating party is 0 because they did not bear the cooperation costs. When both players choose to cooperate, neither party will get benefits from the co-branding collaboration, so their benefits are both 0. Based on this, the game matrix is constructed as shown in Table 1.

Table 1: Game Matrix.

		Player 2	
		Cooperate	Don’t cooperate
Player 1	Cooperate	(a, a)	(-b, 0)
	Don’t cooperate	(-b, 0)	(0, 0)

Through the game matrix, it can be found that there are two Nash equilibrium points which are (a, a) and (0, 0). The former point represents a win-win situation which will be appeared by cooperation. While the latter signifies the "prisoner's dilemma" in the market under non-cooperative conditions, revealing a market stalemate in the absence of cooperation. The equilibrium point (0, 0) is not a good choice because it overlooks the enormous value that cooperation can bring.

IP collaborations not only have a direct positive effect on corporate revenue but also play an important role in brand building, consumer relationship maintenance, and market expansion. Therefore, to maximize the impact of IP collaborations on enterprises, companies need to keep every aspect of cooperative game theory seriously. This includes selecting appropriate collaboration partners, formulating optimal cooperation strategies, enhancing mutual trust, and ensuring the fairness and sustainability of the collaboration. Only in this way can break the "prisoner's dilemma" , and achieve sharing resources and mutually beneficial cooperation.

4. Case Study

Recently, IP co-branding has gradually become one of the common marketing strategies among enterprises. The purpose is to enhance market influence by sharing resources and brand synergy, thereby increasing sales and brand value. This article takes the "Sauce-flavored Latte" jointly launched by Luckin Coffee and Moutai as an example and conducts an in-depth analysis of the impact of this collaboration on corporate revenue from the perspective of cooperative game theory.

Luckin Coffee and Maotai jointly launched a drink called Soy Sauce Latte. This collaboration not only triggering extensive media discussion quickly, but also bring significant market response. As an emerging coffee chain brand, Luckin Coffee is committed to providing a cost-effective urban fast-paced lifestyle experience, but there is still room for improvement in brand awareness [9]. But Moutai as the leading brand of Chinese high-end alcohol, although have strong influence, also facing challenge of brand rejuvenation and internationalization. Therefore, choose to cooperate with the aim of achieving dual enhancement of brand value and market sharing and complementary advantages. Luckin Coffee and Maotai’s collaboration is based on the deep integration and complementarity of their brand influence, channel resources, and technical experience. Not only create buzz but also achieve a dual increase in brand value and market share within the framework of cooperative game theory.

In terms of developing a cooperative strategy, Luckin and Moutai realized high coordination through carefully planning the design and research of products, market promotion and publicity and channel integration and sharing. The “Sauce-flavored Latte” which both of them launched perfectly integrated the sauce-flavor of Moutai and the sweet-smelling of Luckin together, which satisfied the expectation for novel tastes of consumers. In terms of the design of packaging, both of them cleverly integrated the Chinese red which is the iconic color of Moutai, they also decorated the Luckin’s characteristic blue stripe and pave the exquisite traditional gold-plated patterns as decorations, that makes special visual effect. On the back of the packaging bag, they cleverly used the iconic deer pattern of the Luckin Coffee, this design is the most intuitive expression of the collaboration between Luckin and Moutai. At the same time, both of them made a comprehensive and multidimensional marketing promotion plan through a combination of online and offline methods, effectively improving the popularity and influence of the co-branded products [9]. This coordination of plans not only improves the market competitiveness of the co-brand products, but also brings more exposure and attention to both brands, reflecting the importance of strategic coordination in cooperative game theory.

Moreover, Luckin and Maotai have reasonably distributed the sales proceeds of co-branded products according to the cooperation agreement, which makes sure that their economic profits is guaranteed. More importantly, the brand value of both sides has been greatly improved. Luckin has improved its brand image and style through the co-branding cooperation, attracting more high-end consumers' attention. On the other hand, Maotai has succeeded in entering the young people's market, expanding the brand influence and market share. The joint cooperation between Luckin and Maotai is a successful attempt under the framework of the cooperative game. Through strategic coordination, resource sharing and complementarity of advantages, and benefit distribution and win-win cooperation, the two sides have not only achieved short-term market success, but also laid a solid foundation for long-term development in the future.

Therefore, the co-branded product "Sauce-Aroma Latte" sparked widespread discussion and attention on social media just three days after its launch. There were over 30 trending topics related to it on Weibo, and the topic's playback volume on the TikTok reached nearly 400 million times on the first day, surpassing 1 billion times within two days. On the WeChat , the WeChat Index for Moutai and Luckin Coffee achieved a daily growth rate of 475.76% and 1535 times, respectively [8]. This co-branded beverage sold over 5.42 million cups on its first day, with single-day sales exceeding 100 million yuan. These figures fully demonstrate the market effect and influence of the co-branding collaboration.

5. Conclusion

As an innovative form of modern business strategy, IP co-branding is a new method of cross-border marketing, realizing in-depth content integration and market insight sharing between brands. Based on the cooperation strategy of game theory, IP co-branding aims at increasing the income and its influence through resource sharing. This strategy can not only directly influence the income of companies but also have a significant impact on the brand image, market position, and business field expansion of the enterprise.

IP co-branding strategy is a creative and effective business strategy because it not only brings direct economic benefits to the company but also has a profound impact on many aspects such as brand building, market expansion, and consumer relationship construction. Through careful planning, in-depth collaboration, and reasonable mechanism design, companies can achieve continuous success in this field, create more value for consumers, and achieve win-win development between enterprises and consumers. According to the analysis above, this article believes that in IP co-branded cooperation, both parties need to maintain a high degree of consistency in product design, marketing, customer service and other aspects to ensure the market competitiveness of co-branded products. Moreover, IP co-branding requires that it is necessary not only to carry out in-depth communication and coordination to jointly formulate strategies that meet market demand and consumer preferences, but also reach a consensus on benefit distribution and risk sharing. Everyone is supposed to have an adequate understanding of the self and the other party's resources and advantages and predict the reaction of the market and consumers' behavior so as that reach the best strategic combination in cooperation.

The impact of IP co-branded strategy on enterprise revenue is multidimensional. It includes direct financial effects and indirect brand and market effects. Meanwhile, game theory provides important theoretical support and guidance for the formulation and implementation of IP co-branded strategies. Game theory can help enterprises find the best cooperation model by analyzing the motivations of cooperating parties and strategy choices and their mutual influences. Then carry out in-depth strategic coordination, reasonable benefit distribution and risk sharing mechanism, so that all parties can realize resource sharing and complementarity of advantages in cooperation, and jointly improve market status and revenue. This not only brings continuous revenue growth and brand value improvement to the company but also provides consumers with richer and more diverse products and service options.

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