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The Road to "The Third Party Economics": Attention to the Existence on the First and the Second Party

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Abstract

In the environment in which business is conducted, all companies will most likely have competitors, but of equal importance to the relationship between a company and its competitors is the existence of other entities that can influence the market at any time. This entity could be an emerging company that develops a new methodology rendering current approaches obsolete, or it could be a diplomatic circumstance with another country. It is critical to develop corporate strategies and economic policies to consider the possibility that such third party effects may continue to occur in the future. It is essential to move away from focusing only on bilateral relationships, and to thoroughly examine the third one and prepare countermeasures. This contribution is expected to be expanded into "The Third Party Economics" that explores considerations that have remained outside of contemporary discussions. The author proposes that all economic agents should deeply recognize not only competitors but also the existence of a third party as another axis.

Keywords: *The Third Party Economics, Third Party Effect, The First Party, The Second Party, The Third Party*

1. INTRODUCTION

The subject of interactions with self and others has always attracted great attention. In particular, from the economic point of view, many studies have been undertaken on various circumstances wherein a customer conducts commerce with a supplier. However, other entities that affect the relationship between the two were hardly discussed. This is not only to simplify models, but also because current research does not meaningfully address the existence of other influences. In this paper, the author emphasizes the importance of establishing a perspective regarding influences other than the two parties in the transaction. Customers want to obtain as much information as possible regarding the seller, making decisions based on the seller's reputation, the evaluations of others, and social trust. Furthermore, customers also evaluate information about themselves; for example, the availability of adequate finances, potential "buyer's remorse," and many other relevant considerations. However, in many cases, no attention is paid to those that affect both. Suppose you make a reservation for a meal at a restaurant; however, when you arrive at the restaurant on time for the reservation, the restaurant has gone bankrupt, closed, and is no longer in operation. In this case, you can simply consider it as bad luck, but if you knew about the restaurant's closure in advance by double-checking, it could have been

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avoided. In this way, it is necessary to consider cases in which factors that are outside the control of both parties intervene.

Regarding the economic sector as a whole, the government, corporations, and individuals work together, and in general, the relationship between corporations and individuals is primarily discussed; however, the impact of the state's influence on other entities, such as through interest rates and taxes, cannot be ignored. Even typical stock market participants will consider promising stocks (namely, blue chips) first. However, even with many reliable stocks, no one knows what the future stock price will be. Thus, when examining market conditions, it is crucial not to overlook multilateral relationships, and to give them as much weight as bilateral relationships. In this paper, the author will examine the importance of these relationships and endeavor to suggest an alternative perspective on the market. This contribution is expected to be expanded into "The Third Party Economics" that explores considerations that have remained outside of contemporary discussions.

2. THE UNDERSTANDING OF THE THIRD ONE

2.1 The World Market

Since the Industrial Revolution, through industrialization, a wave of informatization unleashed by information and communication technology is in progress. Even in the field of weather forecasting, various data interpretation techniques are being used [1]. One of the characteristics of information technology, which forms the basis of informatization, is the continuous introduction of innovative business models and successful methods. Moreover, the gap is getting smaller and smaller. Uncertainty and difficulty in forecasting are highlighted in this global market trend. In these circumstances, it is often unnecessary to address only relationships with competitors within an industry; rather, it is because trends in other industries are more prominent.

For example, in the case of the automobile industry, in the past, the power system with the internal combustion engine as the main axis was predominant. Now, electric vehicles are expected to become the backbone of the market soon after evolving through hybrid engines. However, in this evolutionary time, it was revealed that a single small semiconductor could disrupt the process of the automobile industry. In this way, new opportunities and risks that were not previously considered—including global logistics—may emerge. This demonstrates that it is unwise to ignore the existing factors within an industrial group, as well as external events that occur in other industries or even completely unrelated fields. It is not impossible to grasp these newly emerging factors; however, there are many cases in which loss occurs because such considerations are intentionally ignored or are not reflected in the existing model. The point is that in addition to relationships with counterparties, the existence of external factors also requires full attention. As the complex global economy evolves and intensifies, this trend will be accelerated.

2.2 Unknown or Uncontrolled Existence

The most important factors determining price are supply and demand. However, there are cases in which external factors, such as government regulation, are more influential. Technological innovation or technological advances can be as influential on prices as government regulation [2]. For example, in the early days of the automobile industry, automobiles were expensive and were considered a luxury by the general public. Then, the Ford Motor Company's Model T was produced using a division of labor system that significantly lowered the price. In the past, phone call rates were very high when making and receiving calls between countries, whereas, in recent years, they have been substantially reduced, and many calls can now be made for free. Therefore, it can be said that the factors such as government regulations and advanced innovations had an unintended effect on the market.

Consider the Say's law advocated by Jean-Baptiste Say (1767-1832). Say's law states that supply creates demand, asserting the importance of capacity to produce and supply [3],[4]. However, it is important to note that it is based on a case in which the value of one good does not change or need to increase. In other words, if the basic value of one good is Q_0, it is assumed that the relationship between supply and demand is running smoothly; however, if the value of the relevant good suddenly decreases (Q_0 > Qnew), the fair price will decrease indefinitely. This reduces utility, expelling the goods from the market as a result. For Say's law to function, the current value must not change significantly; therefore, the third factor, the value of goods, has a considerable influence on the relationship between supply and demand. As such, the third factor is often unknown or difficult to control. Nevertheless, taking these factors into consideration as much as possible will significantly reduce potential loss.

3. COPING SKILLS

3.1 Link with the N-Body Problem

The problem of managing the relationship of influence between two objects has previously been concluded, to some extent. The so-called two-body problem is fundamental in the field of classical physics. Nonetheless, it was proven by Henri Poincaré (1854-1912) that there is no general solution to the case of the three-body problem in which only one object is added [5],[6]. Furthermore, in the case of the n-body problem that includes more than this, it goes without saying that no general solution exists. If the author tries to simplify this n-body problem as much as possible and limit it to the third-party effect, it can be referred to as the three-body problem, in which a certain company (or customer) and a counterpart company interact and a third party is added. There is no general solution to the three-body problem, but there is said to be a balanced solution, at least in unique situations. Representatively, the Lagrangian point proposed by Joseph-Louis Lagrange (1736-1813) refers to a point at which various forces, such as gravity and centrifugal force, are practically at equilibrium while two celestial bodies influence one another [7],[8]. It can be said that it is meaningful enough just to consider third economic agents while exploring the relationship between a certain economic agent and other economic agents that have an influential relationship.

In this regard, a simple model will be proposed by the author to help understand the property of a third party to consider the existence of a third party in the market. First, the following formula can indicate the current situation.

$$T^{P_1} \cdot T^{P_2} \cdot T^{P_3} = T^{(P_1+P_2+P_3)} = X \quad (1)$$

In Equation (1), the various participants in the market are denoted by P_n. This can be expressed as: P_1 = the 1st party, P_2 = the 2nd party, and P_3 = the 3rd party, respectively. And let X be the result that arises from them. In order to derive the result value X, the influencing factor is set to T. For example, T can be savings or tangible and intangible influences.

$$\log T^{(P_1+P_2+P_3)} = \log X \quad (2)$$

In Equation (2), then, by taking the logarithm of both sides and adjusting the expression slightly, it can be expressed as follows.

$$(P_1 + P_2 + P_3) = \frac{\log X}{\log T} = \log_T X \quad (3)$$

In Equation (3), it was slightly modified using the logarithmic property. Finally, it is derived as shown in next Equation (4).

$$P_3 = \log_T X - (P_1 + P_2) \quad (4)$$

Therefore, the third party is determined by the relationship between the first and the second party and $\log_T X$. Thus, the following cases can be considered.

(1) $\log_T X > (P_1 + P_2)$: P_3 have a positive impact.

(2) $\log_T X = (P_1 + P_2)$: P_3 have a zero impact.

(3) $\log_T X < (P_1 + P_2)$: P_3 have a negative impact.

Here, $\log_T X$ is similar to the formula of the Hausdorff dimension representing the numerical value of the complex system. Felix Hausdorff (1868-1942) explained as follows [9],[10]. For example, when the length of a figure increases T times and the overall shape of the figure increases by X times, the dimension can be expressed as $\log_T X$. And it can be said that the resulting number means the degree of complexity. Therefore, if complexity increases due to the appearance of a third party (P_3) in the market, it should be handled very carefully.

3.2 Decision Cube

The author suggests building a decision cube when seeking to visually and intuitively examine third-party effects. First, consider a square and place two economic agents vertically and horizontally, respectively. Next, consider other economic agents in a three-dimensional space and compare their sizes. Using this visualization, it will be possible to grasp the existence and potential influence of the third party and to freely construct the size or shape of the decision-making cube. By assessing the differences between each cube, it will be possible to identify potential causes and develop strategic countermeasures.

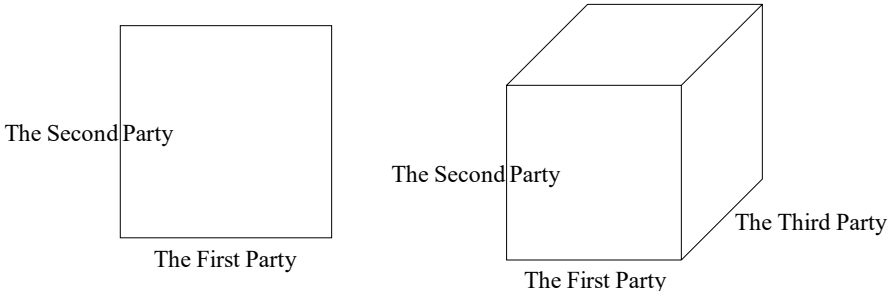

Figure 1. Basic Decision Cube

In Figure 1(a), we can think of a rectangle that contains only the first party and the second party. In this state, only two entities have mutual influence. Therefore, it is possible to undergo a change into several rectangular shapes. As the third party is added in Figure 1(b), more types of shapes are derived. That is, from the surface area of a figure to the volume of a solid should be considered. Therefore, it is difficult to predict the whole by measuring the length of one side only.

Comparing Figure 2(a) and Figure 2(b), Figure 2(b) appears to be much larger without the presence of the third party than Figure 2(a). In Figure 2(b), the third party has much less influence, so the overall volume of the Figure 2(a) is larger than Figure 2(a). In looking at Figure 3(C), it seems that the first party has a greater influence than the second party, but actually, the influence of the third party is greater. Using the explanation in section 3.1, the size can be assumed as income or sales, and the shape of a figure can be thought of as a variety of figures rather than a simple rectangle or a cube form.

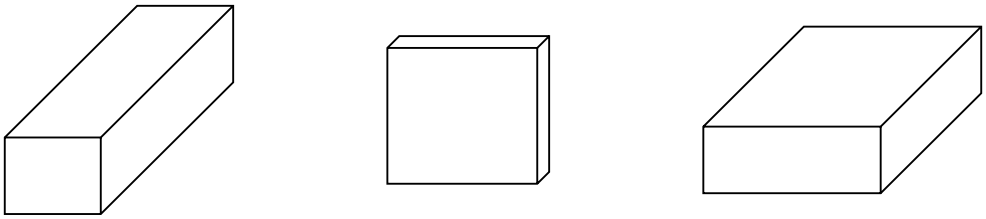

Figure 2. Types of Decision Cube

4. OTHER EXAMPLES

4.1 E-Commerce

The expansion of e-commerce has been accompanied by remarkable achievements. In particular, the growth rate of the consumer-oriented B2C (business-to-consumer) market is as large as that of the B2B (business-to-business) market. In e-commerce, it can be said that building a relationship between the customer and the company is the most important factor. In this scenario, there may be various third parties whose relationship is fundamentally violated. First, regarding shipping issues, if a delivery is delayed due to heavy snow or other calamities, the customer can file a complaint against the company with which they placed the order rather than the delivery company. Therefore, from the perspective of the company, it may be possible to develop a countermeasure in consideration of the potential for the reputation of the company to be lowered due to such unexpected events.

4.2 Insurance

The most important goal in insurance is to secure insurance subscribers by understanding the level of risk and calculating the insurance premium rate according to that risk. Paradoxically, what insurance companies pay most attention to is recruiting people they expect to have little or no risk. Thus, it can be said that there is an important third party between the insurance company and the policyholder, which is the risk of an accident. However, in reality, accidents occur constantly, and it is the main task of insurance companies to identify these risk factors. In the case of the most popular auto insurance, an individual's previous accident history is already reflected when calculating insurance premiums. At this time, the insured will be able to increase their favorability by providing the cause of the accident that the insured was not expecting.

4.3 Stock Market

As stocks fluctuate, many investors and institutions readjust earnings expectations and set new targets. For a stock investor, the company in which they invest is their main counterpart. In addition, various information is required for stock investors to earn profits, and the third parties that may influence this could include the domestic and international environment or the circumstance of a competitor challenging the company in which they invest. For example, the completely new field of cryptocurrency recently emerged, and funds that would otherwise flow into the stock market are flowing out. This means that investors can turn their limited investment into something other than stock; therefore, it is necessary for stock market professionals to keep an eye on the possibility of promising investment targets other than stocks and to develop countermeasures in response to such targets.

5. CONCLUSIONS

When making decisions, it is often the case that the conclusion is focused only on the relationship between two parties; however, there are many cases in which the existence of a third party that is deeply related to both sides is ignored or is not referenced as material for judgment. Given the increasingly complex global economic situation, the magnitude of this third-party effect cannot be ignored. The author suggests that it is necessary to understand the influence of third parties in the economic model. It is also necessary to place the third party in an appropriate position to accurately measure such influence. Accordingly, the author tried to derive a mathematical model that reflects the phenomenon realized due to the existence of a third party. In addition, some models and solutions were devised and presented so that the situation could be visually understood. This perspective originates from the three-body problem, and although an essential solution is difficult to ascertain, just as there is a solvable position, it can be considered in light of reality. To overcome uncertainty and distrust, it is essential to develop a new economic model that recognizes the existence of third parties in addition to oneself and a single other. Based on this supposition, it is expected that the foundation for the development of a future new research model will be established.

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