

On the Metaphor of Taoist Philosophy for the Virtual Capital Theories: An Exploration Based on Economic Philosophy*

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Abstract:

For the recent ten years, Chinese economic life has witnessed the emergence of the interaction between the entity economy and the fictitious economy, between the entity capital and the virtual capital, and their fluctuations as well. Such phenomena have attracted great attention from some non-mainstream economists in China. In the light of economic philosophy, their researches have incorporated the Taoist “Tao” metaphor and are moving towards the “Tao” value orientation and methodology. Chinese scholars have perceived the correlation between the “root” of the modern economics and the ancient “Tao” philosophy over the past ten years. This paper attempts to use the “Tao” philosophy to re-explore into the idea of the “three factors of capital” advanced by the author of this paper recently and raises the issue of the “capital delineating”. This paper offers a tentative interpretation of the structure and cycling of the entity capital and the virtual capital by using a “*Yin and Yang* 阴阳”¹ capital model and the *Taiji* 太极² picture of capital.

Key Words: Entity Capital, Virtual capital, Three Factors of Capitals, *Yin Yang* Picture of Capital Structure, *Taiji* Picture of Capital

* This research was funded by the Significant tender project of National Social Science Fund of China (13&ZD081). The author is Professor of Jiangxi University of Finance and Economics, Editor of Journal of Contemporary Finance and Economics.

¹ “*Yin and yang* 阴阳” are two categories of ancient Chinese philosophy in the “*Book of Changes* 易经”, which summarize the opposing sides of certain things, phenomena and their properties that are correlated in the nature. According to the ancient Chinese “Book of Changes”, *yin* is said to be intangible and delicate, referring to the noumenon and the connotation. And *yang* is said to be tangible and strong, referring to the entity and the representation. “*Yin and yang*” are defined as a pair of paratactic meta-concepts of two things or in one thing, which are not only interdependent and interrelated, but also mutually opposite, mutually exclusive and mutually negative, opposing each other while facilitating each other.

² “*Taiji* 太极” is an important concept and category in the history of Chinese culture. Referring to all the literatures so far, we can see that it is firstly mentioned in the book of “Zhuang Zi 庄子” and is the essence of Zhuang Zi’s philosophy of chaos. It is the concept in ancient Chinese philosophy used to illustrate the origin of the world and the *Yin and yang* evolution of all things on the earth. In 1947, when Bohr the leader of quantum mechanics was knighted, *Taiji* diagram was adopted as his clan emblem.

1. MARXIAN VIRTUAL CAPITAL THEORY AND METAPHOR OF TAOIST “TAO” PHILOSOPHY

Virtual capital was first defined in Chapter 5 titled *Profit Is Divided into Interests and Business Owners' Income: Interest-Bearing Capital*, Volume 3 of Marx's *Das Kapital*. In the book he pointed out that “the capital of bonds is still a pure fictitious capital; the illusion of this capital will disappear once the bonds cannot be sold. However, we will immediately learn that such fictitious capital has its unique movement.”³ He also argued that “the formation of fictitious capital is called Capitalization.”⁴

Marx put forward the concept of “fictitious capital” from the financial point of view on capital (III), which is “fiktives kapital” in German with false and unreal implications. At present, although most Chinese scholars usually follow Marx's concept of “fictitious capital”, I think that the term of “virtual capital” is more accurate, because the word of “virtual” is more substantial in English context, not false and unreal. It relates closely with the human mind, reflecting the features of different capitals, such as human capital, wisdom capital,⁵ social capital, financial capital and so on, which are associated with people's expectation, confidence, imagination, creativity, and network.

Since the Southeast Asian financial crisis in 1997, Chinese economists, represented by Professor Cheng Si-wei 成思危 of Chinese Academy of Sciences⁶ and Professor Liu Jun-min 刘俊民 of Nankai University,⁷ have been giving widespread concern and conducting active explorations to the interaction and volatility between the real economy and virtual economy, entity capital and virtual capital in the contemporary social and economic life. Over the past decade, a seminar of China's virtual economy is held once every two years, attracting a group of Chinese young scholars to join the research ranks of the virtual economy and virtual capital

³ Marx, *Das Kapital*, Vol 3, (Beijing, 2004), p. 326.

⁴ *Ibid.*, p. 528.

⁵ The concept of “wisdom capital” mentioned in this paper is different from the concept of “intellectual capital” that is popular among the current economic circles. The concept of “intellectual capital” in the present mainstream management theory is divided into three parts, i.e., human capital, structure capital and customer capital, which is called the “H-S-C” structure of the “intellectual capital”. They regard “intellectual capital” as a higher level of concept than “human capital”. However, in my view, “intellectual capital” cannot be regarded as a higher level of concept than “human capital” logically, because human capital is the kind of capital that is playing a leading role, and many issues in economics and management cannot be worked out. Therefore, I put forward the concept of “wisdom capital”, namely, S-C structure. Then the human capital (H) is separated from the concept of “intellectual capital”, and the physical capital, human capital and wisdom capital can be listed as the most significant production factors in a business for people to make analysis.

⁶ Cheng Si-wei, ‘Exploration on fictitious economy’ 虚拟经济探微, *Nankai Journal* 南开学报, 2 (2003), pp. 23-28.

⁷ Liu Jun-min, ‘Fictitious economy theoretical framework and proposition’ 虚拟经济的理论框架及其命题, *Nankai Journal* 南开学报, 2 (2003), pp. 34-40.

theory and work hard to bear fruitful results. Interestingly, although these theories have not yet been accepted by the mainstream in economics and are still in the status of non-mainstream, they have aroused the attention of the Chinese leadership and have been absorbed into the related economic strategy; as early as 2002, the report of the 16th CPC National Congress firstly proposed to “correctly handle the relationship between the virtual economy and real economy”.

The so called virtual capital refers to the things with the characteristics of capital, though they have no physical forms of traditional capital, they can actually determine the future income flow. In the meantime, the introduction of human capital, intellectual capital and social capital conducts Capitalization pricing on human resources and intellects which were regarded as fees, costs or other things without physical forms of traditional capital, so as to determine its expectation of future income flow. This should be the new development of Marxian Virtual capital Theory in the contemporary time.

From the angle of economic philosophy, the theories used by Chinese scholars to explore the relationships between entity economy and fictitious economy and between entity capital and virtual capital are full of the shining of Chinese *Taoist* 道⁸ philosophy and contain philosophic metaphors of Taoist “Tao” of Chinese ancient sages. As for metaphor, Geoffrey. M. Hodgson says, “metaphor is not a sort of ornament: it is an indispensable means for constitution and classification of our thought”.⁹ A series of “miracles” and problems emerging in the contemporary economic tendency and China’s economic development has presented a series of elusive riddles. Particularly the global financial economic crisis incurred by deviation between American fictitious economy and entity economy demands people to rethink on traditional economics and make scientific interpretation on new economic phenomena. The contemporary socioeconomic development tide is increasingly oriented to develop from the direction of metaphor of *Taoist* “Tao”¹⁰ of Chinese ancient sages, while Chinese ancient Taoist philosophy can enlighten our way of economic innovation.

2. “ALL THE THINGS TURNING THEIR BACKS TO THE *YIN* AND STANDING FACING THE *YANG*”: THE WATERSHED BETWEEN ENTITY CAPITAL AND VIRTUAL CAPITAL

⁸ Tao of Chinese Taoists is a unique philosophical concept in Chinese philosophy. The representative figure of Taoists is Lao Zi, who is the originator of Taoism. In Lao Zi’s *Tao Te Ching*, “Tao” is the source of all things, imageless, virtual, containing such meanings as the essence of the things, the rules and the guidelines. The later generations formed a religious school with the “Book of Changes” and Lao Zi’s philosophy as the main body, which is called “Taoist school”. It emphasizes the “yin-yang” balance of all things, opposing and facilitating each other, and man being an integral part of nature.

⁹ Hodgson. G. M., *Evolution and Institutions: On Evolutionary Economics and The Evolution of Economics*, (Cheltenham, 1999), p. 66.

¹⁰ It means “阴阳”方向.

With the coming of knowledge economy, economics is ushering a new era. All kinds of signs show that new economy is triggering a revolution of capital theory and capitals in terms of material capital, human capital, intellectual (wisdom) capital, social capital, cultural capital and institutional capital, etc. With the extending of new research realm and introduction of a series of new concepts, economists may feel confused.

A fundamental problem pressing economists to approach it is the issue of capital watershed. In order to solve the issue of capital watershed,¹¹ we should first of all discuss the fundamental component factors of capital from the perspective of ontology, and then the other capital types can be deduced based on the capital factors.

From the perspective of ontology, Laozi's metaphor of "*the One gave birth successively to two things, three things, up to ten thousand*" 一生二，二生三，三生万物¹² provides ontological thinking for contemporary issue of capital watershed. His concept of "the three produced all the things" can reflect the Three Factors of Capitals, namely, material capital, human capital and wisdom capital, which are the fundamental factors and the original power to facilitate the social development of human beings.

In order to explain this viewpoint, I have to discuss this issue from a philosophical perspective. I believe that the philosophical viewpoint of the "Three Worlds" proposed by the outstanding contemporary Austrian-born British philosopher Karl Popper in the mid-1960s has made a complete ontologic interpretation for Lao Zi's "the One gave birth successively to two things, three things, up to ten thousand".

Popper divides the world into three parts in his "Three Worlds" theory: first, the world of physical objects or physical state, such as stone, X-ray, etc.; second, the world of conscious state or mental state, or the world about the behavioral intention of psychological activities; third, the world of objective contents of thoughts, especially scientific ideas, poetic thoughts and the world of artistic works.¹³ And these worlds are called: the First World, the Second World and the Third World, or World 1, World 2 and World 3. Popper believes that World 1, World 2 and World 3 are the three basic parts constituting the whole world; the universe and everything in the world can all be classified in the three basic parts.

Popper clearly points out the differences between World 2 and World 3 for the first time in the history of Western philosophy and gives a detailed presentation about the differences and connection between World 3 and the subjective inner world, World 2 and the material world, and World 1, all of them are the products of human mind. Popper describes the inevitability of

¹¹ Capital watershed is a classification problem of contemporary capital concepts put forward in this paper.

¹² Laozi 老子, *Tao Te Ching 道德经* (Beijing, 2000).

¹³ Karl Popper, *Objective Knowledge: A Realist View of Logic, Physics, and History* (Shanghai, 2001).

substance, spirit and spiritual products from the sense of embryology, reflecting the sub-cosmology of first a material world, then a spiritual world, and then a world of spiritual products. I think that this is coincident with Lao Zi's profound thought of "the One gave birth successively to two things, three things, up to ten thousand".

At this point, we can understand Lao Zi's "the One gave birth successively to two things, three things, up to ten thousand" from Popper's cosmology of sub-universe. "The One gave birth to two things" refers to the material world (World 1) giving birth to the spiritual world (World 2); "two gave birth to three things" refers to the harmony and union between the spiritual world (World 2) and the material world (World 1), which gave birth to the world of spiritual products (World 3).

Here, I want to emphasize that Popper is one-sided in attributing World 3 completely to the products of World 2; without the harmony and union between World 1 and World 2, World 3 cannot be produced. The harmony and union between World 1 and World 2 are also known as the inspiration, intuition or epiphany endowed by the interaction between heaven and mankind, it is from them that those great scientific conjectures, theories, mathematical constructs, music, paintings and sculptures in World 3 are produced. Just at this point, Lao Zi's ideological level is higher than Popper's. Also, in my understanding, "the three things" in "the three things gave birth to ten thousand" does not refer only to World 3 (the world of spiritual products), but refers to the interactions between World 1, World 2 and World 3, thus all the creatures and all living things under the heaven are generated and reproduced in an endless succession.

This is a challenge and breakthrough towards the monism and dualism in the traditional philosophy. Popper points out bluntly in his speech titled *On the Three Worlds*, "I intend to challenge those who agree with the cosmology of monism or dualism and put forward the viewpoint of pluralism. I will propose at least three distinct but interacting cosmology of sub-universe."¹⁴

Therefore, I believe that it is beneficial to re-examine the capital scope of the contemporary economics with the pluralistic thinking; the philosophical theories of Lao Zi's "three things gave birth to ten thousand" and Popper's "three worlds" have provided a new paradigm for us to study physical capital, human capital and wisdom capital in the category of contemporary capital.

The contemporary western mainstream economists are pursuing a dualistic philosophical thinking. They believe that capital mainly takes two forms, namely, physical capital (monetary capital) and human capital. For example, "capital is made up of the long-term tools that people use to produce goods and services. It includes the physical capital, such as buildings, machinery

¹⁴ Karl Popper, *1902 - 1994: Emancipation through Knowledge* (Beijing, 2005), p. 164.

and equipment, and human capital, such as workers' skills and training."¹⁵ Although the theory of "wisdom (intelligence) capital" has received unprecedented attention from the contemporary international management scholars, there is no such concept of wisdom capital in the capital category of mainstream economics. Although Robert Merton Solow's Total Factor Productivity includes knowledge and other contents of "intangible assets", he confuses knowledge and other "intangible assets" with other production factors, not listing it together with physical capital and human capital as an independent production factor, so that the unique significance of "wisdom capital" has not been fully expressed.

We are living in such an age that knowledge is regarded as the core, "wisdom capital" has become the most important resource for all the enterprises, the power of knowledge is replacing the power of wealth to become the power dominating the world, the innovation, investment and distribution of "wisdom capital" is exerting significant impacts at all levels of society and economy, and has shaped its unique rules.

Seen from the inevitability of the three things of substance, spirit and spiritual products in the sense of embryology, the "physical capital", "human capital" and "wisdom capital" in the scope of contemporary capital are aptly corresponding to Lao Zi's "three things gave birth to ten thousand" and Popper's "three worlds" philosophy: "physical capital" belongs to "World 1", "human capital" belongs "World 2", and "wisdom capital" belong to "World 3". Thus, they are the three basic production factors in a market economy. Therefore, this paper presents the concept of the "three elements of capital" and tries to propose a formula to calculate the total value of the market capital constituting of the "three elements of capital":

$$C = C_1 + C_2 + C_3$$

In the formula, C is the total value of market capital, C₁ is capital 1 (physical capital), C₂ is capital 2 (human capital), C₃ is capital 3 (wisdom capital). On this basis, this paper makes a preliminary description of the connotation and boundary of physical capital, human capital and wisdom capital, as well as the relationships between them and other capital concepts. (See Figure 1). From the perspective of accounting measurement, the value of physical capital in the "three elements of capital" is generally reflected as the book value, while the values of human capital and wisdom capital are generally reflected as the fair value.

The author of this paper presents this idea in the article of *Taoist Interpretation on Entity Economy and Fictitious Economy*.¹⁶ Although the concept of capital emerged in the wake of

¹⁵ Robert E. Hall, *Marc Lieberman. Economics: Principles and Applications [2nd Edition]*, (Beijing, 2003).

¹⁶ Xu Ming 徐鸣, 'On Attribute of Virtual capital' of Human capital and Intellect Capital' 论人力资本与智力资本的"虚拟资本"性质, *Journal of Contemporary Finance and Economics* 当代财经, 8 (2007), pp. 62-69.

birth of market economy, it has accompanied human being to develop from ancient time to present time.

It is well acknowledged that *Taoist Tao* is extensively applied in general but less learnt by ordinary people. It is the interaction among the Three Factors of Capitals that created everything of mankind society and propel human development from husbandry era to today's information society, which can firmly prove Laozi's profound thought of "The one developed into two, one *yang* and the other one, *yin*. Later the two mixed themselves to become three. And the three produced all the things."¹⁷

If integrating Laozi's metaphor of "all the things have their backs to the yin and stand facing the yang 万物负阴而抱阳" with the researches on entity capital and virtual capital, we can scientifically clarify the issue of capital watershed. Laozi said "during the change, all the things have their backs to the yin and stand facing the yang. Through union with the life force they blend in harmony 万物负阴而抱阳,冲气以为和". Capital still belongs to the realm of everything, hence it absolutely embodies the attributes of "*all the things have their backs to the yin and stand facing the yang*". The analysis of entity capital and virtual capital by Chinese non-mainstream scholars, such as Cheng Si-wei, Liu Jun-Min, has fully reflected this opinion.

Generally, the so-called capital refers to entity capital (material capital), which is composed of physical capital and currency capital. It is hard capital which is visible and touchable. This paper defines it as Yang capital. However, we think that virtual capital should include human capital, wisdom capital and financial capital; we also define it as Yin capital because it is soft capital which is invisible and unpredictable.

In the following passages, the author tries to apply *Ying and Yang* structure to analyze and specify the boundary and relationship between entity capital and virtual capital based on the Three Factors of Capitals: material capital, human capital and virtual capital (Please see Fig. 1).

We can see from picture one: the Three Factors of Capitals, namely, material capital (capital 1), human capital (capital 2) and wisdom capital (capital 3), can be divided into two parts: (1) *Yang* (light color) belongs to entity capital; (2) *Yin* (deep color) belongs to virtual capital. Entity capital consists of physical capital and currency capital; virtual capital is mainly composed of human capital and wisdom capital.

On the basis of this clarification, we can deduce a series of new capital concepts and forms like financial capital, social capital, institution capital, customer capital, cultural capital and innovation capital, etc. we can clearly differentiate the structure and layer of virtual capital and entity capital and conspicuously clarify their boundary and relationship from the picture.

¹⁷ Laozi 老子, *Tao Te Ching 道德经* (Beijing, 2000).

We can learn from Picture one: the boundary between entity capital and virtual capital can be differentiated, but some of their elements can be inter-converted between them. For instance

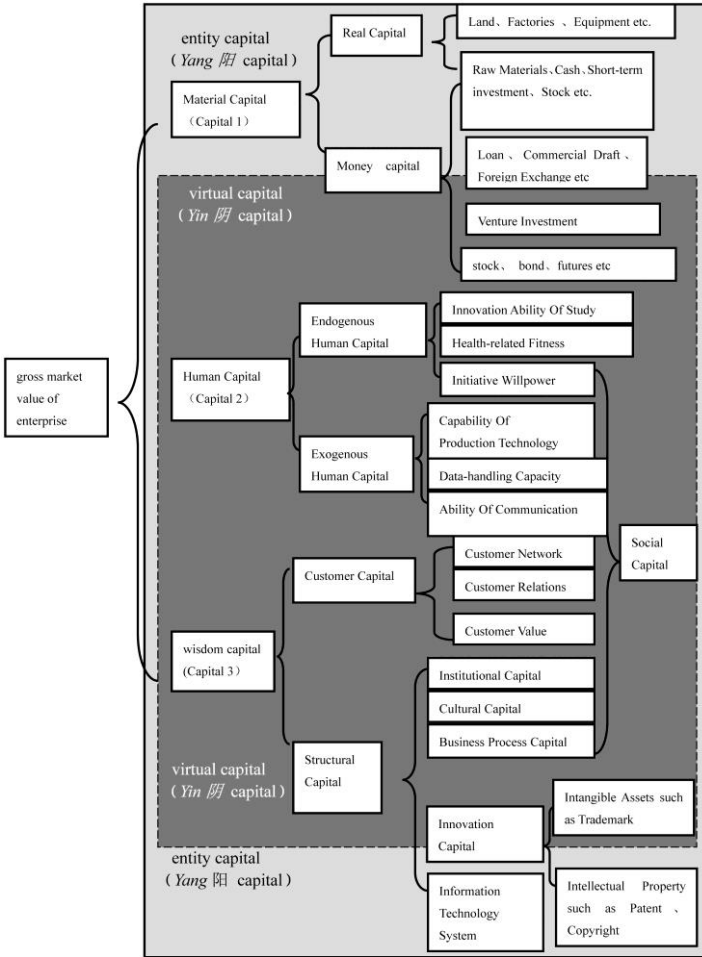


Fig. 1—Yin Yang Picture of Capital Structure

currency capital belongs to the entity capital with yang attribute; once it converts into bank loaned capital, shares, bonds, futures and other financial capital, it becomes the virtual capital with yin attribute. Therefore, the author specifies the currency capital on the boundary between entity capital and virtual capital. Again, the innovation capital of wisdom capital belongs to the virtual capital with yin attribute; once it turns into patent, copyright and other wisdom properties, it changes into the entity capital with yang attribute. So they are specified on the boundary between entity capital and virtual capital. I believe that the Yin-yang structure model of entity capital and

virtual capital can properly reflect the nature, boundary and layers of various contemporary capitals and give a better interpretation of the issue of capital watershed.

3. THE DEDUCTION OF *TAIJI* PICTURE OF CAPITAL AND THE CIRCLING VIEW OF ENTITY CAPITAL AND VIRTUAL CAPITAL

3.1 *Taiji* Picture of Capital

Laozi wrote such remarks in *Tao Te Ching* 道德经, “In the beginning, The universal Principle’s *Tao* produced only one. The one developed into two, one *yang* and the other one, *yin*. Later the two mixed themselves to become three. And the three produced all the things. During the change, all the things have their backs to the *yin* and stand facing the *yang*. Through union with the life force they blend in harmony, it can be said that these words are actually a perfect interpretation to *Taiji Picture*.

Taiji Picture is an important picture for studying the principle of *The Book of Change* 易经¹⁸, because it contains the common law of everything. Hence some people call it a universal mode and a scientific lighthouse. During the process of demarcation of *Yin Yan* Structure Model of entity capital and virtual capital, the author suddenly realized that if this kind of demarcation is depicted with *Taiji Picture*, it would be more concise and more persuasive. (Please see Fig. 2.)

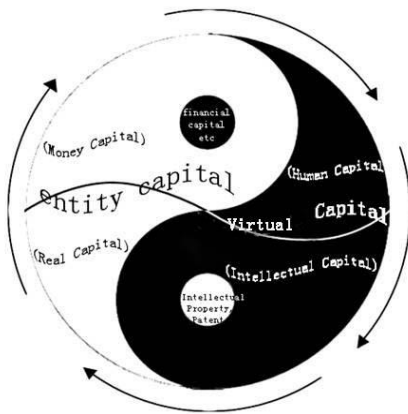


Fig 2- *Taiji* Picture of Capital

If we see capital as a *Yin-Yang Taiji* (*Yin-Yang Taiji fish*, 阴阳太极鱼), the *yang* part represents entity capital and the *yin* part represents virtual capital. The author divides the *yang* part into two categories: physical capital and currency capital, and the *yin* part: human capital and intellect capital.

¹⁸ *The Book of Changes* (Hefei, 1992), p. 374.

Firstly, entity capital of *Yang* attribute shows that the flow direction of fund can determine the orientation of economic development due to the pace-setting role of contemporary economic currency capital. Consequently, the author puts the currency capital on the head of the *yang* fish (entity capital) and physical capital on the end of the *yang* fish (entity capital). Most importantly, the fish eye of *yang* fish is *yin*, the soft, formless and unpredictable financial capital is demarcated in the fish's eye, which can perfectly and vividly illustrate the conversion of currency capital of *Yang* attribute or the nature of financial capital of *yin* attribute and represent the conversion of entity capital or the relationship of virtual capital with *yin* embedded in *yang*.

Secondly, in view of virtual capital of *yin* attribute, wisdom capital plays a leading role in contemporary economy and it becomes the powerhouse of present economic development, resulting in people's growing feeling of wisdom capital overweighting human capital. Therefore, the author demarcates wisdom capital on the fish head of *Taiji yin fish* (virtual capital), human capital on the end of the fish, which is in the subordinate position. *Yin* fish's eye is *Yang* attribute, which is paramount. In the wisdom capital, those capitals of *Yang* attribute derived from innovation capital, such as information system, patent, copyright and wisdom property, etc. are just demarcated here. It appropriately reflects the conversion of wisdom capital of *yin* attribute or the characteristics of such innovation capitals of *yang* attribute, like information system, patent, copyrights etc., showing the conversion of virtual capital into entity capital or the inclusion of entity capital in virtual capital, i.e. *yang* is included in *Yin*.

Thirdly, *yin* and *Yang* can continue to be demarcated between entity capital and virtual capital. In entity capital, physical capital is *Yang* attribute and currency capital is *yin* attribute; in virtual capital, intellect capital *Yang* attribute, human capital *yin* attribute. By this, they can be further demarcated.

3.2 “Through Union with the Life Force They Blend in Harmony”: the Circling View of Entity Capital and Virtual Capital

From the perspective of economics, *Taiji* Picture of Capital can be regarded as a way to reflect “Therefore in (the system of) the *I* there is the Grand Terminus (*Taiji*), which produced the two elementary Forms. Those two Forms produced the Four emblematic Symbols 是故易有太极，太极生两仪，两仪生四象”¹⁹. Looking back to the history of human development, capital emerged from nothingness. Nevertheless, capital can be divided into entity capital and virtual capital. Nowadays, people believe that it is the *Yin-Yang* interaction between entity capital and virtual capital that has boosted the growing development of human society. Though the word “capital” emerged later in the history of mankind, being a “way” (*Tao*), it has accompanied human being from ancient time to present time.

¹⁹ Ibid., p374.

Zhuangzi said: “I learn from *yin* and *Yang*”, “I also play musical instrument with the harmony of *yin* and *Yang*”,²⁰ these words profoundly express ancient sages’ comprehension of complementary, coordination and balance between *yin* and *Yang* as well as their pursuing of the harmony of *yin* and *Yang*. To play a wonderful music, it is necessary to play musical instruments in accordance with the harmony of *yin* and *yang*; similarly, only by responding to and complying with *yin* and *yang*, can we meet the needs of everything.

Here the author would like to present a new outlook of capital cycling. If we comprehend the “Tao” of new capital cycling from the perspective of “through union with the life force they blend in harmony”, we can understand the cycling of entity capital and virtual capital of an enterprise or a country from the *Taiji Picture of Capital*. (Please see picture two.)

Economic development stems from the integration and interaction of entity capital and virtual capital, namely, the union of *yin* capital and *Yang* capital. The Integration and interaction of the Three Factors of Capitals, including material capital (physical capital and currency capital), human capital and wisdom capital, first promote the growth and development of physical capital, so as to further expedite the development and flourishing of currency capital. The development and flourishing of currency capital signifies wealth, further advancing constant improvement of people’s material living and cultural education. It irrefutably promotes the growth and development of human resources; then growth and development of human resources will advance theoretical innovation and scientific and technological revolution and promote the expansion and development of wisdom capital. The expansion and development of wisdom capital will further promote the enrichment and growth of physical capital in turn. Rising and dropping as well as fluctuation and balance of entity capital and virtual capital constitute different economic cycles; by cycling like this *Taiji Picture of Capital*, the socioeconomic development scenery of mankind can be expressed briefly and gracefully.

It must be emphasized that this new view of capital cycling focuses on the goal of the cycling development of both the entity capital and virtual capital, which is to achieve “harmony” via the good interactive relationship. Only by attaining the goal of “all the things have their backs to the *yin* and stand facing the *yang*. Through union with the life force they blend in harmony” can an enterprise or a country materialize its sustainable economic development. In order to attain this goal, it is of vital importance to implement the principle of “the surplus one should give while the deficient one should get 有余者损之，不足者补之”.⁶ The economic policies and rules should be adjusted, so as to realize the harmony among everything under the heaven.

²⁰ Zhang Mo-sheng 张默生, *Zhuangzi* 庄子 (Jilin, 1993), pp. 172, 215.

In summary, I would try to propose a business production function based on the capital *Taiji* diagram, so as to revise the Cobb-Douglas production function from the perspective of “the three elements of capital”, the total enterprise output will be:

$$Y = A(L)^\alpha(K)^\beta(W)^\gamma \quad (\alpha + \beta + \gamma = 1) \quad (1)$$

In which, Y represents the total enterprise output, A represents a productivity under natural conditions (Solow Residual -- wisdom capital), L represents labor (human capital or human psychological factors), K represents capital (physical capital), W represents wisdom capital (management, patents, trademarks, business reputation, organizational networks, etc.); α , β , γ are the output elasticity of human capital (labor), physical capital (capital) and wisdom capital (technology and management).

Accordingly, we can determine the enterprise total factor productivity: the growth rate of total output during the period of T can be regarded as the combined contribution of natural conditions (A) productivity and labor (human capital or human psychological factors L) growth rate, physical capital (capital K) growth rate, scientific and technological progress and management (wisdom capital W) growth rate, denoted as:

$$GY = GA + \alpha GL + \beta GK + \gamma GI \quad (2)$$

In which, the productivity of W (wisdom capital) is the most important factor influencing the enterprise total factor labor productivity.

4. THE UNIQUE ATTRIBUTES OF VIRTUAL CAPITAL: THE BASIS OF CAPITAL WATERSHED

The elements and nature of contemporary business capitals have been discussed above, and the “*yin* and *yang*” metaphor of ancient philosophers has been used to demarcate business capital concepts of various kinds of enterprises. But this is far from enough; we have to verify the rationality of this kind of demarcation from the perspective of attribute distinction of these business capitals.

Virtual capital is the kind of capital with *yin* attribute built on the basis of physical capital, but its essence and nature are rarely discussed in the academic circles. There are fundamental differences between virtual capital and entity capital; we cannot recognize the most significant essential attributes of the virtual capital, unless we break through the traditional definition of capital property. Then it is possible to provide a basis for enterprises to demarcate the capitals. For this purpose, this paper offers the following points to understand the essential attributes of the virtual capital:

4.1 The Uncertainty of the Value of Virtual Capital

It can be seen that the virtual capital consists of financial assets, venture investment, human capital, customer capital, institutional capital, cultural capital, business processes capital and other intangible assets. The value of these “soft capitals” depends on the imagination, expectation or incentive of people towards them, which implies very strong psychological factors, therefore there exists uncertain. In an uncertain world, accidents are inevitable; so expectations have important significance over the economic consequences. As for wisdom capital, the capitalized pricing tends to have a “butterfly effect” on the prices of “wisdom capital”, while their costs are often negligible. However, they may suffer a disastrous decline in case of risks. As for “human capital”, what Zhou Qiren said that “Once the property rights of human capital are damaged, its assets will be devalued, or immediately nothing is left”²¹ just proves the uncertainty of “human capital”. As for the financial Capital and its derivatives, the uncertainty of its value is even more distinct.

4.2 Virtual Capital Not Having Full Mortgage Function

The uncertainty of the value of virtual capital decides its incomplete mortgage function. Zhang Wei-ying has demonstrated the non-mortgage nature of human capital from the “inseparability” of the “human capital”.²² Although some of the “wisdom capital” can also have a mortgage function through technical treatment, such as certain patents, copyrights, trademarks and other wisdom property rights (which is why I put them as entity capital), but most do not have the full mortgage function, in particular-specific “human capital” and “wisdom capital” would be as the business collapsed, vanishing in an instant. This is one of the major characteristics of virtual capital.

4.3 The Right of Virtual Capital to Claim Residual Value in a Circuitous Way

As a capital, it certainly has the right to claim for the surplus value. However, virtual capital has to claim its surplus value in a circuitous way. As for financial capital, if a holder of an option contract wants to cash the option contract in the form of stocks or bonds or other financial products of capital, so as to participate in the dividend payout of stocks or bonds, they have the right to obtain their share of the profits of the company. As for “human capital” and “wisdom capital”, both of them must go through multiple indirect conversions, then finally realize their property rights in the form of stocks, options or bonds, thus they have the right to claim the residual value.

4.4 The Trend of Increasing Returns of Virtual Capital

²¹ Zhou Qi-ren 周其仁, ‘Market enterprises: a human capital and non-human capital, special contract’ 市场里的企业: 一个人力资本与非人力资本的特别合约, *Economic Research* 经济研究, 6 (1996), pp.71-80.

²² Zhang Wei-Ying 张维迎, ‘Ownership, governance structure and principal-agent relationships’ 所有制、治理结构与委托—代理关系, *Economic Research* 经济研究, 9 (1996), pp. 3-15.

In the long run, virtual capital has the trend of increasing returns. By analyzing the relationship between “human capital” and “wisdom capital”, and between “social capital” and “financial capital”, it can be seen that they are different from entity capital in that: to use them would not consume them, on the contrary, increasing returns will be brought in. If they are not used, then they will be consumed faster.

I believe it is Marshall who firstly points out the tendency of increasing returns of “virtual capital” in his work *Principles of Economics*, though he himself did not realize this. “The production that Nature works demonstrates the tendency of diminishing returns, while the production that human works shows a tendency of increasing returns.”²³ These words can be understood as “the production that nature works” in fact refers to the production in which “entity capital” plays a leading role; while “the production that human works” in fact refers to the production in which “virtual capital”, such as “human capital”, “wisdom capital”, “social capital” or financial derivatives, plays a leading role. The contemporary “new economy” can fully reflect this kind of production in which “virtual capital” is playing a leading role, therefore the social economy is showing a trend of increasing returns.

In addition, the movement of “virtual capital” can only exist in the non-balanced market. This is indicated by the remarks of Schultz: “The activities of increasing returns do not exist in the axiomatic core analysis of the general equilibrium theory. Because no matter what kind of return is increased, it always implies the existence of some kind of imbalance. Once this imbalance occurs, it means there is an opportunity to obtain profit from the reallocation of resources.”²⁴ When talking about the definition of the “virtual economy”, Professor Liu Junmin of Nankai University points out that “when the price system is based on the capitalized pricing and supported by the psychology and the concepts, its operating characteristics will have the inherent volatility.” The author of this paper believes that “having the inherent volatility” means that the virtual economy is mainly observed from the perspective of non-equilibrium, the movement of “virtual capital” has existed in the non-balanced market from the beginning to the end.

4.5 The “External Effect” of “Virtual Capital”

From the perspective of human capital, when a worker develops into a successful company president, his work turns from the concrete labor to abstract and complex work. His human capital is reflected as the renewal in the space: that is, his human capital in a unit time can simultaneously guide the employees of the enterprise to complete many of the production operations, so that his time becomes more efficient and produces the “external effect”. His time in the future may bring about additional wealth and uncertain income flow for individuals, enterprises and the society. Of course, this is pushed by the combination of his human capital and the business structural

²³ Theodore .W .Schultz, *A source of increasing returns*, (Beijing, 2001), p. 19.

²⁴ *Ibid.*, p. 16.

capital, but his human capital is the only production factor that can make time become more efficient. At this time, when he uses a certain period of his time for the work or economic behaviors, people may consider more about the additional wealth and social benefits that he could bring about for individuals, businesses, and the society, thus his remuneration and income can be determined. If the advanced management methods created by his human capital is learned or imitated by other enterprise or individual, his human capital will give rise to “external effect”. Schultz once directly pointed out that “Lucas endows the central role to the concept of ‘external effect’ of human capital. This external effect will spill over from one person to another person; in the environment with higher human capital, people with different levels of skills may have higher productivity, because human capital can enhance the productivity of the laborer and the physical capital”.²⁵

5. CONCLUSION

Finally, the author would like to arrive at the conclusion by quoting Chapter 11 of *Tao Te Ching* 道德经: “Thirty spokes make a wheel; yet it is the space between spokes that makes the wheel move. A potter fashions clay into vessels; yet it is the hollowness within the vessel that can be used to hold things. A carpenter makes doors and windows to build a house, yet it is rooms - the emptiness - within the building for people to live in. Therefore, the ‘existence’ serves people’s convenience, yet it is the ‘emptiness’ (space, hollowness, and rooms) that brings people practical use”.²⁶

Laozi used three comparisons to interpret the relationship between “existence” and “nothingness”, “entity” and “fictitious” in this chapter. Hence “existence” – tangible things (entity) has brought benefits and convenience to mankind, whereas “nothingness” – intangible things (fictitious) have greater effects. It is “nothingness (fictitious)” that enables “existence (entity)” to play its role. Laozi used this to explain that effects of materials can be taken in that coexistence and integration of “existence (entity)” and “nothingness (fictitious)”.

Mr. Cheng Siwei, former vice Chairman of Standing Committee of National People’s Congress, stresses in an article titled *The Exploration on Fictitious Economy* that “From the perspective of systematic science, fictitious economy is correspondent to entity economy and economic activities exist in both of them (including structure and evolution) mode in the economic system. Entity economy can be compared to the hardware of economy; fictitious economy the software of economy. They are interdependent.⁴It could unequivocally reflect Chinese ancient Taoist “Tao” from the angle of economics. In the times of industrious economy, people attached importance to entity economy with “entity” overweighing “fictitious”. Fictitious economy also

²⁵ Ibid., p. 25.

²⁶ Laozi 老子, *Tao Te Ching* 道德经 (Beijing, 2000)

plays its role in the information economy. Therefore, only when “existence” and “nothingness” coexist and *yin* and *yang* integrate, “during the change, all the things have their backs to the *yin* and stand facing the *yang*. Through union with the life force they blend in harmony”, can a harmonious socioeconomic development of human being be guaranteed.

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