Term Paper

Reflection on Tulipmania

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Abstract

This paper would illustrate the tulipmania episode which occurred in the Netherlands (Holland) during the seventeenth century (1634 – 1637). Different views have been expressed by economists and economic commentators or historians in connection whether the event could be attributed to reasonable market fundamentals or to be treated as bubbles The recent financial crisis dot-com bubble covering roughly the period 1995 – 2001 would be quoted as example to correlate the tulipmania. The different views have triggered the author again to think about the event as a 'mania' or not from human perspective in connection to the market rationality. The points raised by Brown University economist, Peter M. Garber would be specifically addressed.

Introduction

The term tulipmania is used to refer to large scale of economic bubbles. It is a metaphor equivalent to economic and finance jargons as 'chain letter', 'Ponzi scheme', and 'financial crisis'. It is conventional or traditional to take the mania as frenzied and probably irrational speculative activities, steaming from human perspective. The term "tulipmania" originates from the history of the Netherlands in the seventeenth century when the demand for tulip bulbs reached a huge price for purchase of a single bulb. The event took place between 1634 and 1637 and was reported by the popular British journalist Charles Mackay in his book *Extraordinary Popular Delusions and the Madness of Crowds* in year 1843,[1] more than two hundred years after its occurrence. The script written is taken, at large, the first famous economic bubble, followed by the Mississippi (1719-1720) and South Sea Bubbles (1720) which happened later in France and England.

Since the twentieth century, Mackay's story was widely read and studied in the economic arena. Among the academia, Brown University economist, Peter M. Garber, is considered the modern, famous tulipmania expert. In Garber's view [his paper "Tulipmania" published in *Journal of Political Economy Vol 97, No 3 (June 1989)*], the tulipmania was not a mania at all, but is explainable by market fundamentals.[2] However, there are other views expressed too from political change (displacement) and psychological aspects. The author is not conversant with economic theory, and not

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[1] Mackay first edition appeared in 1841.

[2] Doug French, "*The Dutch Monetary Environment during Tulipmania*" http://www.mises.org/journal/qjae/pdf/qjae9_1_1.pdf pp. 3

fully convinced that the market fundamental can explain the tulipmania event[3] from academic aspect in terms of supply and demand rule affecting the price (as deducted from the price pattern, more exactly). The existence of option sale of bulb, as a financial tool, converted from future contracts[4] is arguable under the then market situation. Different views expressed in support or supplementary or against Garber's opinion have been posted and the author would try to consolidate their views, analyze the situation as far as possible based on the literature available and offer his own commentary.[5] The bubble, in author's opinion, should be taken as a collection of human reflection in maximizing their profit in commence or trading transaction. Such behaviour, in most cases, is irrational especially in the last moment just before the bubbles happen to burst. There is either no righteousness or mischief in the investment behaviour exhibited, or appropriateness of model deployed to explain the phenomenon. Companies or individuals may loose, survive or gain after the bubble bursts and the consequence or lesson learnt.

The Origin of Tulip

The first wild tulip (a Turkish word) originated in Central Asia, on the slopes of the Tien-shan mountains. Brought east by nomads from whom the flower was a symbol of spring, they reached the Near East sometimes during the first millennium AD (it might be brought into China too)[6]. Adopted by the Persians as a token of undying passion, wild tulip soon came to be admired by the Persians' enemies as well: the Seljuks of Asia Minor and their successors, the Ottoman Turks.[7]

There are different stories told about the tulips' arrival in the Netherlands. The most common taken being that the tulip was brought to the Netherlands by Carolus Clusius (Charles de L'Ecluse),[8] the then director (prefect) of the Imperial Herb Garden, who fled from Vienna (Austria) to Leidan (Netherlands) in 1593[9] for religious sanctuary; Carolus was given some tulip bulbs and seeds by Ogier De Busbecq, the then ambassador of Austrian (Hapsburg) Emperor Ferdinand I to the Ottoman Empire.[10]

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[3] Even Garber found it difficult to explain the surge and fall of price of those common low priced tulip bulbs by market fundamentals.
[4] Earl A. Thompson & Jonathan Treussard, "The Tulipmania: Facts or Artifact?" working paper, UCLA, December 31, 2002 pp. 1
[5] I would take a simplistic and layman view.
[6] No traceable record on tulipmania identified in China.
[7] Mike Dash, "Tulipmania" Chapter 3 Onion Books, London 1999
[8] Wikipedia "Tulipmania" *http://en.wikipedia.org/wiki/Dot.com_bubble* It is doubtful whether they refer to the same person - Carolus changed name after migration to Netherlands?
[9] Tesselaar "The History of the Tulip" *http://www.tesselaar.net.au/flowerandgarden/thetulip.asp*
[10] Dirtgarden "Tulipmania" *http://www.dirtgardener.com/TipSheets/Bulbs/Tulipamiana.html*

However, Mackay told a different story. He remarked that Conrad Gesner was the gentleman who should claim the merit of having brought the tulip into repute[11]. Anyway, the two stories may not be contradictory, as these two indicated that the tulips came from Ottoman Empire (1299 – 1922).

Before the tulipmania happened in the Netherlands, the tulip was already very popular in the Ottoman Empire. Tulips were particularly favoured in the courts of Suleiman the magnificent, Sultan of the Ottoman Empire from 1520 to 1566.[12] It would not be a surprise that in the course of ten to eleven years after 1593 that tulips were much sought after by the wealthy, especially in Germany and the Netherlands due to its exotic origins.

<u>The Tulipmania Chronicle – Mackay Story</u>

Mackay began the story commencing from 1634. In his words 'the rage among the Dutch to possess them (the tulips) was so great that the ordinary industry was neglected, and the population, even to its lowest dregs, embarked in the tulip trade.'[13] He then described the mania by quoting the upsurge in price with people eager to acquire the asset by exchanging goods (barter) for the tulips. A pair of anecdotes were elaborated in details on the lunacy about a sailor's mistakenly eating valuable '*Semper Augustus*' (Figure 1) petals and an unsuspecting English traveller's experimenting with '*Admiral van der Eyck*' bulbs by peeling off their layers. The sailor was imprisoned for some months after being arrested while the traveller was lodged in prison, and was finally released after paying securities.[14]

Figure 1
Anonymous 17th-century watercolor of the Semper Augustus, the most famous bulb, which sold for a record price (A single bulb might cost as much as a thousand Dutch florins while the average annual income at that time was about 150 florins) [source : Wikipedia]

[11] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* Dover Publication Inc. Mineola, 2003 pp. 89
[12] Dirtgarden "Tulipmania"
[13] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* pp. 90
[14] Charles Mackey, *Extraordinary Popular Delusions and the Madness of Crowds* pp 92-93; or, Peter M. Garber, "Tulipmania" *Journal of Political Economy Vol 97, No 3 (June 1989)* pp. 537-538

Mackay then described the demand for tulips increased so much that in the year 1936 that regular marts for tulips' sale were established on the Stock Exchange of Amsterdam, Rotterdam and other towns. Symptoms of gambling had become apparent with stock-jobbers on the alert of new speculation.[15] The tulip-jobbers went on to speculate in the rise and fall of the tulip stacks, and made great profit and with many individuals suddenly made rich. The frenzy continued to grow with foreigners, besides people of all grades in the Netherlands, pouring in their money in desperate hope that the stock price would still rise. The prices of the daily necessaries also rose in echo to the soar rise in stock price. Subsequently a code of law for the guidance of the dealers with the appointment of notaries and clerks to witness the transaction was drawn up. But it seemed a little bit late, as the more prudent began to see the folly could not last for ever and somebody had to lose fearfully in the end.[16] The price began to drop from its peak since February 1637 and the frenzy suddenly ended.[17] As described by Mackay, substantial merchants were almost reduced to beggary, and many a representative of a noble line saw the fortunes of his house ruined beyond redemption.[18]

Mackay then followed by describing what actions were taken after frenzy died down. The matter was initially attempted to be solved in public meetings among the tulip-holders to explore measures to restore the public credit. Though agreement was reached by the tulip-holders' deputies to treat those contracts[19] made prior to November 1636 as invalid or void, with purchase after that, purchaser would be freed from their engagement if they would pay ten percent of the contract price to the vendor or pay the difference between the auctioned and contract price through public auction. But such proposal had met with bad taste from both the purchasers and vendors, and the local courts as well as they claimed that such transactions were of gambling nature. Finally the issue was referred to the Provincial Council at the Hague. The settlement of option sale or future contract did not have the blessing of the Council as they refused to take action or interfere; only coming out with the same advice as their deputies (the tulip-holders) to offer the tulips 'in natura' to the purchaser.[20] So the matter with left in the hand of luck of individual as concluded by Mackay.

Lastly, Mackay also quoted similar events taken place in London and Paris, both with partial success, but he still wondered over the price of tulip of particular species, and

[15] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* pp 93
[16] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* pp 94
[17] Peter M. Garber, "Tulipmania" pp. 545 - 550
[18] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* pp. 95
[19] The contract nature as captured by Mackay should have triggered Garber to think about the future similar operation.
[20] Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* pp. 96

offered no critique[21] or view except by quoting prices of tulips from bulb sales some 60 years, 130 years, or 200 years after the collapse of tulipmania.

Garber took these as indicators of the magnitude of the collapse and of the obvious misalignment of prices at the peak of the speculation.[22] Through his analysis on the tulip markets, Garber was of the view that the tulipmania could be explained by market fundamentals.

Figure 2
A Pamphlet from the Dutch printed in 1637
[source : Wikipedia]

The Stock Market in Amsterdam, Early Seventeenth Century

The Amsterdam merchants built their own exchange building in 1611 but trade and speculation in shares first appeared in 1602, when the six local 'chambers' for East Indian trade were united into a general Dutch East Indian Company. The use of speculation (spreading rumours) was not uncommon in the early operation of the stock market upon the formation of the Dutch East India Company. Consequently, in February 1610, the first edict was published to prohibit such activities, especially on the 'windhanded' i.e. the dealing in shares that were not in the possession of the seller.[23] The sale of tulip (might involve barter transaction at time of tulipmania) as future contract, (monetary expenditure transformed into goods, in this case, the tulips) as the tulips at the time of signing the contract were not ready to be delivered, was active in the tulipmania market. Whether the speculation resulting in 'windhanded'[23] (tulip as shares) was prohibited or not was not mentioned by Mackay in his story or Garber in his analysis.

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[21] Mackay was a journalist, he might not be as serious as economists nowadays to offer his critique on the episode.
[22] Peter M. Garber, "Tulipmania" pp. 538
[23] Joseph De la Vega, *Confusion de Confusiones* edited by Martin S. Fridson, John Wiley & Sons Inc. New York 1996 pp. 134 Introduction V

Garber's View on Tulipmania

Professor Peter M. Garber in his paper "Tulipmania" concluded that 'the most famous aspect of the mania, the extremely high prices reported for rare bulbs and their rapid decline, reflects normal pricing behavior in bulb markets and cannot be interpreted as evidence of market irrationality. Nevertheless, a less emphasized aspect of the mania, the speculation in common bulbs, does defy explanation'.[24]

He had done much research on the tulip and the tulip markets and even digging into the nature of the tulip i.e. its plantation before arriving at the above conclusion. The rare bulbs such as '*Semper Augustus*', '*Admiral van der Eyck*' etc are costly because they display vivid colours, lines, and flames which cannot be reproduced. The unique pattern displayed by the bulb was a result of its being infected with tulip-specific virus known as 'Tulip Breaking potyvirus'. Such pattern cannot be reproduced through seed propagation – the common method, but by cultivating the bulb into new bulbs. As a side effect, the virus would make the bulb sick, thus reducing its production, resulting in rare quantity available on market.[25]

Price Data Pattern Analysis

Garber had compared the tulip prices of the period in interest, with the detailed price data pattern in the eighteenth century on tulip and hyacinth bulbs and for modern bulbs, and concluded the pattern looked after each other, being typical of the market dynamics for newly developed bulb varieties (should be rare in the case of newly developed), however, he could not offer an explanation on the price surge for common bulbs in the 1-month period (January 1637 just before the collapse) based on the market fundamentals of market dynamics.[26]

Existence of Tulip Sale as Future Contract/Market

He has also looked into the production cycle of the tulips in order to assess the delivery of a specific variety as demanded by future markets, and given to understand a purchase made between September and June was necessarily a contract for future delivery. This is of practical interest as it gives strong background why the future existed in the tulip

[24] Peter M. Garber, "Tulipmania" pp. 536
[25] Peter M. Garber, "Tulipmania" pp. 542
[26] Peter M. Garber, "Tulipmania" pp. 556

market, as the outgrowths could not be delivered immediately.[27] Further, Garber has opined in a typical scenario, a buyer of tulips did not currently possess the cash to be delivered on the settlement date and the seller did not currently possess the bulb. As neither party intended a delivery on the settlement day, only a payment of difference between the contract and settlement price was expected. In his view, this was no different from a bet on the price of the bulbs on the settlement date, and such market did function as the current operating future markets.[28] His argument over the existence of future market is substantiated though there was still ambiguity over the settlement date and arbitrage. In the third dialogue in the book *Confusion de Confusiones* by Joseph de la Vega, as shareholder in the context, he talked about three kinds of exchange business in stock market. One of the business involved transaction settlement taking place at a later date.[29] As deducted from his book, it is highly probable that tulip sale as a future contract was established in early seventeenth century in Amsterdam.

While there was exchange business in the stock market, it should be noted there were other business activities being carried on concurrently. As Sir William Temple, the ambassador to the Netherlands quoted in his anecdote that the public bond as issued by the Holland government was well received by the peasants.[30] It cannot be dispensed with the possibility that the bonds were also exchanged as future market in realization of the well paid interests.

<u>The Dutch Monetary and Social Environment During Tulipmania</u> (the displacement)[31]

Professor Garber has offered his hardware view to explain the tulipmania episode, while there are other historians and economists who offered software explanation.[32]

The tulipmania happened in an era of chaos when the Netherlands suffered an epidemic of Bubonic plague and severe setback induced by the Thirty Years' war. Amid the war, Amsterdam, the capital of the Netherlands (the Union Provinces) was the centre of trade, and also subject to the 'economic crisis' described by Kindleberger.[33] Economists,

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[27] Peter M. Garber, "Tulipmania" pp. 543
[28] Peter M. Garber, "Tulipmania" pp. 544
[29] Joseph De la Vega, *Confusion de Confusiones* pp. 180; pp. 181 Introduction VI
[30] Quoted and translated from lecture notes *his5519a-shares & bonds : 09-02-2007*
[31] Defined by Charles P. Kindleberger, *Manias, Panics and Crashes, A History of Financial Crisis 3rd Edition*, John Wiley & Sons Inc. New York 1996 pp.34
[32] I intend to take the economic – market fundamental explanation as hardware, being verification of data and experience while the software as more human related factors.
[33] Charles P. Kindleberger, "The Economic Crisis of 1613 to 1623" *The Journal of Economic History, Vol 51, No 1 (March 1991)* pp. 149

historians or economic commentators of different camps have expressed their views, trying to iron out the rationale of the tulipmania occurance.

The Thirty Years War (1618 – 1648) and the Economic Crisis (1619 – 1623)

As described by professor Charles P. Kindleberger in the beginning of his paper "The Economic Crisis of 1619 to 1623" : 'The first quarter of the seventeenth century, up to and to the beginning of the Thirty Years' War with the defenestration at Prague in 1618, has been widely described as a period of crisis. The crisis was particularly acute between 1619 and 1623'.[34] Such crisis was triggered by various states in the Holy Roman Empire in preparation for the Thirty Years' War.

The war was a continuation of religious conflict between Protestants and Catholics, and the rivalry between the Habsburg dynasty and other powers. The peace of Augsberg (1555) signed by the Holy Roman Emperor Charles V, though temporarily ended the violence between the Lutherans and the Catholics in Germany, did not last for long as tensions grew among many of the power nations of Europe in the early seventeenth century. The religious conflict outbreak in German city Donauworth in 1606 was just an excuse for the great powers to expedite their expansion and exerted their influences.

In order to prepare for the war, various states had to build up their strength, especially their financial capacity, to finance the expenditure, and they achieved by creating new mints and debasing the subsidiary coinage, quoting Kindleberger's words 'One way to prepare financially for war was to separate principalities, duchies, cities, and the like to seek greater seignorage by coining more money'.[35]

As pointed out by Dough French in his article "Dutch Monetary Environment during Tulipmania" that the practice of striking their own gold and silver coins in various states were already very popular after the fall of Roman Empire. Such frenzy of creating their own coins continued right up to the beginning of the seventeenth century to the benefits of the rulers, using French's words 'These kings quickly found that an empty state treasury could be filed by debasing the currency'.[36]

Kindleberger has described the period 1619 – 1623 as 'a movement from feudalism to capitalism; from a feudal to a nation-state society; from the political and economic ascendancy of the South (Italy and Spain) to that of the North (the United Provinces of

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[34] Charles P. Kindleberger, "The Economic Crisis of 1613 to 1623" pp. 149
[35] Charles P. Kindleberger, "The Economic Crisis of 1613 to 1623" pp. 158
[36] Doug French, "The Dutch Monetary Environment during Tulipmania" pp. 4

Holland and England); from a “natural economy” based on the self-sufficient household and barter to the use of markets and money; from separate deals to continuous trade on bourses; and from polynuclear system of European cities to a mononuclear one with its core in Amsterdam’.[37] This is in echo with Braudal’s remark in saying that the crisis of the seventeenth century generally benefited Amsterdam[38] (with the then trading centre switched from Genoa to Amsterdam). The market, no doubt, by that time in Amsterdam, had been blooming and flourishing. Amsterdam achieved such esteem status, as accounted by French, was attributed to its free coinage system instigated by the revolutionary Dutch government in 1566, and supplemented by the establishment of bank of Amsterdam in 1609 to drive out the overvalued or degraded money.[39]

The free coinage system proved to be very successful that possessors of silver and gold bullion sought to evade the coinage exactions of the European princes. The bullions just needed to be sent to Netherlands where the bullions were melted, and turned into guilders and ducats without charges, and got the silver currency under the name ‘solo banco’. With the trade flourishing in early seventeenth century, there existed a great variety of foreign coins in circulation in Amsterdam[40] that were worn or damaged, thus rendering a reduction of legal tender value of Amsterdam’s currency. The bank of Amsterdam was set up to curtail the loophole and protect the Netherlands currency.

The operation of the bank of Amsterdam was very successful. Besides serving as a deposit bank, it also issued bank money for gold and silver bullion deposited. The stability and credibility of the Bank of Amsterdam, coupled with the effect of free coinage, had further promoted large inflow of gold and silver into the Netherlands, not withstanding the influx of precious metal since the discovery of America (1492), Mexico silver mine (about 1519), and Peru Huancavelica mercury mine (1592), followed by the invention of amalgamation process in mid-sixteenth century to increase the silver production.[41]

During the tulipmania, there should be an explosive increase in the supply of money from 1630 – 1638,[42] using French’s expressions ‘The price of tulips only served as a manifestation of the end result of a government policy that expanded the quantity of money and then fostered an environment for speculation and mal-investment. This

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[37] Charles P. Kindleberger, “The Economic Crisis of 1619 to 1623” pp. 149 - 150
[38] Fernand Braudal, *Afterthoughts on Material Civilization and Capitalism* translated by Ranum, Patricia M. The Johns Hopkins University Press, Baltimore 1977 pp 85 - 86
[39] Doug French, “The Dutch Monetary Environment during Tulipmania” pp. 5 - 6
[40] There was no cross boundary restriction on coinage usage.
[41] Doug French, “The Dutch Monetary Environment during Tulipmania” pp. 6 - 8
[42] Doug French, “The Dutch Monetary Environment during Tulipmania” pp 10

scenario has been played out over and over throughout history'.[43]

It appears that it is a natural flow of surplus money in possession by individual into the tulip market to seek profit as a human desire which was being carried along and flooded with speculation. It is the human psychological interaction inherited in the market dynamics that finally driving out the outcome.

Thomson and Treussard, in their working paper "The Tulipmania : Fact or Artifact" have provided an alternative explanation on the episode that it was not caused by speculation, but rather it was an artifact created by an implicit conversion of ordinary futures contracts to option contracts in a largely failed attempt by several Dutch burgomasters to bail themselves out of the previously incurred speculative losses in the normal, fundamentally driven markets for Dutch tulip futures.[44] Given the data (again Garber's approach) about the specific payoffs present in the future and option contracts through the fundamental volatility of the price bleeding capital analysis, Thompson & Treussard, in support of Garber's view, concluded that 'tulip contract prices before, during, and after the tulipmania appear to provide a remarkable illustration of market efficiency'[45]. Though Thompson & Treussard are objective in their assessment and analysis, it is doubtful whether the several Dutch burgomasters could exert such great influence to render changing the future sales of tulip bulbs to option sale as the market was, by that time, subject to so much speculation and influx of foreign money and without resort to politics.

So far as the war was concerned, the tulip price was on the rise as by 1636, it looked like the war was winding up towards the favour of the German side. The demand on the tulips was anticipated to be great as the German princes were frenzied about the tulips[46] as they were before the war.

Bubonic Plague

The Bubonic plague, also known as black death, swept through Eurasia commencing from mid-fourteenth century, but this deathly infectious disease subsided by the sixteenth century.

French in his challenge to Garber's statement in article "Who put the Mania in the

[43] Doug French, "The Dutch Monetary Environment during Tulipmania" pp. 11
[44] Earl A. Thompson & Jonathan Treussard, "The Tulipmania: Facts or Artifact?" pp. 1
[45] Earl A. Thompson & Jonathan Treussard, "The Tulipmania: Facts or Artifact?" pp. 13
[46] Earl A. Thompson & Jonathan Treussard, "The Tulipmania: Facts or Artifact?" pp. 5

Tulipmania?" – 'Although the plague outbreak may be a false clue, it is conceivable that a drinking game and general carousing may have materialized as a response to the death threat' said 'This fatalistic extension of Keynes's "animal spirit" hypothesis is less than convincing'.[47] Though French's statement is straight forward, it does not exclude the possibility that the plague might have imposed illusion to some ill-fated peasants to have such feelings. It can be taken as a human weakness which cannot be discounted especially when the plague was being compounded with famine and the Thirty Years' War in between.

The Dot.com Bubble

The recent dot.com bubble covering roughly the period from 1995 to 2001 refers to the financial speculative situation during which the stock markets in western countries, mainly the United States, saw their value increase rapidly from growth in the newly emerged internet sector, and subsequent rapid decline in stock prices, and winding up or liquidation of a number of companies / enterprises ventured into the information technology business.

Built up of the Bubble

In 1994, the Internet came to the general public's attention through the set up of the nascent World Wide Web (www), and by 1996, it became obvious to most publicly traded companies that a public Web presence was desirable.[48] It is through the Web that communication was enhanced and distribution of instant worldwide information made possible. Quite a number of young, often unemployed, people got hold of the concept of direct Web-based commence (known as e-commence later), set out to build their own enterprise, and would like to be among the first to profit from the newly established platform.

This new business model allows elimination of a number of established business dogmas as advertising, client management, intermediation,[49] and brings together dispersed customers in a seamless and low cost way. With such belief in mind, a number of young venturers proceed quickly to set up small enterprises. The low interest rates in years 1998, 1999 had helped these youngsters to start up their business

[47] Doug French, "The Dutch Monetary Environment during Tulipmania" pp. 3
[48] Wikipedia, "Dot.com Bubble" *http://en.wikipedia.org/wiki/Dot.com_bubble*
[49] The Web would cut the middleman out; with the absence of the middleman, prices believed, would drop. See JupiterWeb Network (EarthWeb) "The Dot-com Bubble-Burst and Disintermediation" *http://www.internetnews.com/bus-news/article.phpi/554641*

while they succeeded to sell their ideas to the investors. As such, a canonical 'dot.com' company business model relying on the harnessing the network effect by giving products away to build market share[50] emerged. Such companies worked on the 'Get Big Fast' strategy by raising cash through public offerings in the stock exchange. Such aura had pushed up the stock prices and rendered a number of initial investors and controllers rich, at least on paper. At the height of the boom, it was possible for a dot.com company to make an initial public offering (IPO) of the stock and raise a substantial amount of money even though it had never made a profit, and in some extreme cases, even revenues.[51]

Bubble Burst

However over 1999 and early 2000, the US Federal Reserve increased the interest rates six times and the runaway economy began to loose momentum, and the dot.com bubble finally burst in March 2000 without apparent symptom. Many companies went out of business due to overspending in network infrastructure, decline in business[52] or misery administration, resulting in great debt. The rise and collapse of the dot.com in terms of the technology heavy NASDAQ index[53] has shown similar pattern as the tulip bulb price during the tulipmania.

Observation between the Dot.com Bubble and Tulipmania

In the aftermath of the dot.com bubble, a number of economists had offered various reasons to account for the bursting of bubbles. They attributed the failure of the enterprises to changing economy, poor business strategies, frivolous spending on flashing advertising campaigns, and an overcrowded market.[54] The young entrepreneurs were too optimistic about the economy, thinking too big (growth over profit) and did not have a strong, detailed, meticulous business plan in mind. There were probably illusion and speculation over the stock market. Even with the proper communication network (the technology) in place, being not exist in tulipmania period, the investors were not deprived of the information they should have acquired but they still followed suit. In such aspect, the dot.com bubble does look similar to the tulipmania. Notwithstanding the wide separation between the events in time domain, the intrinsic nature of both are the same with investors flocking into the stock market to

[50] Wikipedia, "Dot.com Bubble"
[51] Wikipedia, "Dot.com Bubble"
[52] With no great incident happened during the year 2000 switchover (Y2K), a number of business found their spending on equipment fruitless, and business volume declining quickly.
[53] NASDAQ index peaked at 5,048.62 on 10 March 2000 (closing at 2,473.2 @ 10 April 2007).
[54] Answers.com, "Dot-com" *http://wwwanswers.com/topic/Dot-com-1*

maximize their profits. Of course, there were driving forces behind the scenes to fuel the bubbles growth, namely the surplus money in possession by people in tulipmania, and the low interest rate upon borrowing money in dot.com bubble. Investors, in both cases, did not believe they would be the last to have the ball in their hands not until the economy reversal (whether apparent or not).

Economic as a Collection of Human Activities

The mania, whether it is the tulipmania or dot.com bubble, is subject to different interpretation. Inevitably, speculation is an element inherent in the mania. A number of economists or historians tend to assign a concise definition to 'mania' by applying the market fundamentals or dynamic such as the price pattern due to supply and demand rule, which in my view, also stems from experience being collected over period and verified. Though being verified to be correct at most times, the hypothesis or postulates still cannot explain some phenomenon. As given in the supply and demand rule, the prices will rise as the products or services fall short of supply or demand. However, the paradox is not immune and subject to other tests, either environmental or human intervention. It is common to correlate speculation to herd behaviour and cognitive dissonance. In Thomas Lux's article "Herd behavior, bubbles and crashes", he had quoted Kindleberger as highlighting the importance of psychological factors and irrational factors in explaining historical financial crisis.[55] Though 'economists have built an entire profession on a single powerful theory of human behaviour based on a few assumptions, that model has been fruitfully applied to a wide range of problems',[56] Akerlof and Dickens etc have still admitted the insufficiency of models to simulate human behaviour. From their (economists) works, it must be stressed that the human behaviour has contributed an important outcome in economic analysis, so it is not at all possible to predict the human (psychology) activities from market fundamentals or dynamics as emphasized by economists of particular camp. As such, economic can be regarded as a collection or reflection of individual or collective human psychological activities driving the outcomes in market whose dynamics, presumably, is a very complex issue, and cannot be fully accounted for by a simple theory or model. However, the outcome may be verified by experience, and the trend can be traceable or predicted through 'well-known' market fundamentals / dynamic on some occasions.

Just quoting Kindleberger's words from his book *Manias, Panics and Crashes, A*

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[55] Thomas Lux, "Herd Behavior, Bubbles and Crashes" *The Economic Journal Vol 105, no 431, (July 1995)* pp.881 – 882

[56] George A. Akerlof & William T. Dickens, "The Economic Consequences of Cognitive Dissonance" *The American Economic Review Vol 72, no 3 (June 1982)*pp. 307

History of Financial Crisis, 'For historians, each element is unique. Economics, however, maintains that forces in society and nature behave in repetitive ways. History is particular; economics is general'.[57] In other words, it is the repetitive nature of (human) behaviour and etc. driving the economics in such a way that experience are accumulated and model built up. However, the nature (behaviour) is sometimes, somewhat irrational that is difficult to explain.

Conclusion

No matter it is the dot.com bubble or tulipmania, the intrinsic nature of mania is basically the same due to their irrationality. The explanations as offered by a number of economists or historians serve as a consolidation of experience and can be taken as a reflection of collective human activities, though they may phase it in terms of market fundamentals or market dynamics. The models or hypothesis so derived tend to verify the experience gained with supportive data to show its worthiness and correctness. In reality, one may make use of such model or hypothesis to predict what is going to happen in the (stock) market with some degree of precision, but it may not achieve its purpose (i.e. fall short of its target) if un-precedent nascent factors emerge which, in most cases, are the exhibits of human behaviour / reflection amid changing political or economic environment.

In connection to the tulipmania, the great economic historian Charles P. Kindleberger has taken the episode as a prime example of speculation and he argues 'Markets, though generally rational, are not immune to mania, which, by definition irrational (this is where the human character plays). In a bubble, buyers purchase goods simply because their prices will increase. This stokes demand for the goods, hence becoming, at least in the short term, a self-fulfilling prophecy. However, they can no longer risk bidding prices up, they collapse immediately'.[58] (No one knows when it will happen, again difficult to predict, a psychology dogma?) In the mean time, there are other views in support of the market fundamentals or against it, which so far can explain the tulipmania to certain extent, are well serving the study purpose.

For the future market during the tulipmania period, Professor Garber has performed detailed analysis and was conclusive to point out the future markets did exist in the

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[57] Charles P. Kindleberger, *Manias, Panics and Crashes, A History of Financial Crisis* pp. 11; The repetitive nature (of tulipmania, financial crisis) is echoed by Dong French with description 'This scenario has been played out over and over throughout history' (refer footnote 42).

[58] Phillips-Fein Kim,"Flower Power: The Lessons" from the Nation.com http://www.thenation.com/doc/20000626/phillips-fein

period. Whether option sale as converted from future markets were taken as means for those Dutch burgomasters to bail themselves out of the incurred loss as argued by Thomspon & Treussard is subject to debate. It is doubtful whether the burgomasters had the foresight to anticipate the change in the then speculative market and look for compensation under the business exchange rules which are always subject to improvement and perfection even nowadays.

Going back to Charles Mackay story on tulipmania, he was a popular journalist and might not be as academic as the economists nowadays to offer his view on the episode or to identify the rationale behind as he was simply telling a story and was not serious about the causes of how the tulipmania had emerged.[59]

~ End ~

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