

# Fractal Economic Theory

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## **Explanation of [Fractal Economic Theory]**

[Fractal Economic Theory] is written by the addition of many contents to [Wholly Revised Financial and Economic System](Published on 2008/10)

Foremost achievement is theoretical analysis of the cause of bubble economy.

In general, analysis of the cause of bubble economy has been thought to be impossible forever. But it was not true.

Bubble economy is caused by the lack of consideration in formula for calculation of present value of future cash flow.

Currency is fractal structure. (It was published in “Introduction of Minus Interest”)

As currency is fractal structure, value of currency overlaps by stream of currency, and future cash flow is increased by the overlap.

So, it is necessary to eliminate the increase of overlap when we calculate present value of future cash flow.

But it is not eliminated in present financial economy. As a result of lack of elimination, present value of future cash flow is calculated excessively.

So, Securities are issued excessively. It is called as collapse of bubble economy that excessive present value is decreased drastically, triggered by depression of business.

I denominated economic theory by use of fractal structure of currency as Fractal Economic Theory.

By use of Fractal Economic Theory, we can get various property of financial economy.

Most important property is “ If money is distributed equally, we can get maximum pace of economic growth”. It is theoretically proved that economically equal society gets maximum pace of economic growth.

Chapter 1,2,5 of this book has been published in [Wholly Revised Financial and Economic system].

(It was revised partially)

Chapter 3,4 is added in [Fractal Economic Theory].

I hope financial economic problems will be solved and advanced economic progress will be realized by this book.

August 2009

## Chapter 1 Problems and solutions of financial / economic system

### Static value and dynamic value

In this book, economic value (of assets) is divided into two categories, static value and dynamic value. The purpose of this division is to understand essence of finance and economy accurately.

Static value ----- If the asset itself has utility value, the asset is named static value. Commodities, buildings etc. correspond to static value.

Dynamic value ---- If the asset itself doesn't have utility value and the source of value are out of the asset, the asset is named dynamic value. Currency corresponds to dynamic value.



( Economic Transaction )

Economic transaction is to change static value for dynamic value.

Economic values of both static value and dynamic value occur at the same time.

It is meaningless to recognize the economic value of static value out of economic transaction. The economic value of dynamic value that has no transactional static value is not recognized.

As described above, economic values of both static value and dynamic value always occur at the same time.

It is basic principle of economy that static value and dynamic value correspond one-to-one.

Economic value of static value is transactional dynamic value. Economic value of dynamic value is transactional static value. Economic value is the value accepted by economic transaction. So, economic value of static (dynamic) value is transactional dynamic (static) value.

Static value and dynamic value are defined as equivalent value in present financial economy, but dynamic value is different from static value in essence, in the sense that the source of dynamic value is in static value of others.

Equity is value like mixture of static value and dynamic value. Because company itself

has value (static value), and equity is given fluidity (Exchangeable for money – equivalent value to money – dynamic value) in addition.

Equity is described in this book, but all equity in this book is intended to publicly-held stock. Privately-owned stock is not intended to this book.

### **Indefinite possession does not make sense.**

Possession is considered in this section. Possession is concept, presupposed exchange with others. Possession does not occur in the world where exchange with others does not exist.

Currency is used to exchange something with others. Currency has only finite value. (Please refer to [Restructuring of Foreign Exchange Theory])

For all of these reasons, concept of possession makes sense only in finite time period. Concept of indefinite possession does not make sense. (The value of indefinite possession has a value in money of infinite)

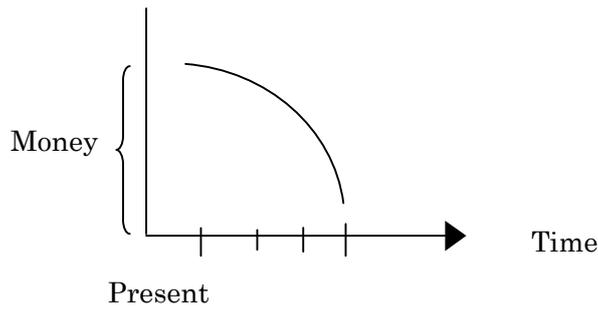
For all of these considerations, it can be understood that concept of possession of land or gold, which is indefinite possession, does not make sense. Land or gold deals are made for granted in present economic system, but it contradicts the theory described above.

It is necessary to make land or gold deals with possession period (finite period). Land or gold deals can be made with money to limit possession period

### **Present money system is possession of future value in advance.**

It is defined in present economic system that money has value without economic transaction. Money is the system which estimates future scale of economic transaction from past economic transaction result and store economic value in hand in advance. Value of money occurs in different future timing, but all money is treated as the same money.

Money is fractal structure. But as value of money which will occur in the future exists at the same time in present economic system, it is difficult to understand accurate behavior of money.



(Fig.1 )

**Economic value of company is possessed as money of others.**

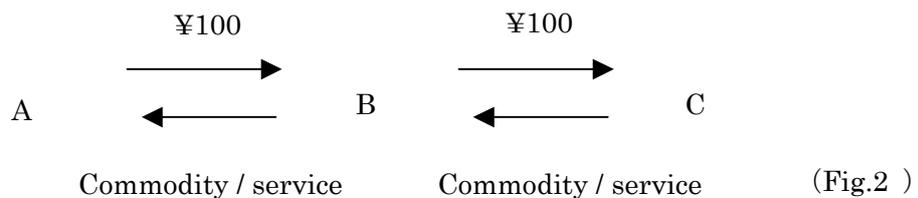
Deal between A and B is made at the beginning in figure 2. As a result, B has ¥100 (Debtee). A has minus ¥100 (Debtor).

Value of Commodity offered by B to A diminishes with time. So, if B keeps money, part of the money has no value (no purchase).

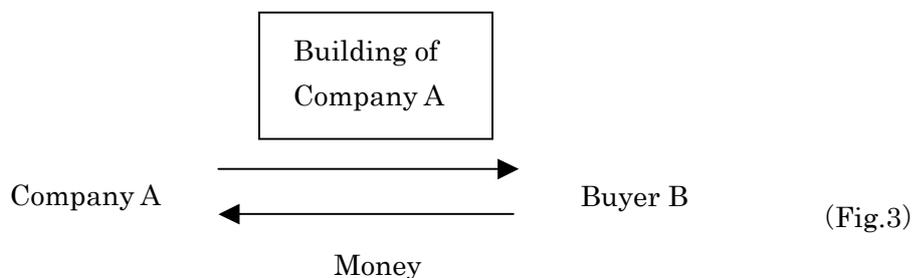
After that, B buys commodity from C. As a result, B has ¥0 and C has ¥100 (Debtee).

At this time, value of ¥100 of C is commodity bought by A and B. but the commodity value diminishes with time.

After that, deal between A and C is made (A is debtor of ¥100 and C is debtee of ¥100). If A is asked for a discount of service or commodity below ¥100 by C, A can't pay debts forever. As A is in debt of ¥100, A has to pay interest to C. As notion of option doesn't introduced to money, economic system is advantageous to debtee. (Unfair system)



(Fig.2 )



(Fig.3)

(Fig.3) Economic value of building owned by company A occurs when B buys it for money. Before that, economic value of building is possessed by B as money of B. A owns static

value of building.

As described above, economic value occurs by execution of option (of money) of buyer.  
 (Fig.4) It is assumed that deal between B and C is made before the building deal.

Discard option right of C ---- (1)

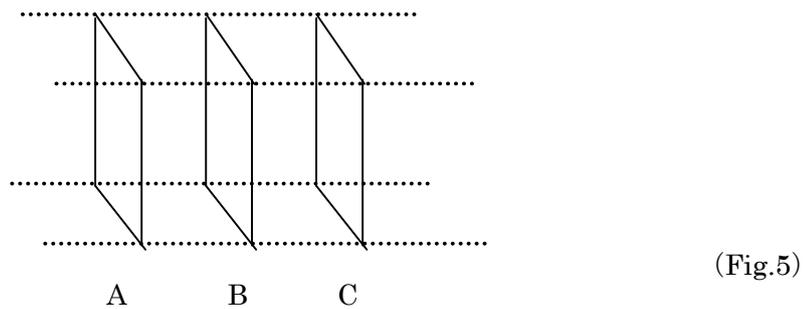
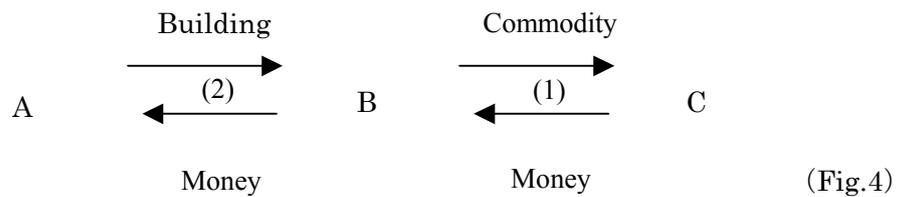
Discard option right of B ---- (2)

Economic value owned by A occurs as a result of (1) (2) (continuity of economic transaction)

Economic value owned by A is duplicate of economic value of dynamic value owned by B, and dynamic value owned by B is duplicate of dynamic value owned by C. (Fig.5)

The earlier option owned by B or C is executed, the earlier economic value owned by A is realized (more certainly).

Economic value owned by A is possessed as money of C (then, of B). So, to possess it as equity (as dynamic value (equivalent to money)) is wrong.



Economic value of building (static value) is possessed as money of others.

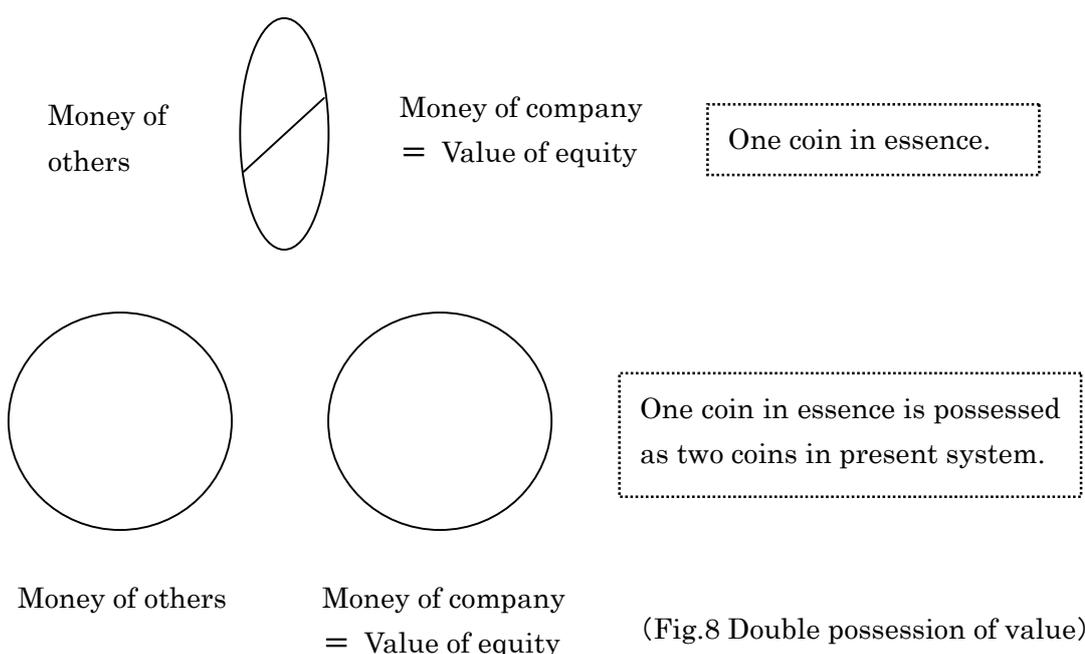
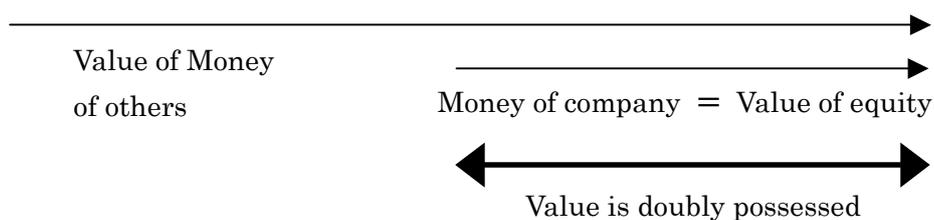
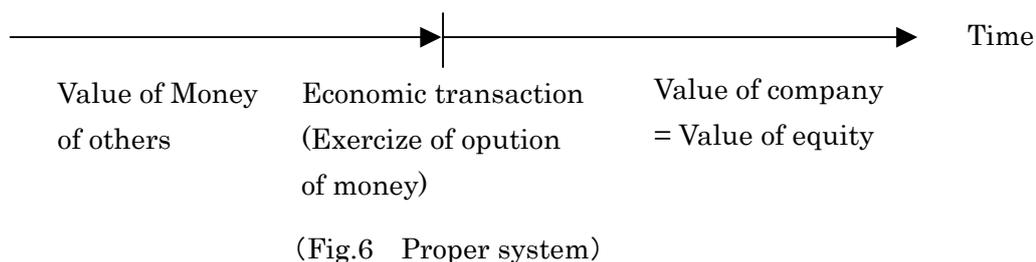
Economic value of goods of your own occurs by execution of option of money owned by others.

As described above, economic value of company is possessed as money of others.

**Equity is Double possession of value of money. (Detail description).**

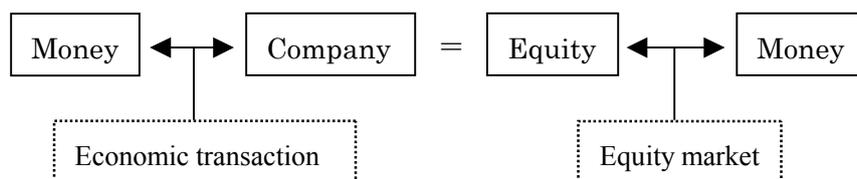
Economic value of company occurs when static value of company is exchanged for money of others (dynamic value). (Please refer to static value and dynamic value). Money owned by company (source of equity of company) occurs by economic transaction between money of others and static value of company (Fig.6).

But, in the current system, value of company is possessed as equity before money of others is used. As a result, value of company is doubly possessed. (Fig.7)



Money owned by others and equity have relation like two sides of a coin. One value in nature is possessed doubly.

So it is wrong to possess equity and money owned by other people as independent dynamic value.



(Fig.9)

Left : Value of money of others = Economic value of company  
(Transactions of buildings etc. are included.)

Right : Value of money of others = Value of equity (= economic value of company)

(Fig.9) Economic value of a company is possessed as value of money in economic transaction and as value of money in equity market. One static value corresponds to two dynamic values (money of others, equity). Economic value of a company is possessed doubly.

Source of value of money (for the most part) is listed company. Value of money does not occur without these companies. Economic value of listed company is possessed as money. If value of listed company is possessed as equity in addition, economic value is doubly possessed.

Without Japanese company, nothing can be bought in yen (value of yen is lost). Source of value of yen is in Japanese company. (Supplier of commodity, service, etc. (static value)). Economic value of company is possessed as money of others used in economic transaction. If economic value of equity is possessed, economic value of company is possessed doubly. (Two dynamic value correspond to one company (static value)).

Present equity market is established by double estimation of economic value of company.

Source of dynamic value is static value of others. (Money does not have value in itself. Source of value is commodity or service supplied by others). (For the most part) Source of value of money (yen) owned by someone are commodity or service supplied by Japanese listed company. Without these supplies, source of value of money is lost, and situation is like to have fake bill. Dynamic value corresponds to listed company (static value) is possessed as money of others used in economic transaction.

You can see for all of these reasons described above, possession of such dynamic value as equity other than money of others used in economic transaction makes double possession of dynamic value (value of money).

‘As equity has management right, it has value independent of money.’

This is mistaken notion. Company can supply commodity and service because the company has manager. Value of company which includes management right is possessed as value of money (of others) used in economic transaction.

When business begins to pick up and economic growth rate increases, stock rises in price. It is to view economic growth (increase of sum of money) from a different standpoint. dynamic value of stock is only double possession of value of money in economic transaction.

(Right in fig.9) Value of equity is possessed as copy of value of money in economic transaction (Left in fig.9).

So, it is natural for price of equity to rise as scale of economy expands.

As the number of those who cash in the equities increases, the equity market decline. Equity becomes unsellable in extreme cases.

It is not true that dynamic value of equity is lost by decline in the equity market. Equity is double possession of value of money and equity does not have dynamic value independent of money of others in economic transaction. It is understood that decline in the equity market is realization of this theory.

Closing price of the Nikkei Stock Average (2008/10/23) is ¥8,460, total market value of the first section of the Tokyo Stock Exchange is 282 trillion yen. But proper total market value (total dynamic value) is ¥0. As a result of double possession of value of money caused by paradox of financial economic theory, dynamic value which does not exist essentially is possessed as 282 trillion yen.

Equity transaction is only money transfer among the affected parties. Equity transaction is only money transfer with confirmation of value of company (Economic scale etc.). It is reality of equity transaction.

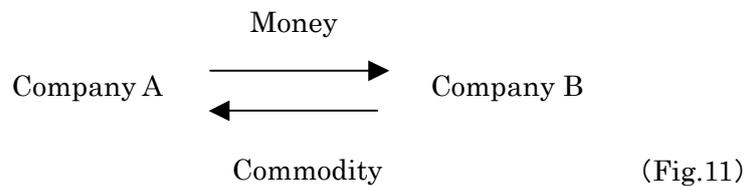
Enormous manpower is spent on useless work. It leads to much better productivity of all society to abolish going public. People of all society will become rich.



It is traditional way of thinking that source of value of company (value of equity) is future cash flow of company. But money of company is source of value of company of other company. Therefore future cash flow is source of value of other company.

To use money of my company smoothly is to supply money of other company smoothly. As a result, economic value of my company increases. (Raising of the pay standard produces a similar effect.)

To keep possession of money is obstructive factor of increase of economic value of my company.

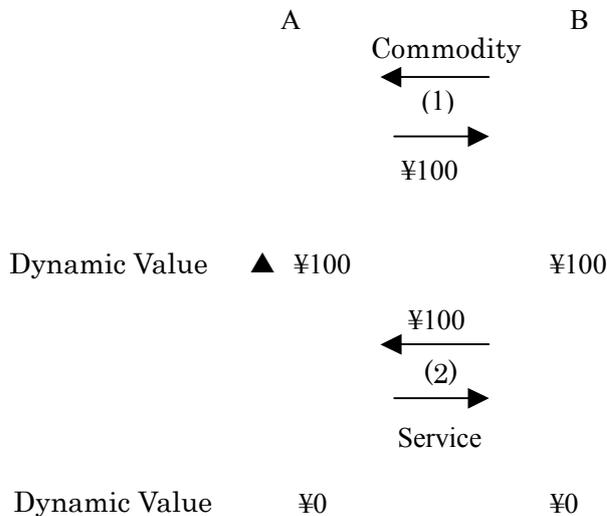


(Fig.11) This transaction is for company A to create economic value of company A.  
(Economic value of company A is money of company B)

**Paradox of plus of sum of dynamic value.**

Let's consider transaction between A and B. (Fig.12). Selling and buying is done at a price of ¥100 in (1). Dynamic value is described under that. It is followed by reverse of selling and buying transaction. Dynamic value is described under that.

Sum of dynamic value of both A and B after (1) and (2) is ¥0.



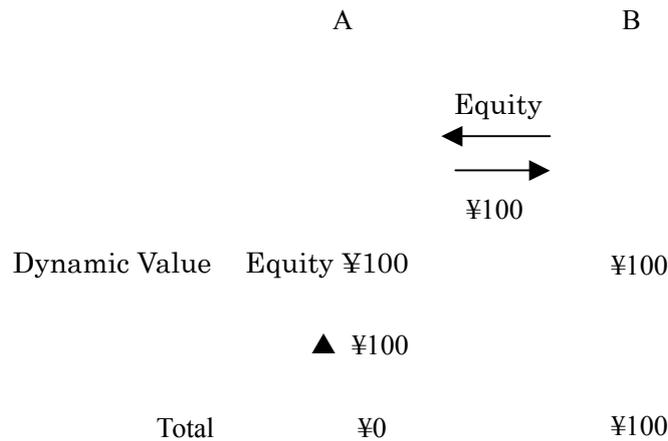
(Fig.12)

Plus dynamic value is status to have right to receive static value, and minus dynamic value is status under obligation to offer static value to others. Therefore, it is economic principle that sum of dynamic value is 0.

It is assumed that (1)(2) in (Fig.12) is repeated. As B has value of ¥100 after (2), B goes public and A buys stock in B at a price of ¥100. As a result, sum of dynamic value of A is ¥0, and sum of dynamic value of B is ¥100. Sum of dynamic value of both A and B is ¥100.

It is economic principle that sum of dynamic value is ¥0. If sum of dynamic value is plus, dynamic value without need to pay occurs. As a result of going public, credit of ¥100 occurs without debtor in (Fig.13).

Money and equity is thought to be dynamic value. Status of plus money (credit) and status of minus money (debt) occur at the same time. If there is only debtee without debtor, it can happen that nothing can be bought with money because no one needs to pay.



(Fig.13)

Therefore, it is economic principle that sum of dynamic value (equity, money) is ¥0. Otherwise credit without debtor occurs.

As described above, credit of ¥100 without debtor occurs in (Fig.13). Equity is double possession of value of money. Dynamic value of equity of ¥100 is over possessed.

As just described, sum of dynamic value comes to plus by going public. It doesn't mean affluence in society. It is only over possession of dynamic value.

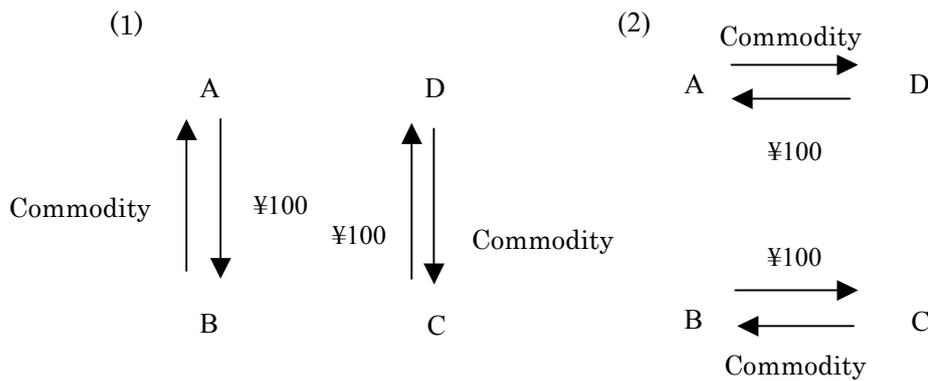
In addition, that sum of dynamic value is ¥0 does not mean that buildings, machines etc. have no value. Equity is thought to be dynamic value. (It can be exchanged with money

in the market.). Sum of money is ¥0 in principle. Therefore sum of dynamic value must be ¥0.

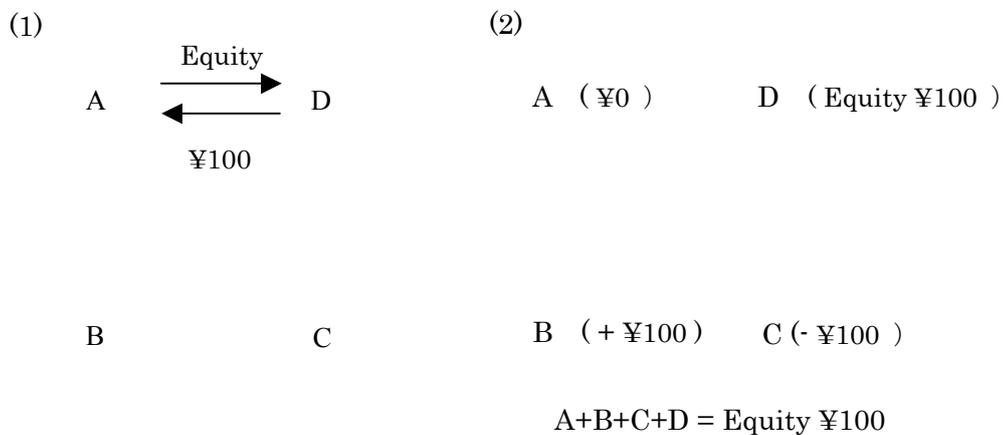
Naturally, value of buildings, machines etc. which is not supposed to be changed with money (with others) is not ¥0. But these are static values. Dynamic value is asset which can be changed with static value of others.

Let's consider transaction among 4 companies of A, B, C, D. (Fig.14). Transaction (1) and transaction (2) are conducted alternately. In both (1) and (2), sum of money of 4 companies is ¥0. (As money of company which receives commodity earlier is -¥100.)

(Fig.14) After (1), company A issues shares at a price of ¥100 and company D buys these. (Fig.15) (2) shows dynamic values of 4 companies. Sum of dynamic value of 4 companies is ¥100. Sum of dynamic value is plus as much as issued shares.



(Fig.14)



(Fig.15)

Transaction (2) in (Fig.14) is tried after (Fig15). But as company D doesn't have money, transaction between A and D is impossible without debt of D. However, transaction between B and C is possible.

As described above, we can understand that equity diminishes scale of economy. Scale of economy diminishes to the same degree as money spent in equity market. Therefore, you can see that to abolish going public advances the economic growth.

### **Equity should be debt of company.**

Value of equity is fixed on the ground of asset and profit etc. of company. Going public is system to raise money that will be acquired in the future previously.

In general, it is regarded as debt to receive money previously on security of money that will be acquired in the future. Therefore equity should be regarded as debt of company.

If equity is regarded as debt of company, sum of dynamic value diminishes to the same degree as amount of going public. (Sum of equity becomes debt of company.). If it is applied to (Fig.13, Fig.15), sum of dynamic value of each company is ¥0.

Current equity is mistaken system that occurs dynamic value (money) without debtor. As equity is debt of issuing company, issuing company should buy back equity at market value.

It is explained that equity is double possession of value of money. However, if equity is regarded as debt of company, the duplication is resolved.

### **Owner of company is consumer**

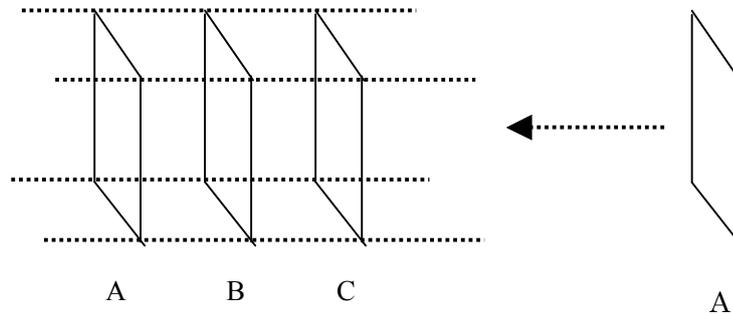
If equity is changed to debt of company, who is owner of company?

Economic value of company is money possessed by consumers. It means that source of value of company is consumer.

Traditionally, owner of value of company is thought to be equity holder. But as consumers support value of company, it is reasonable that owners of company are regarded as consumers.

By accurate understanding of owners of company, mechanism of financial economy can be more sophisticated.

**Money is fractal structure.**



(Fig.16)

If (Fig.5) is expanded, right edge connects to the money A spent in the past. (Fig.16). Value of financial asset (Left A) occurs as result of execution of option (of money) of A in the past.

Execution of option (of money) (Right A) links to receive option (Left A). No execution of option (of money) (Right A) links to lose option (Left A).

Money movement (flow) is described in (Fig.17). Money flows continuously in the opposite direction of commodity / service. It is rotation structure. A will receive money A used in the past.

Value of money of A is reflection of money of B. money of B is reflection of value of money of C.

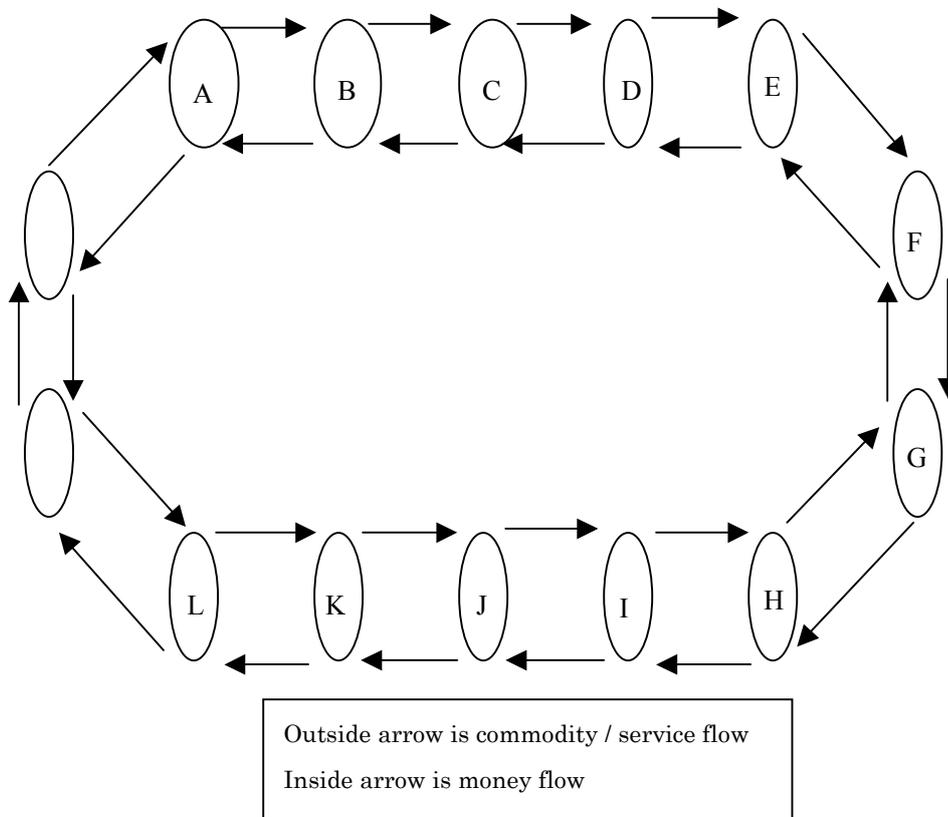
As described above, value of money of A is reflection of value of C. Repeating this way of thinking, value of money of A is value of money A spent in the past.

$$( A \leftarrow B \leftarrow C \leftarrow D \leftarrow E \cdot \cdot \cdot \cdot \leftarrow A )$$

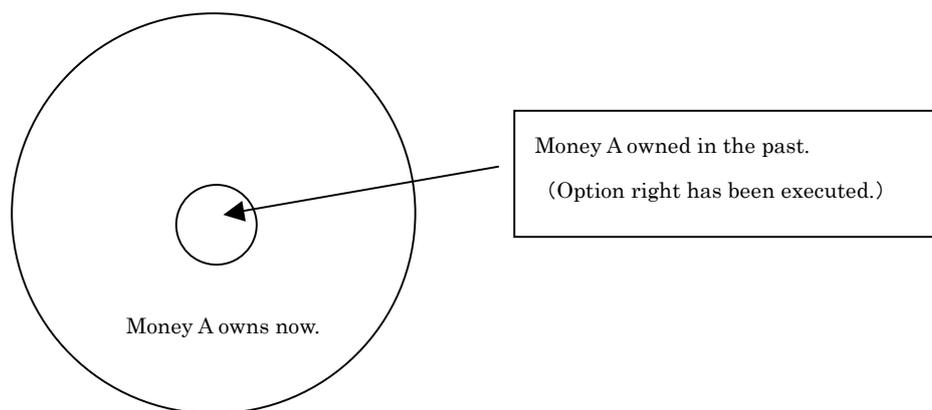
As just described, thinking of money flow (rotation/continuity), all money is constructed as all money spent in the past transaction is included each other. Present money includes money spent in the past transaction of owner of present money. Money spent in the past transaction included money that had been spent in the transaction before then by the owner.

The way of thinking explained above is described in (Fig.18). Money owned by A includes money spent in the past.

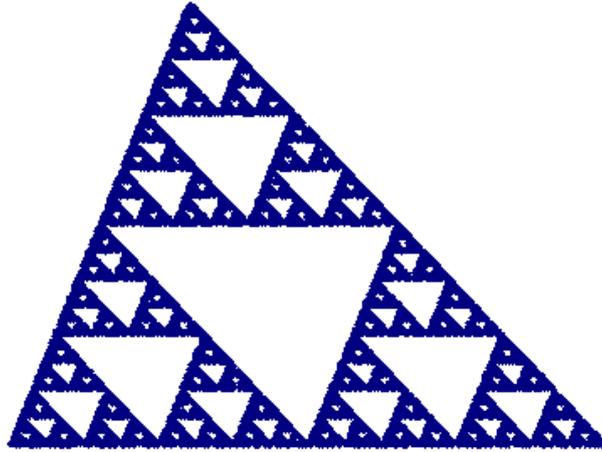
Money of A is included in money of A in (Fig.18). Large and small isomorphic structure like this is called fractal. Money is composed of fractal.



(Fig.17)



(Fig.18)



(Fig.19: Example of Fractal)

If you can understand that money is fractal, you can easily understand how to increase value of economy (Amount of money). That is to execute option right of money positively. It leads to asset formation in the future. On the other hand, if option right of money does not be executed, it is natural that future value of money decreases.

It contradicts theory described above that retention of the dynamic value, such as money, for long period leads to increase of property (with plus interest rate) in present system. Not to spend dynamic value leads to decrease of future dynamic value that will be received in the future.

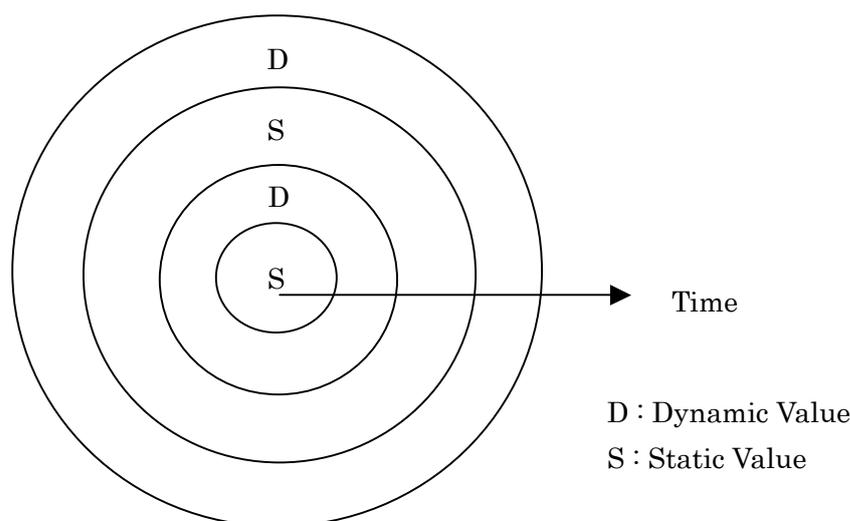
Equity is system to buy future economic value of company (Value of money received in economic transaction) with money held presently. Future value is treated as present value.

Economic value of company (Value of equity) occurs to spend money in economic transaction with other company. To buy equity with the money is confusion of cause and effect. (Cause: value of money, effect: future profit of company).

Money is fractal structure. Present value of money is involved in future value of money. As present value of money and future value of money is confused in equity, future value of money is involved in present value of money. Equity falls into logical paradox completely. So, Going public needs to be abolished.

### Fractal structure of both static value and dynamic value.

Fractal structure of money is explained in preceding section. Economic transaction is to change static value for dynamic value. Therefore, fractal structure, in which static value and dynamic value involves each other alternately, is composed in the whole of economic transaction. (Please refer to (Fig.20))



(Fig.20)

(Fig.20) is following structure.

(Transaction between A and B is supposed. It is defined that first is center and outside of center is second.)

First and second mean a set of economic transaction (To change static value for dynamic value). Third and fourth mean a next set of economic transaction.

First : Static value of company A (Owner is changed by transaction from A to B)

Second : Dynamic value of company B (Owner is changed by transaction from B to A.

This becomes fourth (dynamic value of A) )

Third : Static value of company B (Owner is changed by transaction from B to A)

Fourth : Dynamic value of company A (Owner is changed by transaction from A to B)

As described above, static values of companies include each other.

Bankruptcy (Decrease of static value) of another company means that static value of my company decrease.

Value of company is calculated individually in present system, but this way of thinking is mistake. Value of each company involves each other. So, value of company must be calculated in connection with another companies.

**Securities are multiple possession of value of money.**

In general, source of values of securities (equity, bond etc.) is money (cash flow) acquired in the future. Securities prices are calculated from present value of future cash flow.

Money acquired by company in the future is dynamic value received in the exchange of static value offered by company in the future.

It means money and securities (Value of future transaction) are equal value that securities can be bought with money. It means that value of future transaction (Future cash flow) is involved in present money.

It is explained that money is fractal structure. Money spent in the past transaction is included in present money.

Buying and selling of securities mean reverse status of fractal structure of money. (It is natural structure of money that transactions in the past are included in present money. It is reverse to include future value.)

If the period of future transaction is extended, value of future transaction increases without limitation. If present money is made from value of future transaction, it can be made without limitation. If this situation is permitted, as amount of money that is much more than sum of value of dynamic value (Value of money) that occurs as a result of exchange with static value, value of money decreases significantly. As a result, sharp rise in prices and credit insecurity will be triggered.

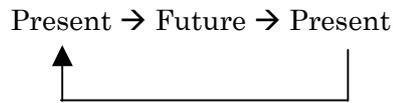
It is necessary to prohibit the method to create present money (dynamic value) from value of future economic transaction. It needs to be borrowing of issuer, same as the case of equity. Otherwise, as value of money does not stabilize, financial economic system does not stabilize.

In case of equity and national bond, future value of money is involved in present money.  
--- It is reverse structure of money.

Present → Future (Natural structure : Present money is involved in future money.)

Future → Present (Reverse structure : Future money is involved in present money.)

To connect both flow, structure of money circulates.



As number of rotations of money has no limit, it can rotate without limit.

Money can be created without limit. (Multi possession of value of money.)

It means multi possession of value of economic transaction.

If one of value of economic transaction is lost, it seems that value of economic transaction multiplied by (number of rotations +1) is lost.

Securities are risk increase structure. If a transaction is lost, value of the transaction multiplied by (number of rotations +1) is lost.

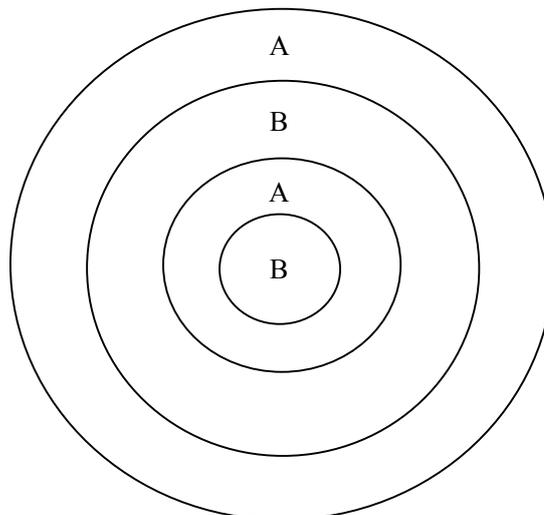
The more number of rotations increases, the more amount of value lost by loss of one of economic transaction increases.

As dynamic value is multiplied by (number of rotations +1), total amount of dynamic value is far more than total amount of static value.

Total amount of dynamic value > Total amount of static value

This means that in fact there are not enough things to be bought, though we think we are rich to see the amount of money. So this rotation should be prohibited.

If amount of money is more than amount of static value, buyout etc. will happen. So buying and selling of dynamic value which includes future cash flows should be prohibited.



A : Present Money  
B : Future Money

(図 21)

To introduce system that value of money (dynamic value) occurs only when economic transaction is done, value of money of future transaction is not possessed in advance, so paradox like this never happens.

Structure of money is like the figure (Fig.21) by securities like equity. Securities are issued as future value of money and the securities can be exchanged for present money. So money is constructed as composition of future money and present money.

(Present money is dynamic value that was used for exchange with static value.)

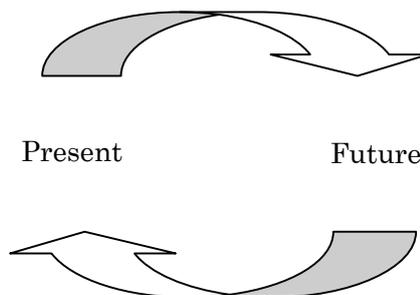
(Future money is dynamic value that will be used for exchange with static value in the future. There is no static value that can be exchanged with the future money. (Money of no economic value))

It can be understood that any amount of money can be created to see the figure.

- Money is created from future money. Any amount of future money can be created to extend the period.
- It lowers the value of money.
- It seems that there are more economic values than real economic values (static value).
- If one economic transaction is lost, it seems that value is lost manifold.
- Risk increase structure.

To compare (Fig.21) and (Fig.20), Future money is in the area of static value. It means that economic value of present money is future money. Money that has no static value of transaction target occurs. (It works like counterfeit bill.).

(Fig.22) Present money structure is revolving at high speed and steady-state situation. (As Future value is included.). Revolving structure (Money structure that includes securities.) is present money structure.



(Fig.22)

## **Securitization is exploitation means**

Securitization is system to merge dynamic value (future money) that will be used in future economic transaction and dynamic value that is result of past economic transaction (change of static value for dynamic value) into dynamic value that can be used now. As a result, amount of dynamic value is more than amount of static value that was target of past economic transaction. It means that average value of money is reduced. As a result, price rises.

As amount of money of those who don't use securitization doesn't increase, ratio of dynamic value of them to amount of dynamic value is lowered by reduction of value of money occurred by securitization. (Ratio of money of them is lowered.)

On the other hand, ratio of dynamic value of those who use securitization to amount of dynamic value is risen.

If economic transaction is done with the dynamic value, ratio of received static value of those who use securitization is higher than ratio of those who don't use securitization.

For all of these reasons, securitization is exploitation structure of value from those who don't use securitization to those who use securitization.

## **Reduction of value of money caused by securitization**

Document of obligation is a contract that is written when we borrow money. (Contract between debtor and debtee.)

Those who can use money are changed from debtee to debtor by borrowing, but amount of money is not changed, so value of money is stored.

If document of obligation is securitized and market transaction can be done, document of obligation becomes equal to money. As document of obligation has right to receive (to be repaid) money in the future, it should be regarded as future money.

As the future money becomes equal to present money, future money is included in present money. Money that can't be changed for any static value occurs. It reduces value of money and price rise, exploitation, bubble and so on are happened.

It is the root of subprime loan problem. If financial institutions keep housing loan bonds without securitization, amount of money doesn't increase, so in case of default of paying back loans, deficit amount is only the default.

But as housing loan bonds are securitized, amount of money has been increased. (Revolving between future money and present money occurs).

As a result, deficit amount of uncollectible housing loan has been increased. (Deficit amount is (number of rotations +1) times as large as amount of uncollectible housing loan.).

Securitization is risk increase factor.

Equity should be changed to loan of issuing firm. Issuing firm should buy back all equities at market value.

To trade documents of obligation issued as a substitute for equity in the market means occurrence of money that can't be changed for any static value. (As future money is included in present money.)

Therefore, it should be prohibited to trade documents of obligation issued as a substitute for equity in the market.

Banks allocate a part of unrealized gain of stock holdings to owned capital. But if equity is changed to loan, it can't be allocated to capital. As a result, capital increase to cover decline in stock prices is not needed.

Owned capital decrease caused by decline in stock prices is result of risk increase by revolving between future money and present money.

Decline in stock prices. (Future money decrease)

→ Owned capital decrease. (Present money decrease) → Necessity to increase capital.

Value of money is stabilized to prohibit changing future money for present money. As a result, financial crisis can be eliminated.

### **Resolution of financial crisis by abolishment of securitization.**

Amount of money, average number of use of money (= one year / average money holding period), and economic scale have following relations.

(Amount of money) \* (Average number of use of money) = (Economic scale) (a)

(Average number of use of money) = (Economic scale) / (Amount of money) (b)

(Average holding period of money) = (Amount of money) / (Economic scale) (c)

(Preconditions)

- Securities etc. are included in total amount of money.
- Average number of use of money means average number of times money is used in a year.
- Economic scale means total amount of economic transactions in a year.

The cause of present financial crisis is that holding period of money is prolonged and the number of debtors who can't fulfill obligations is increased. Therefore, it is necessary to shorten holding period of money to overcome the situation.

As described in calculating formula (c), strategy to shorten holding period of money falls roughly into two categories as follows.

1. Decrease of amount of money. (Decrease of issue amount of securities, interest rate cut)
2. Economic scale expansion. (Raise the rate of nominal economic growth)

If amount of money is decreased, holding period of money is shortened, so period to receive money is shortened. It leads to shortening of the repayment period and resolution of credit insecurity.

Level of interest rate and rate of nominal economic growth needs to agree. (Please refer to "Introduction of minus interest" in my book). As for higher level of interest rate, holding period of money is prolonged. (It leads to occurrence of bad debt)

Cut of level of Interest rate shows a low increase rate of amount of money (debt, deposit). Debtors fall into a state of Excessive loan and deficiency of amount of deposit. Interest rate cut reduces increase rate of debt loan and makes debtors pay back easier. (As debtors have more loan than deposit, influence of deposit interest rate cut has small effect relatively).

To expand Economic scale means shortening of average holding period of money. It means that period to receive money is shortened, so it leads to shortening of the repayment period. As debt is reduced, credit insecurity is resolved.

Economic scale expansion through increasing public spending leads to issuance of national bonds and so on. As it is contrary to decrease of amount of money of 1, it decreases effect of resolution of financial insecurity.

Issuance of national bonds causes a decrease in national credit. Issuance of national bonds should be regarded as action to decrease national credit to save debtors (to

increase credit of debtors). Therefore, national credit as a whole doesn't change. In addition, national bonds need interest payment. If repayment period is lengthened, huge amount of interest payment is needed, so tax increase is needed. As tax increase causes decline in consumption, it is obstructive factor of expansion of economic scale. Therefore, Issuance of national bonds is not root solution.

Present financial insecurity has been started from subprime loan (housing loan) problems. The causes for the problem were both high interest rate and securitization.

Bad debt occurs at higher level of interest rate than rate of nominal economic growth. Rate of nominal economic growth in America is about 6% per year (2006 – 2008), but interest rate of subprime loan that has passed 2 – 3 years since borrowing is over 10 % per year. Difference between rate of nominal economic growth and interest rate can not be paid back, therefore bad debt has been occurred.

Essential meaning of interest rate is to be able to use money whenever one wants to use it. But interest rate is unfair system in that merit is returned only to debtee. If interest rate is abolished and such system, in that debt should be paid back without interest, is established, problems like subprime loan will not happen.

The cause of bad debt in Japan in and after the 1990s is much higher interest rate than rate of nominal economic growth. If this truth had been spread in financial circles in America, bad debt occurrence caused by subprime loan might be prevented. As the information had not been spread sufficiently, same fault was repeated.

It is a theory proposed for the first time in [Introduction of minus interest] published in 2003 that interest rate and rate of nominal economic growth agree. It seems that this concept is not introduced in present risk management theory. Therefore risk management in financial institution is not sufficient. (Risk is not evaluated in case of mistake in level of interest rate in monetary policy and so on.). I think subprime loan problem is only one example of mistakes in level of interest rate.

To spread accurate information leads to both prevention of mistakes of interest control and stabilization / development of finance / economy.

Securitization of subprime loan adds to the problem.

As subprime loan had been securitized and sold, revolving between future money and present money occurred and amount of money was increased. It led to risk expansion. Default of payment of loan led to decrease of value of money multiplied by (number of rotations +1), so worldwide credit uncertainty happened.

Increase of amount of money can be controlled to abolish securitization. It leads to prevention of risk expansion of whole financial system. Therefore, abolishment of securitization system is extremely efficient policy for this financial insecurity.

## Career and Achievements of Akira Takizawa. (Writer)

Date (YYYY/MM/DD)	Career and Achievements
1985	He has started religious activity.
1989	He has graduated from the University of Tokyo, and started career in Mitsui Bank. (Now it is called Sumitomo Mitsui Banking Corporation.)
1994	He suggested to the bank. "Revolution in information will happen from now on. PC will be bank. System should be strategic division." After the suggestion, The Sakura Bank (Now it is called Sumitomo Mitsui Banking Corporation.) was far ahead of banking circles through IT strategy to establish Japan's first internet bank (Japan Net Bank) and so on. It led to IT introduction in every industrial circle and IT strategy in Japan. Suggestion described above made great contributions to IT strategy in Japan.
1995/06	He was assigned to General Planning and Policy Division. He was in charge of ALM.
1999/07	He surpassed both Buddha and Jesus in spiritual rank.
2000/06	He left the Bank to make a study on five dimension and so on.
2000/12/31	He accepted pyramid figure (Creation principle of all things, equipment for generation of magnetic field energy (Human activity energy)) from above. It was the advent.
2001/09	[The Day to Surpass Buddha] was published.
2003/02	[Five Dimension Theory] was published. It was theoretically explained in the book that world was fractal structure. (Space was involved in dot). Necessity to revise physics wholly by introduction of five dimension was advised in the book.
2003/06	[Introduction of Minus Interest] was released. Economic theory was restructured to revive economy in Japan. It was theoretically explained that interest rate and rate of nominal economic growth should agree. It was proved at the same time that the cause of depressed economy in Japan after the 1990s was much higher interest rate than rate of nominal economic growth. It was claimed that both business and financial recovery should be made by higher rate of nominal economic growth than level of interest rate. After delivery of this discourse to government and the Bank of Japan etc., it was spread in Japan that it was necessary for interest rate to be lowered, and it made great contributions to business recovery. It has been theoretical ground of low interest rate policy around the world after the Lehman crisis.
2004/01	Property to store electromagnetic wave was confirmed in fractal structure. (On the front page of The Asahi Shimbun.). A part of contents of [Five Dimension Theory] was confirmed academically.
2005	He began to write sequel of [Five Dimension Theory]. Fundamental structure was

delivered to the Physical society of Japan etc..

2005 He has entered into heavenly world. (It is world of tutelary gods.).

2006/11 [Five Dimension Theory Vol. 2] was released. It was delivered to the Physical society of Japan etc..

2007 [Introduction of Option Concept to Money], [Restructuring of Foreign Exchange Theory] were released. It was delivered to various quarters.

2008/06 Kagayaki-No-Kai has been established to relieve humankind. [Fundamental Principle to Relieve Humankind] was released.

2008/10 [Wholly Revised Financial and Economic System] was released.

2009/08 [Fractal Economic Theory (this book)] was released. It succeeded in theoretical analysis of the cause of bubble economy.

2009/10 [Five Dimension Theory Vol. 3 principle of recognition] was released. Outline of five dimension was explained.

2011/10 [Five Dimension Theory Vol. 4 principle of space creation] was released.

2011/11 He has entered into creator world.

2011/12 Life-prolonging / Longevity Service has been started. Lifespan extension of humankind has been started.

2011/12 Equipment for generation of magnetic field energy (aura) was released.  
He succeeded in generation of magnetic field energy (aura) mechanically.

2012/7 He presented recommendation titled “Nuclear power must be abolished” to Prime Minister Noda. As a result, new energy policy named “Innovative energy / environmental strategy” aimed for “All nuclear power will be nonoperating in the 2030s” was announced from government on September 14, 2012.

Present President of Kagayaki-No-Kai.

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