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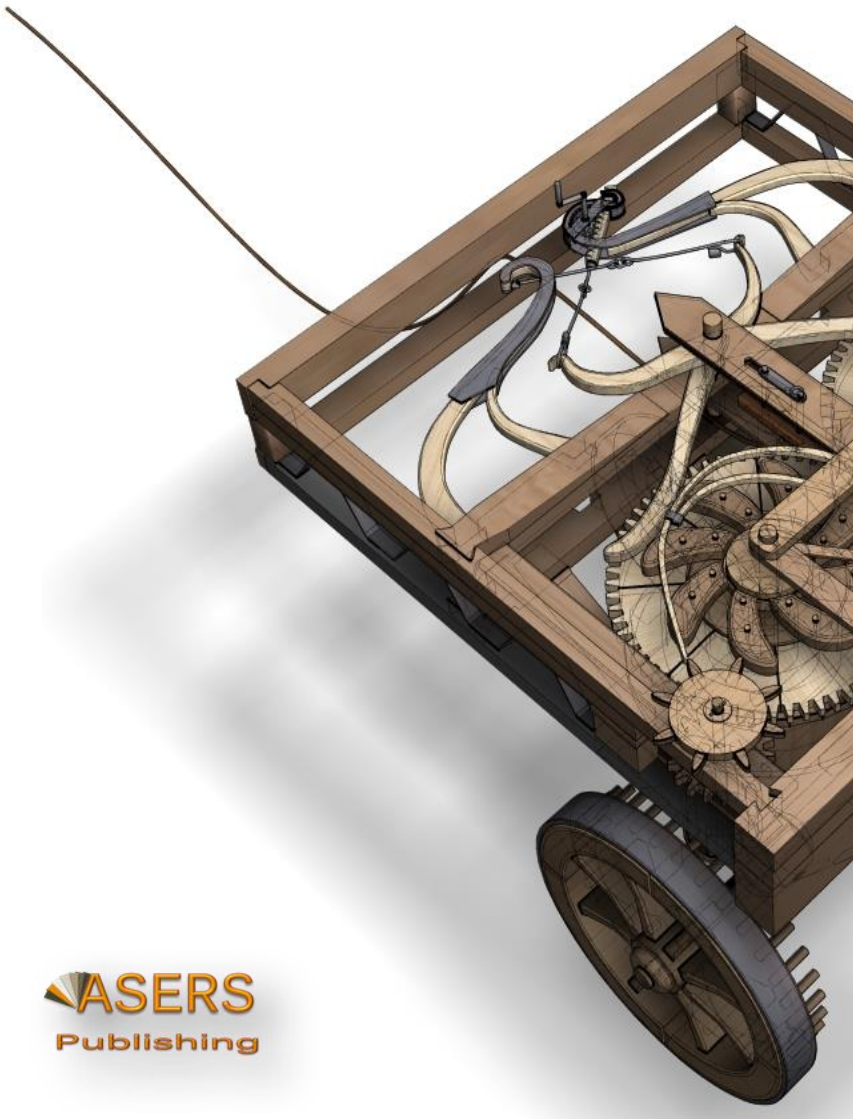

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Many economists today are concerned by the proliferation of journals and the concomitant labyrinth of research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models and methods in all fields of economic research.

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All the papers will be first considered by the Editors for general relevance, originality and significance. If accepted for review, papers will then be subject to double blind peer review.

Invited manuscripts will be due till November 10th 2017, and shall go through the usual, albeit somewhat expedited, refereeing process.

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THE ECONOMIC BUBBLE AND ITS MEASUREMENT

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Abstract:

In mainstream economics, the sight is restricted to forms of financial bubbles. In Concordian economics, rather than the behavior of the financial markets. instead, a bubble is defined as a separation of monetary values from values of real wealth. Hence, the concern is with the behavior of the entire economic system. Once defined, Concordian economics allows us to measure the bubble. To obtain this result, Concordian economics overcomes one of the major hurdles in economics, that is the measurement of real wealth as an entity separate and distinct from monetary wealth.

Keywords: financial bubbles; economic bubble; Concordian economics

JEL Classification: A10; B40; B59; C18; C60; D20; D30; D84; E01; E19; G01; K40

1. Introduction

The extant economics literature talks of many bubbles, such as the Dutch tulip bubble of 1637, the housing market bubble, the stock market bubble (various years). Common sense suggests to classify these as partial or "commodities" bubbles. As previously seen, in Concordian economics one is concerned with the economic bubble, namely the general bubble that permeates the economic system as a whole.

2. The Economic Bubble and Its Measurement

In Concordian economics, the economic bubble is defined as a separation of monetary wealth from real wealth.

In the following paragraphs, we shall attempt to show that, within Concordian economics, the bubble can be measured both geometrically and mathematically, and measures can be taken for the abatement of its negative effects.

2.1. Concordian Economics and the Economic Process

While modern economics studies a great variety of economic theories, Concordian economics confines itself to the study of the economic process (Gorga 2002 and 2009). The fundamental conception of the economic process is contained in the following figure, which reproduces the three essential component elements of the economic process:

1. The Production of Real Wealth (RW);
2. The Distribution of Ownership (DO) rights over monetary and real wealth; and
3. The Consumption - or expenditure - of Monetary Wealth (MW) to purchase real wealth.

Even in the purchase and sale of a car we have these three elements: the car, the money, and the deed of ownership. Indeed, these three elements exist in the purchase of a chocolate bar as well: Without the proof of purchase, or the sales slip, one risks arrest in transporting the chocolate bar out of the store.

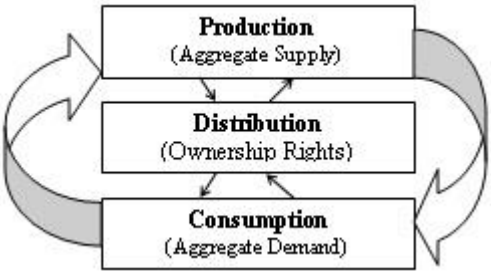

Figure 1. The economic process

This figure reads as follows. As soon as an item of real wealth held by a producer is exchanged for monetary wealth held by a consumer, one cycle of the economic process is completed. For the exchange to occur, in a civilized society both transactors have to be the legal owners of the wealth they exchange. There is much that can be said on this figure. We are using it here to obtain the measurement of the economic bubble.

2.2 The Geometric Measurement of Economic Bubbles

The geometric representation of the bubble is offered in the following figure, which is derived from Figure 1 in this fashion: All three rectangles representing respectively Production, Distribution, and Consumption of wealth are reduced to three segments of a line. When we project these elements over time, we obtain an idealized figure such as follows:

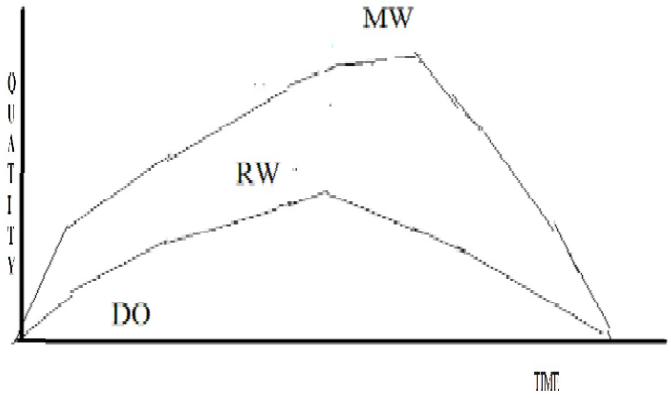

Figure 2. Idealized trajectory of values over time

MW stands for monetary wealth. As we know, over time the value of monetary wealth tends to grow faster than the value of real wealth. Various factors contribute to this result, chief among them today is the greater impact of "financialization". It is in this disjunction that we find the definition of a bubble. A bubble is the separation of monetary values from real economic values.

RW stands for real wealth. As we know, the value of real wealth tends to grow over time. But then, at times it does decrease. When its value decreases, production tends to decrease. As already pointed 4 out,

history tells us that the decrease of real wealth can stop at any time, but there is no assurance as to when or where it will stop. With real wealth gone, some civilizations have even disappeared from the face of the earth.

DO stands for distribution of ownership rights over monetary wealth as well as real wealth. As a first approximation, we assume that notwithstanding significant changes this line remains constant over time. Hence it is depicted as a flat line. Development of this issue will eventually give us information as to who owns what, who even owns which part of the bubble. The line is held constant because at this stage of the discussion we are not concerned with the dynamics of the creation of the bubble, but with the measurement of the size of the bubble - at any moment in its development.

The economic bubble consists of the area between RW and MW. The formulas for the measurement of this area is given in any standard physics textbook. For general reference, see Wikipedia.

2.3 The Mathematical Measurement of the Economic Bubble

In economics, until recently, one ran into a huge snag if one wanted to measure the area between RW and MW of Figure (see Gorga 2012). The reason is that in economics, with everything being measured in "money," up until recently there was no way of distinguishing the numeric values that the three lines represent. Yeoman efforts were carried out by Keynes in his attempt to design "labour units" for the measurement of real wealth. To no avail. Successive attempts have been pursued under the hope to use objective units such as British Thermal Units (BTUs). But none of these attempts have proved to be workable; thus, measurement of the bubble has remained confined to some specialized financial markets. Rather recently, as previously reported, a breakthrough occurred - and has been finalized only in the last few days. As soon I announced to my wife, Joan, that I had solved the problem of measuring wealth by distinguishing values of the real economy (Production), from values of the legal economy (Distribution), and values of the monetary economy (Consumption) by using different colours, she said: *"But you can call them p-values, d-values, and c-values*." I must acknowledge: "Brilliant."

The third stage is this. Up until recently, working under a common misconception I misled himself and other people because conventional economic thinking led me to believe that the problem of the numeraire - yet to be found - is restricted to the measurement of real wealth. Thus p-values were expected to be applicable only to real wealth. Not so. Recently, I have discovered that the problem needs to be transformed from a specific to general task.

In Concordian economics the numeraire remains the same in every field, it is always the currency of the country of observation. All we need to keep distinct is the object that we want to measure. In Concordian economics, we clearly separate real wealth from monetary wealth and we measure real wealth in p-values, while we measure monetary wealth in c-values. The two modules are brought together again by the insertion between them of the value of ownership rights over real and monetary wealth, which are measured in d-values.

In Concordian economics, p-values are different from c-values, and different from d-values, not because they are measured by a different yardstick, but because they themselves are entities different from each other. The yardstick of measurement remains the same, the local currency however denominated. Thus, for the US economy, we obtain this description:

- p-values are dollar values that record purchase and sale of real wealth, such as tables and chairs and services (p-dollar values);
- d-values are dollar values that record the value of distribution of ownership of real and monetary wealth (d-dollar values);
- c-values are dollar values that record purchase and sale of monetary wealth, such as currency and stocks and bonds (c-dollar values).

These numbers represent common economic values - with some major differences from standard economic theory. One difference is that, in Concordian economics, "real" values relate to the value of real wealth, not financial values minus inflation.

The other major difference is that the real economy, the monetary economy, and the legal economy are constantly kept separate from each other. In mainstream economics for the measurement of car production, for instance, one adds all the values in any specific currency of the production of cars in a given unit of time, and then one analyses the behavior of these numbers over time.

However, as soon as one gives values of the production of cars in dollars, for instance, the result is a dollar value. Where is the car? Cars are no longer to be seen. The real economy disappears in the midst of the monetary valuation of real transactions.

In Concordian economics, instead, p-values are identified and remain forever distinguished from d-values and c-values. To repeat, p-values measure real wealth; d-values measure the value of ownership rights over real and monetary wealth; c-values measure the value of monetary instruments used to purchase real wealth.

Also, in Concordian economics, "money" is identified as the sum of all financial instruments that are used to purchase real wealth. Specifically, contrary to all extant standard definitions, money is assumed to be the sum of the value of coins, currency, mortgages, stocks, bonds, derivatives, and all conceivable financial instruments. Stocks and bonds, in particular are used to purchase entire factories, and should they not be counted as money? To my knowledge, only Murray Rothbard (2010, 259-265) includes stocks and bonds in the definition of money.

2.4. How Are these Values Determined?

These are not arbitrary values determined by a coterie of friends or market conspirators. They are values determined by the market as a whole, and denominated in the local currency of each country of the world. There are, of course, enormous controversies surrounding any issue of valuation in economics. Eventually, the framework of analysis of Concordian economics will resolve many of these controversies, because we are going to have a continuing triple check on our deliberations. We will see bubbles develop; we will become more careful with our money and other people's lives.

2.5. Better than Gold

As soon as Michael David Rubin (2016) read the previous paper on the definition of the bubble, he urged me to advocate for the adoption of a gold standard. The purpose of the recommendation, of course, is to develop a monetary system that is stable. Arguably, the Gold Standard as it worked mainly during the 19th Century was better than the Fiat Money system that rules today. Since even the best designed Gold Standard has the essential drawback of being tied to a scarce commodity that is not flexible enough to accommodate the needs of the market, and since the oscillations in the price of gold can be rather drastic at times, I am utterly confident that p-values are better than gold.

As conceived long ago, see Gorga and Kurland (1987, 83-86), p-values are measurements suited to the creation of a Golden Standard. This is the creation and measurement of a monetary system that reflects and fosters the creation of real wealth. Under a Golden Standard, monetary resources are always 6 sufficient to satisfy the needs of the market, and are flexible enough to accommodate the needs of volatile human beings, but will automatically curb the urges of market speculators and manipulators. Today, market speculators and manipulators can even be excused because no one knows the extent of the damage they cause; they are covered by a veil of ignorance. With the assistance of p-, d-, and c-values, they will see, as the Russians say, that "Greed ruins the greedy". As currently proposed on the pages of Mother Pelican and Econintersect, the Golden Standard will eventually be implemented through three recommended changes in the rules of the Federal Reserve System and a petition currently circulating on the Internet as well as another petition advocating the Jubilee Solution or a systematic reduction of debt to avoid unruly crashes in financial markets.

Conclusions

It is not the valuation of a car, new or used, that is difficult to determine nor is the aggregation of these values a problem. (Speaking more comprehensively, in Concordian economics one uses the same models in microeconomics as in macroeconomics.) It is the value of financial instruments that is so very difficult to determine. One of the major functions of Concordian economics will be to resolve these issues of valuation of c-values in the future. It is p-values that ought to indicate c-values - not the other way around. In other words, while still subject to the vagaries of human expectations, p-values can be objectively verified - as well as c-values, as well as the separation of monetary values from real values. The bubbles will become manifest and measurable on an ongoing basis. Measured bubbles are a warning to the greedy.

Needless to say, the quantification project cannot be carried out by any single person or even single institution. Most economists have to agree to the scientific necessity of collecting data in accordance with the new categories of thought outlined by Concordian economics; most governments of the world will have to implement this quantification project.

The sooner, of course, the better.

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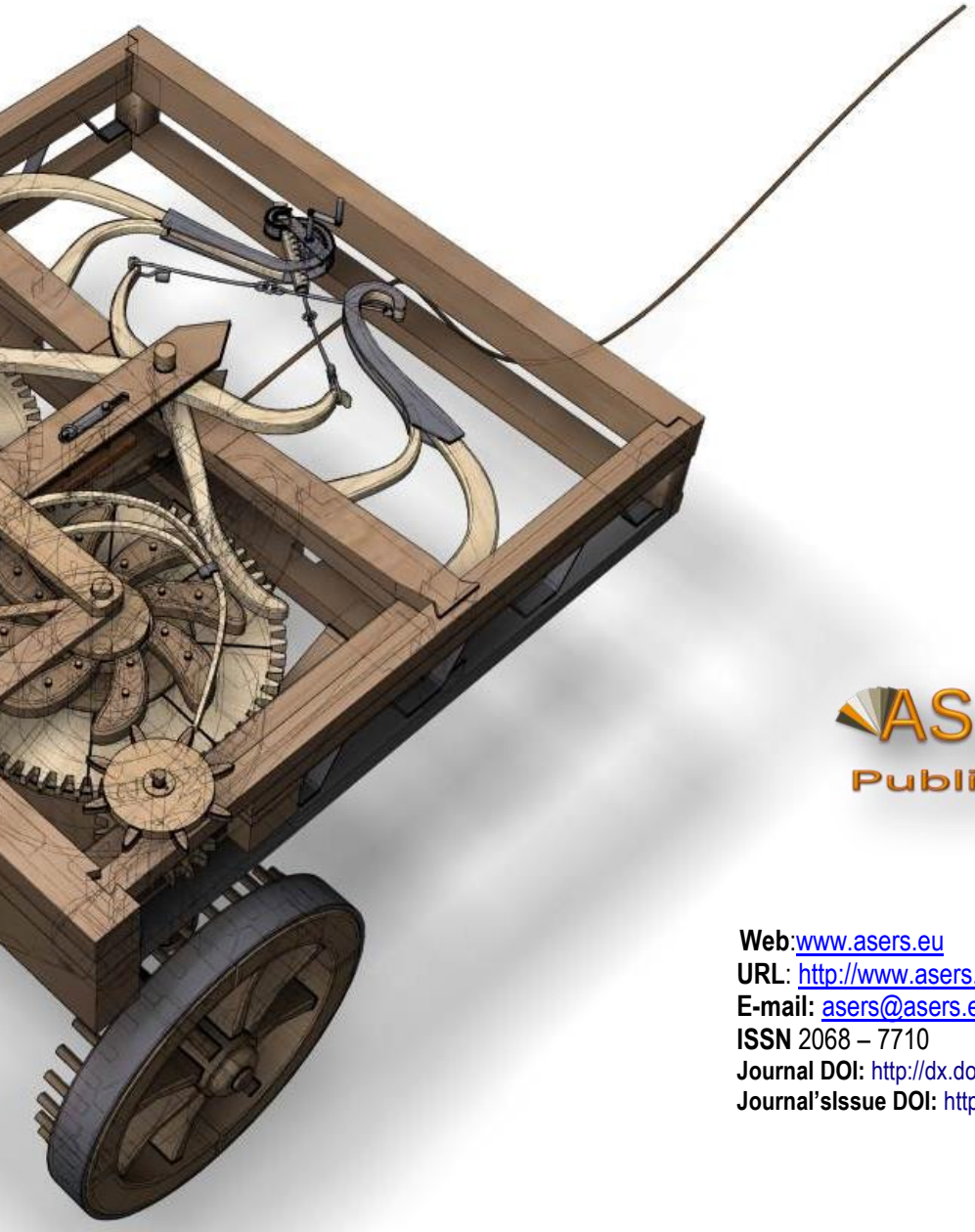

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