

= Tulip mania =

Tulip mania or tulipomania (Dutch names include : tulpenmanie , tulpomanie , tulpenwoede , tulpengekte and bollengekte) was a period in the Dutch Golden Age during which contract prices for bulbs of the recently introduced tulip reached extraordinarily high levels and then suddenly collapsed .

At the peak of tulip mania , in March 1637 , some single tulip bulbs sold for more than 10 times the annual income of a skilled craftsman . It is generally considered the first recorded speculative bubble (or economic bubble) , although some researchers have noted that the Kipper- und Wipperzeit episode in 1619 ? 22 , a Europe @-@ wide chain of debasement of the metal content of coins to fund warfare , featured mania @-@ like similarities to a bubble . The term " tulip mania " is now often used metaphorically to refer to any large economic bubble when asset prices deviate from intrinsic values .

The 1637 event was popularized in 1841 by the book *Extraordinary Popular Delusions and the Madness of Crowds* , written by British journalist Charles Mackay . According to Mackay , at one point 12 acres (5 ha) of land were offered for a Semper Augustus bulb . Mackay claims that many such investors were ruined by the fall in prices , and Dutch commerce suffered a severe shock . Although Mackay 's book is a classic , his account is contested . Many modern scholars feel that the mania was not as extraordinary as Mackay described and argue that not enough price data are available to prove that a tulip bulb bubble actually occurred .

Research is difficult because of the limited economic data from the 1630s ? much of which come from biased and very speculative sources . Some modern economists have proposed rational explanations , rather than a speculative mania , for the rise and fall in prices . For example , other flowers , such as the hyacinth , also had high initial prices at the time of their introduction , which immediately fell . The high asset prices may also have been driven by expectations of a parliamentary decree that contracts could be voided for a small cost ? thus lowering the risk to buyers .

= = History = =

The introduction of the tulip to Europe is usually attributed to Ogier de Busbecq , the ambassador of Ferdinand I , Holy Roman Emperor to the Sultan of Turkey , who sent the first tulip bulbs and seeds to Vienna in 1554 from the Ottoman Empire . Tulip bulbs were soon distributed from Vienna to Augsburg , Antwerp and Amsterdam . Its popularity and cultivation in the United Provinces (now the Netherlands) is generally thought to have started in earnest around 1593 after the Flemish botanist Carolus Clusius had taken up a post at the University of Leiden and established the hortus academicus . He planted his collection of tulip bulbs and found they were able to tolerate the harsher conditions of the Low Countries ; shortly thereafter the tulip began to grow in popularity .

The tulip was different from every other flower known to Europe at that time , with a saturated intense petal color that no other plant had . The appearance of the nonpareil tulip as a status symbol at this time coincides with the rise of newly independent Holland 's trade fortunes . No longer the Spanish Netherlands , its economic resources could now be channeled into commerce and the country embarked on its Golden Age . Amsterdam merchants were at the center of the lucrative East Indies trade , where one voyage could yield profits of 400 % . The new merchant class displayed and validated its success , primarily by setting up grand estates surrounded by flower gardens , and the plant that had pride of place was the sensational tulip .

As a result , tulips rapidly became a coveted luxury item , and a profusion of varieties followed . They were classified in groups : the single @-@ hued tulips of red , yellow , or white were known as Couleren ; the multicolored Rosen (white streaks on a red or pink background) ; Violetten (white streaks on a purple or lilac background) ; and the rarest of all , the Bizarden (Bizarres) , (yellow or white streaks on a red , brown or purple background) . The multicolor effects of intricate lines and flame @-@ like streaks on the petals were vivid and spectacular and made the bulbs that produced these even more exotic @-@ looking plants highly sought @-@ after . It is now known that this

effect is due to the bulbs being infected with a type of tulip @-@ specific mosaic virus , known as the " Tulip breaking virus " , so called because it " breaks " the one petal color into two or more .

The biology of the tulip was itself a contributor to the supply @-@ squeeze that fueled the speculation , in that it is grown from a bulb that cannot be produced quickly . Normally it takes 7 ? 12 years to grow a flowering bulb from seed ; bulbs can produce both seeds and two or three bud clones , or offsets , annually , but the " mother bulb " lasts only a few years . Properly cultivated , the " daughter offsets " will become flowering bulbs after one to three years . Before the demand for the " broken " tulips , virus @-@ free bulbs producing ordinary single @-@ color varieties were sold by the pound . Once affected by the virus , the " broken " exotics were an extremely limited commodity because the sought @-@ after " breaking pattern " can only be reproduced through offsets , not seeds , as only the bulb is affected by the mosaic virus . Unfortunately , the virus that produced the sought @-@ after effects also acted adversely on the bulb , weakening it and retarding propagation of offsets , so cultivating the most appealing varieties now took even longer . Taking this into account , quite probably from the time the speculation started until its collapse , the number of rare bulbs that changed hands so feverishly never increased beyond the original number .

The beautiful effects of the virus made the flamboyant and extravagant plants highly coveted , and because they were rare and desirable , they were expensive . Given that , it is not surprising growers named their new varieties with exalted titles . Many early forms were prefixed Admiraal (" admiral ") , often combined with the growers ' names : Admiraal van der Eijck for example , was perhaps the most highly regarded of about fifty so named . Generaal (" general ") was another prefix used for around thirty varieties . Later varieties were given even more extravagant names , derived from Alexander the Great or Scipio , or even " Admiral of Admirals " and " General of Generals " . However , naming could be haphazard and varieties highly variable in quality . Most of these varieties have now died out , though virus @-@ free variegated @-@ bred tulips continue in the trade .

In the Northern Hemisphere , tulips bloom in April and May for about one week . During the plant 's dormant phase from (Northern Hemisphere) June to September , bulbs can be uprooted and moved about , so actual purchases (in the spot market) occurred during these months . During the rest of the year , florists , or tulip traders , signed contracts before a notary to buy tulips at the end of the season (effectively futures contracts) . Thus the Dutch , who developed many of the techniques of modern finance , created a market for tulip bulbs , which were durable goods . Short selling was banned by an edict of 1610 , which was reiterated or strengthened in 1621 and 1630 , and again in 1636 . Short sellers were not prosecuted under these edicts , but their contracts were deemed unenforceable .

As the flowers grew in popularity , professional growers paid higher and higher prices for bulbs with the virus , and prices rose steadily . By 1634 , in part as a result of demand from the French , speculators began to enter the market . The contract price of rare bulbs continued to rise throughout 1636 , but by November , the price of common , " unbroken " bulbs also began to increase , so that soon any tulip bulb could fetch hundreds of guilders . That year the Dutch created a type of formal futures market where contracts to buy bulbs at the end of the season were bought and sold . Traders met in " colleges " at taverns and buyers were required to pay a 2 @. @ 5 % " wine money " fee , up to a maximum of three guilders per trade . Neither party paid an initial margin nor a mark @-@ to @-@ market margin , and all contracts were with the individual counter @-@ parties rather than with the Exchange . The Dutch described tulip contract trading as windhandel (literally " wind trade ") , because no bulbs were actually changing hands . The entire business was accomplished on the margins of Dutch economic life , not in the Exchange itself .

By 1636 the tulip bulb became the fourth leading export product of the Netherlands , after gin , herrings and cheese . The price of tulips skyrocketed because of speculation in tulip futures among people who never saw the bulbs . Many men made and lost fortunes overnight .

Tulip mania reached its peak during the winter of 1636 ? 37 , when some bulbs were reportedly changing hands ten times in a day . No deliveries were ever made to fulfil any of these contracts , because in February 1637 , tulip bulb contract prices collapsed abruptly and the trade of tulips ground to a halt . The collapse began in Haarlem , when , for the first time , buyers apparently

refused to show up at a routine bulb auction . This may have been because Haarlem was then at the height of an outbreak of bubonic plague . While the existence of the plague may have helped create a culture of fatalistic risk @-@ taking that allowed the speculation to skyrocket in the first place , this outbreak might also have helped to burst the bubble .

= = Available price data = =

The lack of consistently recorded price data from the 1630s makes the extent of the tulip mania difficult to estimate . The bulk of available data comes from anti @-@ speculative pamphlets by " Gaergoedt and Warmondts " (GW) written just after the bubble . Economist Peter Garber collected data on the sales of 161 bulbs of 39 varieties between 1633 and 1637 , with 53 being recorded by GW . Ninety @-@ eight sales were recorded for the last date of the bubble , 5 February 1637 , at wildly varying prices . The sales were made using several market mechanisms : futures trading at the colleges , spot sales by growers , notarized futures sales by growers , and estate sales . " To a great extent , the available price data are a blend of apples and oranges " , according to Garber .

= = Mackay 's Madness of Crowds = =

The modern discussion of tulip mania began with the book *Extraordinary Popular Delusions and the Madness of Crowds* , published in 1841 by the Scottish journalist Charles Mackay ; he proposed that crowds of people often behave irrationally , and tulip mania was , along with the South Sea Bubble and the Mississippi Company scheme , one of his primary examples . His account was largely sourced from a 1797 work by Johann Beckmann titled *A History of Inventions , Discoveries , and Origins* . In fact , Beckmann 's account , and thus Mackay 's by derivation , was primarily sourced to three anonymous pamphlets published in 1637 with an anti @-@ speculative agenda . Mackay 's vivid book was popular among generations of economists and stock market participants . His popular but flawed description of tulip mania as a speculative bubble remains prominent , even though since the 1980s economists have debunked many aspects of his account .

According to Mackay , the growing popularity of tulips in the early 17th century caught the attention of the entire nation ; " the population , even to its lowest dregs , embarked in the tulip trade " . By 1635 , a sale of 40 bulbs for 100 @, @ 000 florins (also known as Dutch guilders) was recorded . By way of comparison , a ton of butter cost around 100 florins , a skilled laborer might earn 150 florins a year , and " eight fat swine " cost 240 florins . (According to the International Institute of Social History , one florin had the purchasing power of ? 10 @. @ 28 in 2002 .)

By 1636 tulips were traded on the exchanges of numerous Dutch towns and cities . This encouraged trading in tulips by all members of society ; Mackay recounted people selling or trading their other possessions in order to speculate in the tulip market , such as an offer of 12 acres (49 @, @ 000 m²) of land for one of two existing *Semper Augustus* bulbs , or a single bulb of the *Viceroy* that was purchased for a basket of goods (shown in table) worth 2 @, @ 500 florins .

Many individuals grew suddenly rich . A golden bait hung temptingly out before the people , and , one after the other , they rushed to the tulip marts , like flies around a honey @-@ pot . Every one imagined that the passion for tulips would last for ever , and that the wealthy from every part of the world would send to Holland , and pay whatever prices were asked for them . The riches of Europe would be concentrated on the shores of the Zuyder Zee , and poverty banished from the favoured clime of Holland . Nobles , citizens , farmers , mechanics , seamen , footmen , maidservants , even chimney sweeps and old clotheswomen , dabbled in tulips .

The increasing mania contributed several amusing , but unlikely , anecdotes that Mackay recounted , such as a sailor who mistook the valuable tulip bulb of a merchant for an onion and grabbed it to eat . The merchant and his family chased the sailor to find him " eating a breakfast whose cost might have regaled a whole ship 's crew for a twelvemonth " . The sailor was jailed for eating the bulb . Tulips are poisonous if prepared incorrectly , taste bad , and are considered to be only marginally edible even during famines .

People were purchasing bulbs at higher and higher prices , intending to re @-@ sell them for a

profit . However , such a scheme could not last unless someone was ultimately willing to pay such high prices and take possession of the bulbs . In February 1637 , tulip traders could no longer find new buyers willing to pay increasingly inflated prices for their bulbs . As this realization set in , the demand for tulips collapsed , and prices plummeted ? the speculative bubble burst . Some were left holding contracts to purchase tulips at prices now ten times greater than those on the open market , while others found themselves in possession of bulbs now worth a fraction of the price they had paid . Mackay claims the Dutch devolved into distressed accusations and recriminations against others in the trade .

In Mackay 's account , the panicked tulip speculators sought help from the government of the Netherlands , which responded by declaring that anyone who had bought contracts to purchase bulbs in the future could void their contract by payment of a 10 percent fee . Attempts were made to resolve the situation to the satisfaction of all parties , but these were unsuccessful . The mania finally ended , Mackay says , with individuals stuck with the bulbs they held at the end of the crash ? no court would enforce payment of a contract , since judges regarded the debts as contracted through gambling , and thus not enforceable by law .

According to Mackay , lesser tulip manias also occurred in other parts of Europe , although matters never reached the state they had in the Netherlands . He also claimed that the aftermath of the tulip price deflation led to a widespread economic chill throughout the Netherlands for many years afterwards .

= = Modern views = =

Mackay 's account of inexplicable mania was unchallenged , and mostly unexamined , until the 1980s . However , research into tulip mania since then , especially by proponents of the efficient @-@ market hypothesis , suggests that his story was incomplete and inaccurate . In her 2007 scholarly analysis Tulipmania , Anne Goldgar states that the phenomenon was limited to " a fairly small group " , and that most accounts from the period " are based on one or two contemporary pieces of propaganda and a prodigious amount of plagiarism " . Peter Garber argues that the bubble " was no more than a meaningless winter drinking game , played by a plague @-@ ridden population that made use of the vibrant tulip market . "

While Mackay 's account held that a wide array of society was involved in the tulip trade , Goldgar 's study of archived contracts found that even at its peak the trade in tulips was conducted almost exclusively by merchants and skilled craftsmen who were wealthy , but not members of the nobility . Any economic fallout from the bubble was very limited . Goldgar , who identified many prominent buyers and sellers in the market , found fewer than half a dozen who experienced financial troubles in the time period , and even of these cases it is not clear that tulips were to blame . This is not altogether surprising . Although prices had risen , money had not changed hands between buyers and sellers . Thus profits were never realized for sellers ; unless sellers had made other purchases on credit in expectation of the profits , the collapse in prices did not cause anyone to lose money .

= = = Rational explanations = = =

There is no dispute that prices for tulip bulb contracts rose and then fell in 1636 ? 37 , but even a dramatic rise and fall in prices does not necessarily mean that an economic or speculative bubble developed and then burst . For tulip mania to have qualified as an economic bubble , the price of tulip bulbs would need to have become unhinged from the intrinsic value of the bulbs . Modern economists have advanced several possible reasons for why the rise and fall in prices may not have constituted a bubble .

The increases of the 1630s corresponded with a lull in the Thirty Years ' War . Hence market prices (at least initially) were responding rationally to a rise in demand . However , the fall in prices was faster and more dramatic than the rise . Data on sales largely disappeared after the February 1637 collapse in prices , but a few other data points on bulb prices after tulip mania show that bulbs continued to lose value for decades thereafter .

== Natural volatility in flower prices ==

Garber compared the available price data on tulips to hyacinth prices at the beginning of the 19th century ? when the hyacinth replaced the tulip as the fashionable flower ? and found a similar pattern . When hyacinths were introduced florists strove with one another to grow beautiful hyacinth flowers , as demand was strong . However , as people became more accustomed to hyacinths the prices began to fall . The most expensive bulbs fell to 1 to 2 percent of their peak value within 30 years . Garber also notes that , " a small quantity of prototype lily bulbs recently was sold for 1 million guilders (\$ US480,000 at 1987 exchange rates) " , demonstrating that even in the modern world , flowers can command extremely high prices . Additionally , because the rise in prices occurred after bulbs were planted for the year , growers would not have had an opportunity to increase production in response to price .

=== Critiques ===

Other economists believe that these elements cannot completely explain the dramatic rise and fall in tulip prices . Garber 's theory has also been challenged for failing to explain a similar dramatic rise and fall in prices for regular tulip bulb contracts . Some economists also point to other factors associated with speculative bubbles , such as a growth in the supply of money , demonstrated by an increase in deposits at the Bank of Amsterdam during that period .

=== Legal changes ===

UCLA economics professor Earl A. Thompson argues in a 2007 paper that Garber 's explanation cannot account for the extremely swift drop in tulip bulb contract prices . The annualized rate of price decline was 99 % , instead of the average 40 % for other flowers . He provides another explanation for Dutch tulip mania . The Dutch parliament was considering a decree (originally sponsored by Dutch tulip investors who had lost money because of a German setback in the Thirty Years ' War) that changed the way tulip contracts functioned :

On February 24 , 1637 , the self - regulating guild of Dutch florists , in a decision that was later ratified by the Dutch Parliament , announced that all futures contracts written after November 30 , 1636 and before the re - opening of the cash market in the early Spring , were to be interpreted as option contracts . They did this by simply relieving the futures buyers of the obligation to buy the future tulips , forcing them merely to compensate the sellers with a small fixed percentage of the contract price .

Before this parliamentary decree , the purchaser of a tulip contract ? known in modern finance as a futures contract ? was legally obliged to buy the bulbs . The decree changed the nature of these contracts , so that if the current market price fell , the purchaser could opt to pay a penalty and forgo receipt of the bulb , rather than pay the full contracted price . This change in law meant that , in modern terminology , the futures contracts had been transformed into options contracts . This proposal began to be debated in the fall of 1636 , and if it became clear to investors that the decree was likely to be enacted , prices probably would have risen .

This decree allowed someone who purchased a contract to void the contract with a payment of only 3 % of the contract price (or about 1 / 30th the contract) . Thus , investors bought increasingly expensive contracts . A speculator could sign a contract to purchase a tulip for 100 guilders . If the price rose above 100 guilders , the speculator would pocket the difference as profit . If the price remained low , the speculator could void the contract for only 3 ½ guilders . Thus , a contract nominally for 100 guilders , would actually cost an investor no more than 3 ½ guilders . In early February , as contract prices reached a peak , Dutch authorities stepped in and halted the trading of these contracts .

Thompson states that actual sales of tulip bulbs remained at ordinary levels throughout the period . Thus , Thompson concludes that the " mania " was a rational response to changes in contractual

obligations . Using data about the specific payoffs present in the futures and option contracts , Thompson argues that tulip bulb contract prices hewed closely to what a rational economic model would dictate , " Tulip contract prices before , during , and after the ' tulipmania ' appear to provide a remarkable illustration of ' market efficiency ' . "

= = Social mania and legacy = =

The popularity of Mackay 's tale has continued to this day , with new editions of *Extraordinary Popular Delusions* appearing regularly , with introductions by writers such as financier Bernard Baruch (1932) , financial writer Andrew Tobias (1980) , psychologist David J. Schneider (1993) , and Michael Lewis (2008) . At least six editions are currently in print .

Goldgar argues that although tulip mania may not have constituted an economic or speculative bubble , it was nonetheless traumatic to the Dutch for other reasons . " Even though the financial crisis affected very few , the shock of tulipmania was considerable . A whole network of values was thrown into doubt . " In the 17th century , it was unimaginable to most people that something as common as a flower could be worth so much more money than most people earned in a year . The idea that the prices of flowers that grow only in the summer could fluctuate so wildly in the winter , threw into chaos the very understanding of " value " .

Many of the sources telling of the woes of tulip mania , such as the anti @-@ speculative pamphlets that were later reported by Beckmann and Mackay , have been cited as evidence of the extent of the economic damage . These pamphlets , however , were not written by victims of a bubble , but were primarily religiously motivated . The upheaval was viewed as a perversion of the moral order ? proof that " concentration on the earthly , rather than the heavenly flower could have dire consequences " . Thus , it is possible that a relatively minor economic event took on a life of its own as a morality tale .

Nearly a century later , during the crash of the Mississippi Company and the South Sea Company in about 1720 , tulip mania appeared in satires of these manias . When Johann Beckmann first described tulip mania in the 1780s , he compared it to the failing lotteries of the time . In Goldgar 's view , even many modern popular works about financial markets , such as Burton Malkiel 's *A Random Walk Down Wall Street* (1973) and John Kenneth Galbraith 's *A Short History of Financial Euphoria* (1990 ; written soon after the crash of 1987) , used the tulip mania as a lesson in morality . Tulip mania again became a popular reference during the dot @-@ com bubble of 1995 ? 2001 .

In the 21st century , journalists have compared it to failure of the speculative dot @-@ com bubble and the subprime mortgage crisis . In November 2013 Nout Wellink , former president of the Dutch Central Bank , described Bitcoin as " worse than the tulip mania , " adding , " At least then you got a tulip , now you get nothing . "

Despite the mania 's enduring popularity , Daniel Gross of *Slate* has said of economists offering efficient @-@ market explanations for the mania , that " If they 're correct ... then business writers will have to delete Tulipmania from their handy @-@ pack of bubble analogies . "