

PRELIMINARY DRAFT

Opportunism fails the price mechanism, not the market

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Abstracts:

It has been the tradition in economics to consider the price mechanism as the equivalent of the market. The unveiling of the opportunistic behavior posed a challenge to the tradition by highlighting the schism between the price mechanism and the reality of market exchange. Hume's epistemic taxonomy, which is upheld by the experiments of behavioral studies, allows the revelation of the borderline which distinguishes the domain of the value-cost rationalism from the domain of the empiricism. The complement-sets relationship between two domains, which is unfolded by the PUN (the principle of the uniformity of nature), enabled the separation of the domain of the opportunistic behavior and the market from that of the price mechanism. The opportunistic behavior is compatible with the market, but not with the price mechanism. It is the morality, standards or law of the market, not the price mechanism that reins in the opportunistic behavior.

Keywords:

Sympathy-consent process, opportunism, price mechanism, PUN, indeterminateness, cognitive system

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I. Introduction

“Economists are interested only in ‘the determination of market prices,’ whereas ‘discussion of the market place itself has entirely disappeared’” (Hodgson 2015: 130)¹. One of the consequences is the conceptual confusion about the relation between market and price mechanism. They are often treated equivalent in the literature. A typical example is the transaction cost. It is the concept of the price mechanism. It is used to represent the market in the analyses to study the relation between market and organization (Coase 1960; Williamson

¹ Small quotation ‘.’ in big quotation “.” is from Coase (1988: 7).

1971, 1975).

The problem turned out to be not that simple. It is the opportunistic behavior that posed challenges to the impending debates of market versus organization (Williamson 1975; Klein et al. 1978). This problem becomes pronouncing due to the issue of market failure. Plenty of researches attracted attention because they reported the cases of market failure. Especially in the literature of new institutional economics, opportunistic behavior was highlighted because of its nature to make havoc to the works of the market: lemon market failure (Akerlof 1970), shirking (Alchian and Demsetz 1972), lock-in effect (Klein et al 1978), moral hazard (Hart and Holmstrom 1987), incomplete contract (Grossman and Hart 1986) and so on.

Section II will address the question “Why opportunistic behavior matters?” Does the opportunism fail the market or the price mechanism? To address the question, we need analytical instruments by which to distinguish the differences between market and price mechanism. We begin with human cognitive system to figure out the sympathy-consent dimension in section III. Sympathy-consent process is the process of personal interaction when individuals have their respective cognitive systems. The value-cost rationality dimension is distinguished from the sympathy-consent dimension which is nothing but the dimension of bounded rationality. The determinate system of value-cost rationality dimension contrasts with the indeterminate system of sympathy-consent dimension.

It turns out that the domain of the empiricism is unfolded as being distinguished from the domain of the value-cost rationalism. Hume’s epistemic taxonomy introduces the Principle of the Uniformity of Nature (PUN in short) and elucidates the borderline between two different analytical domains (Hume 1739). Now, we become ready to distinguish the market from the price mechanism. The price mechanism is compared with the sympathy-consent process as two alternative instruments with which to attain the trading in different epistemic conditions. How to determine the price if the sympathy-consent process is adopted as the trading instrument? The determination of price as a fraction of the sympathy-consent process is addressed in Section III.

In Section IV, the location of the PUN enables the animation of the complement-sets relationship between the value-cost rationality and the bounded rationality. The domain of the value-cost rationalism is distinguished from the domain of the empiricism, which elucidates the reason why it is not allowed to decline the investigation on the economic states in the domain of the empiricism. Do the economic states of our real life belong to the domain of the value-cost rationality dimension or the domain of the sympathy-consent dimension? The problem of how to find the criterion by which to determine the affiliation of a phenomenon with between two domains will be addressed in Section V. The indeterminateness, coincidence and path dependence are presented as the attributes which conflict with the PUN.

Since the human cognitive system is presumed, we are ready to distinguish the price

mechanism from the market. In Section VI, the price mechanism which belongs to the domain of the value-cost rationalism is distinguished from the market which essentially belongs to the domain of the empiricism. The phenomena of opportunistic behavior as well as those of the market belong to the domain of the empiricism. However, the price mechanism belongs to the domain of the value-cost rationalism. The appearance of opportunistic behavior indicates the legitimacy for the accordance with the market, not with the price mechanism. It is the morality, standards or law, not the price mechanism that reins in the opportunistic behavior.

Section VII will address on the practical significance of the study, particularly by the application to the cases of Akerlof's lemon market (Akerlof 1970) and the residual rights of control of the modern property rights school (Grossman and Hart 1986).

II. Why mind about the opportunistic behavior?

In the famous example of procurement contract between General Motors (GM in short) and Fisher Body (FB in short), human beings never fail to encounter the unanticipated situation which may arise as the outcome of asset specificity and lead to the locked-in hostage condition due to the FB's locational specificity of production plant. It becomes critical to understand how human behavior may respond to the unanticipated situation. Opportunistic behavior may be possibility as the responding action to the situation (Williamson 1975: 234; Hodgson 2004: 402).

Williamson defined opportunism as "self-interest seeking with guile" (Williamson 1975: 255). Is 'self-interest seeking' different with 'self-interest seeking with guile'? (Hodgson 2004) The bewildering condition connoted in Williamson's definition stems from the limited capacity of human cognizance, i.e. bounded rationality. Unintended conditions never fail to develop after contracts being signed (Hart 1995). The significance of the problem is in its capacity to derail the transaction cost approach (Klein et al 1978).

Transaction cost is considered as the cost necessary to monitor opportunistic behavior and enforce contracts (Williamson 1975; Hodgson 2004: 401). However, it was not explained how every opportunistic action can be identified consistently by transaction cost or any of its indices (Rhee 2014, 2018b).² If opportunistic actions are not able to be identified consistently and uniquely by transaction cost, can we rely on this approach to recognize the transaction cost as the unique system to integrate the market and organization?

The real significance of the opportunistic behavior consists in its capacity enough to fail the price mechanism of the rational agent model. The transaction cost approach represents the price

² In fact, it is the issue of the PUN.

mechanism of the rational agent model. The shift of attention from the transaction cost approach to the property rights approach due to the possibility of the situation being locked-in to the hostage of incomplete contract indicates nothing but the failure of price mechanism (Grossman and Hart 1986; Hart 1995).

The argument is not restricted to the transaction cost approach. The failure of price mechanism is endemic problem in the studies of the new institutional economics when opportunistic actions loom at large. The failure of price mechanism in the lemon market is a well-known example (Akerlof 1970).³ Well-known attempts to cope with the problems of opportunism from adverse selection (signaling: Michael Spence 1973; screening: Stiglitz 1961) to moral hazard (principal-agent: Jensen and Meckling 1976) could only verify the failure of the price mechanism to track down the problem. Their modeling is not efficacious enough to explain the resilient economic activities of trading or exchange while the human behavior of opportunism remains unchecked.

If being confined to the firm, Alchian and Demsetz (1972) recognized the problem arising from the difficulty of metering the productivity of an individual in team production. Hence, the shirking behavior may lead to the failure of the market which relies on the wage as the instrument of resource allocation. What is verified by metering problem is the failure of the price mechanism of the RAM to explain the relation between productivity and wage. Nevertheless, the operation of the firm, which is built on team production, remains unhampered.

Modern property rights school emerged to deal with the problems of post-contractual opportunism (Grossman and Hart 1986; Hart and Moore 1988, 1990). However, the introduction of residual rights of control as the new concept of property right to deal with the indescribability of contracts failed to resolve the issue but to confess the lack of reality in their analyses (Maskin and Tirole 1999a). It is another example of the failure of price mechanism in tracking down the problem of opportunism.

How to explain the schism between the price mechanism of the RAM and the reality of market exchange? To answer the question, we need to understand the epistemic nature of the problem.

Clearly, every issue connects to the relevant point of bounded rationality, which unfolds the possibility of being locked-in into the hostage situation which is put in place by opportunistic

³ "However, with price P , average quality is $P/2$ and therefore, at no price will any trade take place at all: in spite of the fact that *at any given price* between 0 and 3 there are traders of type one who are willing to sell their automobiles at a price which traders of type two are willing to pay." (Akerlof 1970: 491) What he proved from the modeling is the failure of the price mechanism.

behavior. The significance of the issue is that the opportunism leads to the outgrowth of market failure. Property right approach, which appeared as a cavalier to rescue from the plague, turns out abortive (Maskin and Tirole 1999a).

III. Human cognitive system and epistemic taxonomy

Sympathy-consent dimension is the analytical dimension which is built on human cognitive system (Kahneman 2003; Rhee 2017, 2018c). The interpersonal interactions require the sympathy-consent process between and among interacting individuals (Hume 1739; Smith 1759; Buchanan and Tullock 1962; Rhee 2012b). The experiments of behavioral studies unfolded that the human cognitive system begins with the perception. At the outset of the perception, two types of cognitive processes put forward: intuition and reasoning (Shelly Chaiken and Yaacov Trope, 1999; Gilbert 2002; Steven A. Sloman 2002; Keith E. Stanovich and Richard F. West 2002).

The cognitive process of intuition prompts fast, in parallel, automatically, effortlessly, associatively at the step of perception (Kahneman 2003), which fulfills as System 1 of human cognition (Stanovich and West 2000). On the other hand, the cognitive process of reasoning fulfills slowly, serially, in controlled way, effortfully, as rule-governed fashion, which features as System 2 in contrast with System 1. System 1 is primal to System 2 in the functional order of the cognitive system.

The process of cognitive system is known to be affected by the mental contents, which are set by percepts and stimulation arousal on the one hand, and by conceptual representation on the other. “The technical term for the ease with which mental contents come to mind is accessibility (E. Tory Higgins 1996)” (Kahneman 2003). With mental contents being differentiated by accessibility, the process of human decision becomes reference-dependent (Kahneman and Tversky 1979), influenced by framing effects (Tversky and Kahneman 1981, 1986) and guided by judgment heuristics (Kahneman and Frederick 2002).

Sympathy-consent dimension

To our astonishment, the cognitive process of behavioral studies precisely parallels with Hume’s taxonomy of perceptions (Johansson 2012). Human cognition begins with perceptions, which make impressions. Ideas are the copy of impressions. Principles of Association work to create the sensation and reflection from impressions and ideas (Hume 1739, 1748). While running the causal inference from one idea to another, Hume relied on the imagination as well as memory (missing shade of blue: Hume 1739), which leads to the territory of inductive reasoning (Johansson 2012). “...David Hume deserve(s) the honorary title: the first cognitive

scientist.” (Johansson 2012; also, John Biro 1993: 33; Edward Craig 2000)

In the RAM, the interpersonal interface is navigated by value-cost measures. The price becomes the vehicle by which to attain the trading or exchange. The optimization-equilibrium algorithm supports the analytical system. It is the price mechanism. The trading or exchange takes place from the market-clearing system $D(p)=S(p)$.

In the human cognitive system, such RAM model does not hold efficacy. The consistent measuring of value-cost indices (CMVCI in short)⁴ is not supported by the human cognitive system (scope neglect: Kahneman et al. 1999, Frederick and Fischhoff 1998; violation of monotonicity: List 2002, Hsee 1998, Alevy et al. 2003). Human cognitive system even does not support basic probability principles (Tversky and Kahneman 1983).

How to achieve the interpersonal interface when the cognitive systems of individuals differ from each other? The sympathy is the only conduit available to the empiricists (Hume 1739; Smith 1759). The consent is the connotation presented in public-choice studies, which means to indicate the process of interpersonal interaction (Buchanan and Tullock 1962).⁵ The sympathy-consent process denotes the process of interpersonal interaction when individuals' cognitive systems differ from each other (Rhee 2012b). The significance of sympathy-consent process consists in its role as the vehicle by which to attain the trading or exchange (Rhee 2012b).

Although this denotation of sympathy-consent process is new in the literature, the phenomena are familiar to us. The entrepreneurship is a well-known idea in economics. However, there is no room in the RAM where to locate the idea. The entrepreneurship is a phenomenon of sympathy-consent process (Rhee 2018d, 2018e). The typical real features of the sympathy-consent process are the actions like trust, friendship, affection, collegueship and so on. We frequently encounter the occasions of exchange or trading through the actions as such (Goldberg 1980; Macneil 1978; Dore 1983). Such exchange or trading but through the sympathy-consent process is denoted as relation exchange (Rhee 2012b). An adamant example of relation exchange may be the life in household. In fact, the human life is full of the relation exchange phenomena. Besides, it offers a new analytical dimension to the study of economics (Rhee 2012b, 2013b, 2018c). In other words, all the trading or exchange may be considered as the features of relation exchange. In fact, it is the dimension of bounded rationality (Simon

⁴ CMVCI will be elaborated in the next subsection.

⁵ Buchanan and Tullock(1962) didn't take the human cognitive system into consideration and relied on the RAM for the analyses. In this paper, their concept of consent is extended to the human cognitive system.

1955; Rhee 2012b, 2018c).

Price mechanism versus sympathy-consent process

We discussed two different mechanisms of exchange: price mechanism and sympathy-consent process. The former is the exchange mechanism of the RAM. The latter is the mechanism which works with the human cognitive system. How are they related? To answer the question, we have to understand the epistemic taxonomy of human understanding (Hume 1739).

The price mechanism of the RAM is the method to present a modeling which will explain certain phenomena, e.g. the exchange. A model of market-clearing system is put forward up to the accounting for the phenomena of exchange. The statistical testing method may be used to verify the legitimacy of the modeling. However, this approach of modeling is built on one big premise. Namely, the phenomena which are connoted by the model continue to take place uniformly.⁶ It is called The Principle of the Uniformity of Nature (PUN in short).

Once a model is accepted, say, by the statistical testing, it indicates its acceptance as the outcome of the PUN in epistemic sense. When a model of the market-clearing system $D(p)=S(p)$ is used to explain an exchange, it means to indicate the CMVCI, on which the model is built, continues to sustain uniformly. In the RAM modeling, the CMVCI is the PUN.

Definition CMVCI (consistent measuring of the value-cost indices): CMVCI defines the premise that the value-cost indices are able to be measured consistently across different individuals and different possible conditions throughout the operation of the modeling.

This modeling approach began with the premise CMVCI, on which the rational reasoning is extended to elicit epistemic understandings. To reject a (statistically accepted) model of $D(p)=S(p)$ is same as to reject the CMVCI. This approach is called the value-cost rationalism (Rhee 2018a, 2018b). In epistemic sense, such an approach is incorrect because no understanding of the matters of fact comes from the reason. The insights of the modeling come eventually from the assumption. Any refusal to accept the insights of the model is same as the

⁶ “..that instances, of which we have had no experience, must resemble those of which we have had experience, and that the course of nature continues always uniformly the same.” (T: 1, 3, 6, 5). As for the parenthesis, T denotes *Treatise of Human Nature* (Hume 1739) and numbers indicate Book, Part, Section, paragraph each in serial order.

refusal of the assumption. It means a contradiction.⁷

In the steps of rational reasoning as in the modeling of the RAM, any process in which to gain the knowledge from experiences is completely blocked. However, every human understanding has to come from the experiences of perception. In other words, we are not allowed to rely on the price mechanism only to explain the trading or exchange. The reliance on the sympathy-consent process to understand the exchange is an unavoidable imperative.⁸

Human cognitive system and price determination

Once we accept the human cognitive system, we cannot rely on the price mechanism $D(p)=S(p)$ to determine the exchange because we need the CMVCI as the PUN, which is not supported by the experiments of behavioral studies. We have to rely on the sympathy-consent process. The exchange becomes relation exchange. Then, what is the role of price? The price becomes merely a part of the sympathy-consent process. It is an important catalytic factor for the exchange.

If the market clearing system $D(p)=S(p)$ does not work, how is the price determined? Haggling, auction, ask/bid, mark-up, administered pricing or any combination of them are the way to determine the price (Rhee 2018a). In the market, no price is determined by the market clearing system $D(p)=S(p)$. It is simply a hypothetical modeling. Mark-up is the way to determine the price for most of commodities in the market. Auction is used to fix the price of fresh fishes or famous artworks. Most of interest rates are determined as the administered pricing. Stock, bond, futures prices, and foreign exchange are determined in the ask/bid process of the stock exchange or foreign exchange market.

A distinctive difference of the price which is determined in the sympathy-consent process is the path dependence. Mark-up and administered pricing set to reveal path dependence. The beginning price in most of markets consults reference prices like closing prices of the day before. The price determination pertains to the indeterminate system. The coincidence is an essential factor to determine the price path (Rhee 2012b, 2013b, 2018c). The haggling as well

⁷ You accept the assumption at first. Hence, your rejection of the insights of the modeling is same as the rejection of the assumption because the modeling is nothing but the rational reasoning. It is contradiction. In the PUN approach, the rejection of a modeling is same as the rejection of the PUN (C. M. Lorkowski 2018: Internet Encyclopedia of Philosophy)

⁸ The lack of epistemic process in economics seems to account for the reason why there is not much literature addressing on the market.

as ask/bid process reveals nothing but its pertinence to the indeterminateness and coincidence. In contrast, the price determination in the market clearing system $D(p)=S(p)$ is neither path dependent nor coincidental. It pertains to the determinate system.

IV. Complement-set relationship between rationality and bounded rationality

Any logical reasoning has to begin with the PUN. The PUN is the CMVCI in case of the RAM modeling. We may define the set of economic states Set R which may take place according to the dictation of RAM model operation when the premise CMVCI is put in place.

$$\text{Set } R = \{r_{ij}: \text{the economic states of the RAM model operation for } i \text{ th person and } j \text{ th instance at the premise CMVCI}\} \quad (1)$$

Set R is a closed and determinate system because every economic state which belongs to Set R is closed and determined by the adopted RAM model. It will be denoted as the closed/determinate system (Rhee 2013b, 2018c).

Once we accept the human cognitive system, the premise CMVCI becomes untenable.

Definition Untenable CMVCI: Untenable CMVCI defines the condition that the CMVCI is not sustainable.

We may define the set of economic states Set M which may take place when the premise Untenable CMVCI is put in place.

$$\text{Set } M = \{m_{ij}: \text{the economic states that may take place for } i \text{ th person and } j \text{ th instance at the premise Untenable CMVCI}\} \quad (2)$$

Set M is an open and indeterminate system because the economic states which belong to Set M are defined by the Untenable CMVCI. It will be denoted as the open/indeterminate system (Rhee 2013b, 2018c).

Since CMVCI and Untenable CMVCI are disjoint and the union of two makes a universal set, Set R and Set M are complement sets (Rhee 2018c).

Proposition Complement sets Set R and Set M: Set R and Set M are complement sets.

Proof:

Since two premises CMVCI and Untenable CMVCI are disjoint conditions and the union of two makes a universal set,

$$\text{Set R} \cap \text{Set M} = \emptyset. \quad (3)$$

Set R and Set M, which are defined by (1) and (2) respectively, are complement sets. \square

The finding of ‘Proposition Complement sets Set R and Set M’ bears an immense meaning because it sets the territory of the bounded rationality by distinguishing the borderline (Rhee 2018c). It also opens the territory of the empiricism. Under the premise CMVCI, we can rely on the value-cost rationalism, e.g., the optimization-equilibrium algorithm, to make decisions. How can we navigate under the premise Untenable CMVCI? It is the question of the epistemic reasoning (Hume 1739).

V. Indeterminateness, coincidence, and path dependence

Set M is a vast set. The economic states of the human cognitive system are a subset of Set M because the premise CMVCI becomes untenable at the assumption of the human cognitive system. How do we get the knowledge with the human cognitive system? This is the question David Hume coped with. His answer was the experience. To elucidate it, he presented his cognitive ontology (Johansson 2012). Human understanding begins with perceptions, which give rise to impressions. Every human idea is the copy of impressions (Copy Principle). Ideas and impressions combined with the human intellectual faculty of imagination builds the epistemic taxonomy of the empiricism. One essential pillar of Hume’s epistemic inquiry is the reasoning of relations which is built, after all, on the relations of causality (Associative Principle).

How can we interpret the essential properties of Hume’s epistemic taxonomy into the language of modern economics? They are the indeterminateness, coincidence, and path

dependence (Rhee 2013b; Owens 2007). They describe three different features of the same property of the empiricism: the Copy Principle and Associative Principle. They are useful because they become the criteria by which to determine the pertinence of the phenomena to the territories between the value-cost rationalism and the empiricism. If the state of phenomena is either indeterminate or coincidental, path dependent, it belongs to the empiricism Set M. However, even if the state of phenomena is neither determinate nor coincidental, path dependent, it doesn't necessarily indicates the phenomena belong to the territory of the rationalism Set R. The pertinence to Set R requires the compliance with the premise CMVCI.

Remarks The Appertaining to Set M: If any of the features of Indeterminateness, Coincidence, and Path Dependence occurs, it denotes the pertinence of the phenomena to the Set M.

Proof:

If any phenomena do not belong to Set R, then the phenomena belong to Set M due to 'Proposition Complement-sets Set R and Set M'. Any phenomenon of Set R is built on the PUN, i.e., the CMVCI in the RAM. If any of the property Indeterminateness, Coincidence, and Path Dependence occurs, it denotes the violation of the PUN, i.e., the violation of the CMVCI. Hence, it means the pertinence of the phenomena to Set M. □

From 'Remarks The Appertaining to Set M', if the PUN or CMVCI is not complied with, we can believe that the phenomena belong to Set M. Any modeling of the RAM is validated only upon the premise CMVCI. If any of properties Indeterminateness, Coincidence, and Path Dependence occurs, the phenomena turn out to belong to Set M.

How about the sympathy-consent process? The sympathy-consent process is the mapping from individuals to their action. They belong to the empiricism Set M because the states of individuals as well as the states of their actions take place under the premise Untenable CMVCI (Rhee 2018c).

Proposition Indeterminate SCP Mapping (Indeterminate sympathy-consent process mapping): The mapping sympathy-consent process belongs to Set M.

Proof:

The domain of SCP mapping is the economic states of individuals, which belong to Set M under the premise Untenable CMVCI. In the human cognitive system, the premise Untenable CMVCI has to hold throughout the SCP mapping. The range of SCP mapping is the economic states of SCP actions, which belong to Set M. \square

On the other hand, the (value-cost) rationality mapping like the optimization-equilibrium algorithm belongs to the rationalism Set R because the states of individuals as well as the states of their actions take place under the premise CMVCI (Rhee 2018c).

Proposition Determinate VCR Mapping (determinate value-cost rationality mapping):
The value-cost rationality mapping belongs to Set R.

Proof:

The domain of VCR mapping is the economic states of individuals, which belong to Set R under the premise CMVCI. In the value-cost rationality dimension, the premise CMVCI has to hold. The range of VCR mapping is the economic states of VCR actions, which belong to Set R. \square

A typical example of the value-cost rationality mapping is the optimization-equilibrium algorithm. Any economic modeling of the RAM, e.g., the market clearing system $D(p)=S(p)$ is the value-cost rationality mapping.

VI. Market versus price mechanism

Now, we are ready to distinguish the price mechanism from the market. We need to put the following proposition in place (Rhee 2108c).

Proposition The Impertinence of VCR Mapping to Set M: The phenomena of Set M cannot be identified by the VCR mapping.

Proof:

The VCR mapping moves from Set R to Set R because it is the mapping under the premise CMVCI. The phenomena of Set M cannot be identified by the VCR mapping because the phenomena of Set M take place under the premise Untenable CMVCI. \square

Does the market belong to Set R or Set M? The market means to indicate the exchange or trading. If the premise CMVCI is accepted, the market may belong to Set R. It may be represented by the market clearing system $D(p)=S(p)$. However, if the human cognitive system is accepted, it means to put the premise Untenable CMVCI in place. Then, the exchange which is attained through the SCP (sympathy-consent process) mapping belongs to Set M.

Proposition The Exchange by the HCP pertains to Set M: The exchange by the HCP (human cognitive system) belongs to Set M.

Proof:

The acceptance of the human cognitive system means to indicate the putting of the premise Untenable CMVCI in place. Then, the exchange is attained through the SCP (sympathy-consent process). Since the premise Untenable CMVCI has to hold, the exchange belongs to Set M. \square

How about the opportunism? Does the opportunistic behavior belong to Set R or Set M? The question becomes: Is the opportunistic behavior a VCR mapping or SCP mapping? Then, we have to determine if the opportunistic behavior comply with the premise CMVCI or with the human cognitive system?

The literatures of opportunistic behavior already confirmed the problems of the premise CMVCI: information asymmetry, metering problem, indescribability of long-term contract, residual rights of control and so on. Opportunistic behavior arises in the indeterminate condition. Which path will set in in the indeterminate condition? Klein et al (1978) suggested the possibility of opportunistic behavior in the long term contract between GM and FB. However, Coase (2006) introduced the story of trust relationship between the two. Perhaps, the entrepreneurship is the active factor which will determine the path of business relationship between GM and FB.

In the indeterminate condition, the coincidence is one of immutable factor that will determine the path of the business relationship in the domain of the empiricist life (Craig 2007; Hume 1739; Rhee 2013b, 2018c). It reminds us of the three features of the property of the empiricism: indeterminateness, coincidence, and path dependence. The opportunistic behavior well befits for this structure of Hume's analytical taxonomy. It belongs to the territory of indeterminateness, i.e., Set M. It is the morality, standards or law of the market, not the price mechanism that reins in the opportunistic behavior.

VII. Ramifications and further researches

Economists used to consider the price mechanism as equivalent to the market. Here, the market denotes the trading or exchange. The finding of opportunistic behavior motivated a momentum to provide a new perspective to the problem (Klein et al 1978). They found that the making of trading or exchange is seriously affected by the opportunistic behavior. They attempted to explain such phenomena with the price mechanism as the analytical instrument. Their elucidations were not very convincing. Why?

For instance, Akerlof (1970) assumed that the quality (trust) of a used car may be measured by indices (μ). He compared the price and quality trust index and made use of the price mechanism of the RAM to show that the transaction does not take place. He barely succeeded in showing the inability of demand and supply schedules to cross in some condition of the combination between price and quality (trust) indices. Is the failure of the market or exchange vindicated? What Akerlof (1970) verified was the inability of demand and supply schedules to cross in some condition of the combination between price and quality (trust) indices. The demand and supply schedules belong to Set R. The market or exchange belongs to Set M.

It is not possible to measure the quality (trust) of used car in the index unit of measure. It is indeterminate. The trust on the quality of used car may be determined by coincidental instances. Once it is determined, the future trust may be affected by current or previous state of trust. It is path dependent. The opportunistic behavior of the seller cannot be identified by the market clearing model of the RAM ('Proposition The Impertinence of VCR Mapping to Set M'). The opportunistic behavior as well as the market (exchange) belongs to Set M. The price mechanism belongs to Set R. Hence, opportunistic behavior fails the price mechanism, but not the market.

We can pick any model of opportunistic behavior to demonstrate that opportunistic behavior fails the price mechanism, but not the market. Let's take the model of modern property rights school (Grossman and Hart 1986). Upon encountering the problem of incomplete contract, their remedy was the residual rights of control (RRC in short). Since we can fix the value of RRC by the price which is determined in the market, they claimed that the model of price

mechanism may be adopted to identify the analytical structure of opportunistic behavior.

It is not justified because the fixing of price does not ensure the validity of the price mechanism. As mentioned before, the price becomes a part of the sympathy-consent process if we accept the human cognitive system. The price-fixing is indeterminate. Its determination may be coincidental. The price determination is path dependent. The RRC bears the property of endemic incompleteness. Hence, the determination of its price are indeterminate, coincidental, and path dependent. It belongs to Set M. The adoption of the model of price mechanism for the problem of RRC is not justified.

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