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NEXTGEN CAPITAL MARKET DEVELOPMENT
(Numerical-quantum economic theory for universal monetary system)

GOLDEN RATIO AND QUANTUM QUBITS IN CAPITAL MARKETS

Abstract

The purpose of this project is to implement the **numerical-quantum monetary system** to reduce and restructure sovereign debts, secure capital values and mitigate investment risks by applying new scientific methods, and models to advance the development of capital markets and world economies. This paper demonstrates new monetary principles by elaborating new trends in capital economics with integrated mathematics and physics, enabling to devise disruptive inter-monetary mechanisms and implement the NextGen financial instruments described below.

Introduction

There is a **golden ratio** that can be used to describe the proportions of matter from atoms to galaxies. Nature relies on this integrated proportion for equilibrium, and the financial markets seem to conform to this special ratio.

Mathematics

Mathematicians, scientists and naturalists applied this ratio as the **Fibonacci sequence**, named after its Italian founder. Each term in this sequence is simply the sum of the two preceding terms (1, 1, 2, 3, 5, 8, 13, etc.). It is the quotient of the adjacent terms that possesses an amazing proportion, roughly 1.618, or its inverse 0.618. This number is essential, since almost everything has dimensional properties that adhere to the ratio of 1.618, so it seems to have a fundamental function for the building blocks of nature.

Behavioral Investments

There are also technical measurements that are more akin to Rorschach tests – patterns that one wants to see. One such technical metric is the Fibonacci numbers or the Golden Ratios. The concept is that nature follows a certain set of ratios. The shape of the Nautilus shell, for example, embodies the ratio. And for a good reason: the proportions echoed in the Golden Ratios deliver a certain physical strength and solidity. It is found in everything from art to architecture. Some investors believe that these ratios can also apply to stock prices, for physical ratios map to investments and financial behaviors.

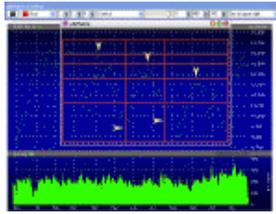
Phi and the Fibonacci Sequence

Human expectations occur in a ratio that approaches Phi. Changes in stock prices largely reflect human opinions, valuations and expectations. A study by mathematical psychologist Vladimir Lefebvre demonstrated that humans exhibit positive and negative evaluations of the opinions they hold in a ratio that approaches phi, with 61.8% positive and 38.2% negative. Phi and Fibonacci numbers are used to predict stocks.

Phi (1.618), the Golden Mean and the numbers of the Fibonacci series (0, 1, 1, 2, 3, 5, 8 ...) have been used with great success to analyze and predict stock market moves, known as **retracements**. Forbes ASAP featured a story on the work of scientist Stephen Wolfram in cellular automata (underlying rules that determine seemingly random phenomenon) stating “This seashell may hold the secret of stock market behavior, computers that think and the future of science.” The essential mathematical property of ϕ is that it is the ratio of successive numbers in the Fibonacci series. As that series continue infinitely, the ratio of each number to the previous one gets closer and closer to ϕ ; but as the series is infinite, it never quite gets there. So ϕ is the limit of the ratio of that sequence. This ratio is also the calculating aspect of risk management in capital markets to track the money flow and buying trend. A lot of the buying and selling can be explained by this aspect of stock trading.

Markets may be as geometrically perfect and the Ermanometry research shows the capital markets can be patterned to create perfect geometric proportions in their circulations. Ermanometry applies the logarithmic spirals found in sea shells with dynamic ratios in 3D to relate one market move to others. Phi, or Golden Ratio, patterns often define the timing of highs and lows and price resistance points.

The golden ratio, or phi, appears frequently enough in the timing of highs and lows and price resistance points that adding this tool to technical analysis of the markets may help to identify **Fibonacci retracements**, the key turning points in price movements. The images below illustrate how the Golden Mean Gauge and Phi-based analysis software (PhiMatrix) can be used to identify these turns in the market. The middle arm of the gauge keeps the phi point of the outer arms, as the gauge is opened and closed. The lines of the phi-based software are all in phi relationship to one another. The ratios of Fibonacci numbers, commonly used in technical market analysis, converge on phi as explained on the Fibonacci Series.



DJIA Daily Chart
from 1/2004
through 11/04
using PhiMatrix
software

DJIA Monthly Chart
from 1/2000
through 6/2003
using a Golden
Mean Gauge

Phi and Fibonacci numbers define the price movements of stocks in Elliott Wave Theory

Fibonacci numbers were used by W. D. Gann and R.N. Elliott, pioneers in technical analysis of the stock market. In Elliott Wave Theory, all major market moves are described by a five-wave series, adding to the potential to identify the turns described above. The classic Elliott Wave series consists of an initial wave up, a second wave down (often retracing 61.8% of the initial move up), then the third wave (usually the largest) up again, then another retracement, and finally the fifth wave, which would exhaust the movement. In addition, each of the major waves (1, 3, and 5) could themselves be separated into subwaves, and so on, and exhibit other Fibonacci proportions. A sample stock price wave analysis could look something like this:



Major, minor and sub waves are shown in red, yellow and green, and the total number of increases and decreases (2, 5 or 8) is a Fibonacci number. Note that the predicted end result is based in the Fibonacci series as well as the end price is 61.8% of the high and 0.618 is equal to $1/\Phi$ and 0.382 is $1/\Phi^2$. ϕ is about 1.618. It's an irrational number that goes on forever, and is defined as:

$$\frac{1 + \sqrt{5}}{2}$$

A golden **rectangle**, whose sides are proportional to the golden ratio, is to be found throughout nature. Great composers, artists, and architects are said to have based their work upon this ratio. People have found it in the structure of DNA and the arrangement of molecules in crystals. Most famously of all, the Greek Parthenon, the preeminent icon of architecture, is said by some to be based almost entirely on the golden ratio. This ratio is believed by many to be so ubiquitous in both nature and design that it's also been called the divine proportion.

ϕ and the golden ratio are best known by their unique mathematical and geometrical properties. A rectangle, whose sides are proportional to the golden ratio, can be **split** by a square off one end of it, and the resulting small rectangle that remains is of the exact same proportions as the original. One can cut a square off of that and to get a still smaller golden ratio rectangle, and do this *ad infinitum*. Such rectangular split or “cut” can be used in our **quantum monetary system** based on **qubit units** to split their value by random numbers in a sequence where the assets are uniformly distributed with duplicates over a defined interval of the monetary and stock exchange operations, whereby the original monetary units and SE stocks would have their virtual duplicates in the **blockchain of dual assets**, thus preventing monetary and SE collapses and triggering large trading in **IoT energy monetization** to be worth \$6 Trillion.

Said properties would constitute our new **multi-tier valuation layers** of upgraded-appreciated assets and equities traded up to infinity per applied game theory and the multi-tier levels of investments where investors would progress from one capital tier level to another and up to the top, depending on the accumulated values of their portfolios.

Elaboration

Our research has resulted in the creation of **numerical-quantum financial model** that would enable the integration of investment sequences in the ratio of their monetary limits, whereby **financial qubits** would have their applied equivalent in major intl. currencies to be then fused into one monetary unit. We use here the term of **transitional economies** to define the **transitional cryptocurrencies'** failures, whereby national currencies got their induced convertible value in **virtual particles** of bitcoins.

In re: in physics, a **virtual particle** is a **transient fluctuation** that exhibits some of the characteristics of an ordinary particle, but whose existence is limited by the uncertainty principle and same is applicable to the cryptocurrencies to be substituted by digital **quantum monetary units**, eliminating thereby the common ForEx and paper money circulation that leads to inflation or deflation. Thus, capital markets fluctuations could be mathematically/physically predicted, investment risks mitigated and large financial gains obtained.

In near future, foreign currencies would be converted to **quantum monetary units**. It means that state finances would be calculated in **quantum qubits** – monetary units of energy that each state would produce and consume within its **energy monetization system**, as per my new quantum field theory and my new theory of macroeconomics and its model of a **rectangular block of capital assets encapsulated by the perpetual monetary drive system**. See fig. 1 below.

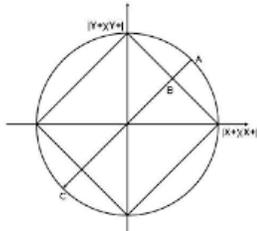


Fig. 1

We further elaborate on our theory and model of the quantization of the intl. monetary system where the monetary assets will be divided into **capital particles and subparticles** as in physics and similarly to the "splits" of corporate stocks at SEs, to constitute thereby **proportional digital denominations** in the elimination of paper money. Our quanta monetary units (**QMUs**) will be used by central banks and digital banks as monetary energy blocks contrary to common blockchains of imaginary currencies, since our new monetary units would constitute the **Unified Monetary System (UMS)** in configurative economic space without ForEx and common monetary fluctuations that cause capital markets instabilities and SE volatilities.

Conclusion

Our QMUs would have **reciprocal volumes of trade** via **Reciprocal Value Trade Bonds** to counteract the trade war damages, since contrary to common ForEx operations, the volume of **QMUs** trade will be shifted pro and contra due to the balance or disbalance of their accumulated quantum monetary weight and the volume of trading in associated monetary energy units (**MEUs**) linked to global mineral reserves, energy exploration, production and consumption. Thus, the equilibrium of intl. monetarily circulation as in our model (see fig. 1) can be achieved due to said self-regulating mechanisms in a new state of economics, thus substantiating the Keines' hypothesis of self-sustaining equilibrium in the linear and non-linear trends of *economic dynamics* per our model. We refer here to the thermodynamic principle of Le Chatelier in view of automatism in monetary equilibrium. It means that disequilibrium in our quantum monetary system, where quantum units work as **catalysts**, would trigger a chain counter-reaction to restore the equilibrium while securing large profits in the interim monetary revaluation process calculated by the financial market entanglement of quantum units at any given spacetime, as in quantum physics.

Note that a chemical catalyst increases the rate of a reaction without being consumed in the reaction, and similarly acts our **quantum monetary catalyst** the use of which doesn't affect the position and composition of the equilibrium of a monetary reaction, because both the ups and downs of capital market reactions would be regulated by the entanglement of **QMUs**.

In physics, quantum entanglement means that multiple particles are linked together in a way such that the measurement of one particle's quantum state determines the possible quantum states of the other particles. This connection isn't depending on the location of the particles in space. Even if the entangled particles are separated by billions of miles, changing one particle will induce a change in the other, and that phenomena will be reflected in **financial quantum states of universal monetary system** per our theory.

Ref.:

Multi Parameters Golden Ratio and Some Applications

Seyed Moghtada Hashemiparast, Omid Hashemiparast

Applied Mathematics Vol.2 No.7

The Golden Ratio

Csizmadia Jozsef

Journal of Modern Physics Vol.7 No.14

A Dynamic General Equilibrium Model Satisfying Golden Rule in Neoclassical Growth Theory

Jiang Wei, Kangping Wu, Xuanming Ni

Theoretical Economics Letters Vol.7 No.4

Keynes, John Maynard (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan (reprinted 2007).

Le Chatelier, H. and Boudouard O. (1898), "Limits of Flammability of Gaseous Mixtures", *Bulletin de la Société Chimique de France* (Paris), v. 19, pp. 483–488.