

(Note(5/22); this draft is premising the market as of January, 2013.)

Notes of Y. Hypothesis No.4

## **BOIDS and Inflationary Expectations**

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< How to find an economic phenomenon coming from our old brain >

Inflationary Expectations:

A psychological tendency that people assume that inflation will last in future after it has continued to some extent and economic entities come to act as assuming it. It sometimes works to obstruct the normal activity of real economy by increasing too speculative actions and causing rampant inflations.

How to find a said phenomenon:

1. An embarrassing problem comes out naturally.

If everyone acts rationally, will it come out? -> It will not come out. -> It may come from an inconsistency between systems created by our new brain and natural reactions created by our old brain.

2. Investigation into correspondences

The movement of market corresponds to the movement of herd in our old brain.

3. What movement of herd does it correspond to?

It is BOIDS. (Y. Hypothesis No.4)

Note-1: There are uncertainties. Even if someone behaves rationally, he/she have to take the trend into account. Whole market trend will be left irrational.

Note-2: If we premise that man move using only its new brain, we would observe only above note-1 phenomenon.

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< Inquiry from the lives' viewpoint >

If inflationary expectations are moving like BOIDS; each one would be synchronizing its direction (rise/fall) and speed (rate of change) to others while keeping rooms each other and flying in the direction where many ones exist.

See (BOIDS): <http://video.search.yahoo.co.jp/search?p=BOIDS&aq=-1&oq=&ei=UTF-8>

See (Synchronization): <http://www.youtube.com/watch?v=DD7YDyF6dUk>

Ex: A school of small fish

1. Chain reaction -> Phase transition

As information spreads, movements of each one instantly change in a chain reaction.

The group's direction/speed is renewed.

2. Adaptation to the common sense (mood)

Each one begins to move as synchronizing its direction or speed to the new movement.

We may be doing unconsciously above 1 & 2 in slow-motion (yet, there are differences of existence of leaders and personalities). Then we may feel them like following.

1. As for the absolute position:

After having adapted itself to a new environment, we tend to think that the present state is usual.

2. As for the direction:

We tend to think that the direction of the motion continues.

3. As for the relative position:

We do not feel it's strange, because everyone is in the same sense.

4. A common sense is formed in a movement. Everyone comes to move as synchronizing with it.

P. R. Krugman says, "Interest rates can not be set less than zero. We should set an inflation target." I think it will be effective in Japan under this recession. Because;

1. Inflationary expectations can move independently without following their values.

2. A bubble of specific asset which did not follow its value has to be adjusted by the swarm intelligence later, and the bubble bursts. But, even if relative value of money falls by inflation, the adjustment does not occur because the modern money is not a commodity (precious metals etc.). (It does not, unless historic debacle occurs, yet it has an influence on the exchange rate.)

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3. At first there is a human mind, and next there is a quantity of money as something like an environment, and then there is a mutual reaction.

4. The direction or speed sometimes changes originally.

People's expectations and leader's strong performance, outbreak of an emergency, appearance of a new technology, (of cause, financial/fiscal policy, and fundamentals), etc. etc. change it. Even spreads of misunderstandings or imaginations sometimes change it!

The important thing is that we can get out of the recent deflation if "a mild inflation becomes our common sense and everyone gets to think that way". The problem, now, is that, "at the present, everyone is not thinking that way".

We need to remove our fear/pessimism which is amplifying the current recession!

(But, after recovery, we need to check a surge of money for speculations, not to get into another bubble.)

(In addition) [Spiritual Journey 1]

What generates our fear is that we can not realize its causes. One of them may be a mental aftereffect of the bubble which we suffered. It is like "a charred pile (a terrible experience) easily catches fire."

Once, we had a terrible experience by "having flown upward!" A sense that a bubble will repeat may prevent us from "flying upward".

About the general prices in the bubble period, many people say, "It soared" or "I don't know." In reality, it was relatively steady.

There is a strange self-locking structure. While low interest rates has been said to be the cause of the bubble, we are in low interest rates now.

It is like "a unification of general account and special account" and "a simplification of the cause."

We need to build a system for the future, which makes us realize the mechanism of a bubble. (Ex: Big Data Analysis of Real Estate Transactions)

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(In addition) [Spiritual Journey 2]

After the World War II, Japan's post war history had started from burnt fields. The postwar reconstruction had been the earnest wish for all Japanese. Unconsciously, it existed in the depth of our hearts for forty-some years. The 1980s would be the time when it completed. The firm inflation rate would be one of its big symbols.

1. (Deficit or Surplus) > Trade surplus started to continue > Established
2. (Savings deficit) > Savings surplus started to continue > Established
3. (Continued inflation) > Firm inflation rate started to continue > Established
4. (Workaholic employee) > Life with spare time started to continue > Established
5. Per-capita income increased.

After the bubble, the atmosphere utterly changed to "Japan has already become rich enough".

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(In addition) [BOIDS vs. Visible Hand]

A lot of chain reactions take place frequently, and many local waves appear. But, their frequency to become a major fundamental wave is low.

Even if government/central-bank want to change a direction/speed of the fundamental wave in the middle of it, usually it is not so effective. Still, it will have a profit to prevent a panic. (Ex: Anti-inflation campaign. Foreign exchange intervention. Etc.)

Around a turning point, it is effective. It is the time when a chain reaction, a critical state, and a new common sense are formed. (Ex: Redenomination. Plaza Accord in 1985. Soryo-kisei in Japan (a regulation on lending balance) in 1990 (while it may be effective at any time). Etc.)

Under a fixed rate, BOIDS seldom occurs. (Strong herding behavior does not occur frequently in a place where risk/uncertainty is small. Ex: Lives: Small fishes stop their strong herding behavior in a fish tank. In it, there is little possibility of becoming a prey or little need to travel somewhere. Each one begins to occupy their territories.) (Note: The fixed rate cannot adjust a long-term distortion automatically.)

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(In addition) [BOIDS and Inflation]

< Why increasing in money became not to lead to inflation? One of the reasons will be; >

It is because economy is weakening due to the recession.

It is because demand is less than supply.

It is because it becomes deposits of persons who do not use it.

Basic structure:

People's minds do not move. > The money does not move. > Inflation does not occur.

< I added a reason related with herd behavior, other than the above, as follows. >

At first there is a human mind, and next there is a quantity of money as something like an environment, and then there is a mutual reaction.

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When a risk/uncertainty is high, our basic feelings for life preservation tend to come out. (Fear, Delight, Mania, etc.). Strong BOIDS starts. Direction/speed begins to change.

[Some mood and impetus or some unforeseen fatal event > Strong BOIDS starts

> Fear of shortages > It turns into an expectation of future price rise >

1. Everyone begins to raise prices, to buy it even if its price becomes higher

> Price hike > Money moves strongly > Price hike > It becomes a common sense.

2. Everyone wants to buy it before it will rise more, to sell it after it will rise more

> Price hike > Money moves strongly > Price hike > It becomes a common sense.

> The steep inflation continues]

In Japan, a sudden price rise occurred under the first oil crisis (1973-). During it, a "fast chain reaction" & "positive feedback" was taking place.

Since everyone thinks, a rush can not be stopped by a good deed of a person, everyone does it. > So, the reckless rush does not stop. > So, everyone begins to think, a rush can not be stopped by a good deed of a person. > Getting to know it, participants increase. > Repeat!

We can see the same phenomenon when African desert locusts start moving en masse. Recent study revealed, proximity (a sign of food scarcity) stimulates them to produce neuromodulator chemical serotonin. Serotonin stimulates them to move furiously. See: "The Perfect Swarm" (Len Fisher). At first, it is an aggregate of random movements of each individual (normal distribution). But, it changes into a herd-behavior or BOIDS (power-law distribution).

Some neuromodulator must be associating with human beings, too. -- Investigations are progressing. -- Anxiety/Fear, Fear/Strong-fear, Anger, Delight, Getting over the fear, Trust/Sympathy -- Noradrenaline, Adrenalin, Dopamine, Serotonin, Oxytocin, etc. etc.

Two years earlier, Prime Minister Tanaka had proposed the 'Nippon Retto Kaizo-Ron' (Building a New Japan). It had been causing a land boom from the previous year.

+ Money supply had been increasing by the shift to the floating exchange rate system.

+ The oil crisis suddenly occurred.

The 'Nippon Retto Kaizo-Ron' was a future plan. The increase of the payment for the crude oil was 4% of Japan's GDP. Nevertheless, the consumer price rose by 1.5 folds in three years!

A groundless rumor had spread. "Toilet paper will disappear." Toilet paper panic began. Almost all Japanese housewives started rushing to stores to hoard toilet papers. Even though the Prime Minister shouted to stop it, the reckless rushes did not stop.

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Some stronger force had been stimulating them!

A more devastating example is a hyperinflation. It happens when people's trust to the nation/government collapses. (+ an increase in inconvertible bank notes). What enables the exchange of goods is our "ability to add values" and "forces which protect ones who added the value when trusts between parties break". Without people's trust to the nation/government, inconvertible bank notes can not circulate.

Strong BOIDS does not occur frequently in a place where risks/uncertainties are small. In Japan, risks/uncertainties decreased in markets of goods except "assets targeted by speculations" and "primary products".

1. Technologies of production/distribution/merchandising progressed. Our confidence for them improved.

Even if demand increases, additional supply is possible quickly, so the prices do not rise. Our confidence for them reduces our fears of shortage.

2. Our trust to the nation/government

Even if money becomes an inconvertible bank note or electronic data, exchanges are prevailing as usual.

3. Improvement of the confidence for the monetary policy.

Existence of it and the confidence for it reduces our fears of shortage.

4. Price downward pressure had continued due to the asset deflation, yen appreciation, and increase in cheap imported goods.

5. Experiences

Ex: Even if crude oil soars, we do not feel fears as much as we used to do.

6. etc. etc.

Still, in the case of an emergency, a fear for shortage will spread, and it is possible that hoarding will occur. Ex: The Great East Japan Earthquake in 2011: Various goods disappeared from stores for several weeks. Still, their prices did not rise.

Several theories are conflicting in Japan, now, as for the cause of the deflation of goods except "assets targeted by speculations" and "primary products".

By the experience in the past several decades, I'm feeling, "steep inflation was bad", "flat was easy to change into deflations", and "deflation was bad".

I think, now would be the time when "mild inflation will be better than them" will

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become our common sense. The keyword of its realization will be "a new common sense" and "a gently flowing stream in a part of the fish tank".

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(In addition) [BOIDS and Self-fulfilling Prophecy]

In a BOIDS, a self-fulfilling of common sense (= prophecy) takes place. (An example in which common sense switches to a prediction: "Land price will rise! Everyone knows it. See, it has been rising!")

When, by chance, it becomes the common sense (= prophecy) that deflation will continue in the future, everyone comes to move as synchronizing to it, then the common sense (= prophecy) realizes itself by everyone's movement, and the deflation continues. So, it is necessary for us to change our common sense ("the deflation will continue") to escape from there.

The structure like this is also in our mind. When something bad has occurred, our mind will be demoralized. "I may lose again! > Your body comes to move as synchronizing to it. > You really lose again." Things go from bad to worse. < Slump!> Most people would have experienced it, and, would have got out of there.

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(In addition) [Programming Notes]

1. The programs of existing BOIDS have a shortage in the process of chain reaction, if we apply them to a bubble. Since humans' chain reactions happen by super slow motion, it is necessary to add it to the program.
2. It is necessary to add two factors as amplifiers into the chain reactions; those are "excess money" and "times with confidence".
3. We have characteristic-differences like the theory of diffusion of innovations. The waves move forward, while being pulled back.
4. We tend to make judgments of economic situations by our new brain, while standing on the fundamental wave (common sense). Knowledgeable ones are not a majority.
5. A large amount of money on some kind of "human hand" may occasionally have an influence to accelerate a change of a wave.

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- 6. Government or central bank may take measures to change the direction/speed of the fundamental wave. It is necessary to add these influences to the program.
- 7. A burst of a label that everyone trusted without seeing its contents tends to give rise to strong fears. The strong fears tend to generate panics. The panics often accelerate the change of direction/speed of the fundamental wave.
- 8. etc. etc. . . .

If we look into it more deeply;

A large wave includes frequent small waves.

A small wave includes more frequent smaller waves. (Fractal structure)

If we look into it more deeply;

There is a structure of "wave < human reaction < uncertainty + thinking + environment + learning + mind < brain, nerve, cell < genes + nature".

Most of events happen under the influence of waves and are interacting with human minds/reactions by becoming topics.

After being glad/sad/oblivious, being astonished/delighted/oblivious, the trace of these repetitions forms a power law distribution.

Behind these, there lies a providence of nature. That is "self-organization/emergence".

This structure consists of "elements and assembling powers".

See: Self-organization.

<http://en.wikipedia.org/wiki/Self-organization>

See: Elementary particle

[http://en.wikipedia.org/wiki/Elementary\\_particle](http://en.wikipedia.org/wiki/Elementary_particle)

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(In addition) [Spiritual Journey 3]

Thoughts tend to last even if the event finishes.

Deflation has lasted for around 15 years in Japan.

How much more time will we take to change our minds?