# INTRODUCING
# "DAWN OF BEHAVIOURAL FINANCE, 1688"

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# THE BOOK

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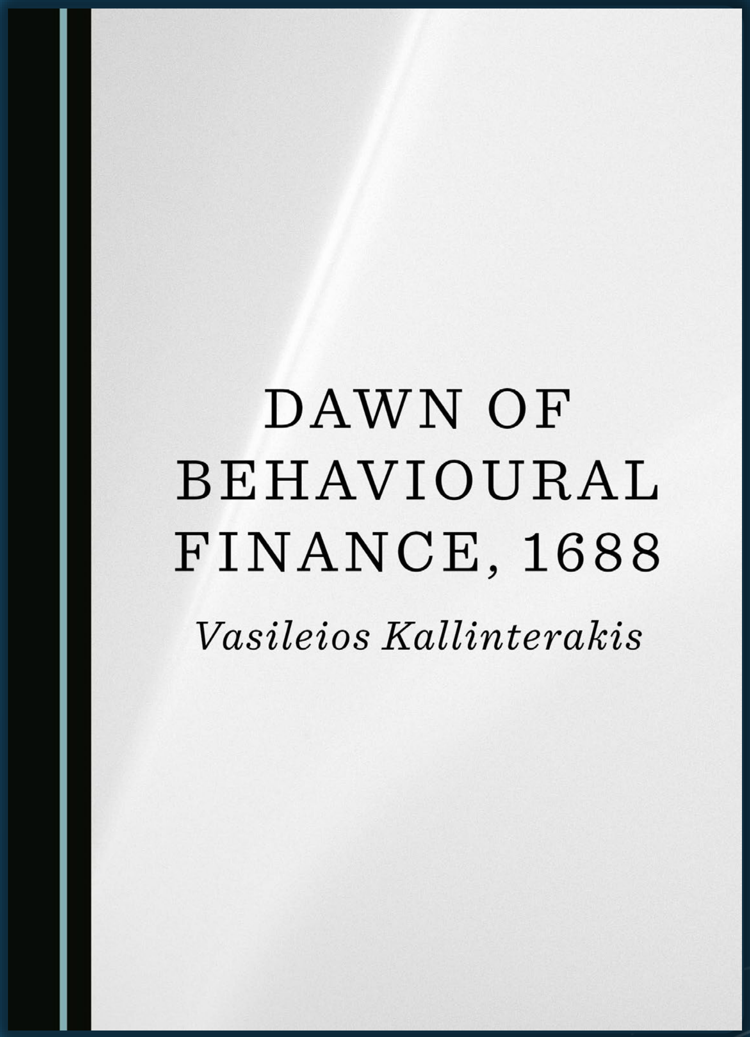


# MOTIVATION

Joseph de la Vega: “Confusion of Confusions” (1688)

Upon first reading it, I realized how detailed a description he provided of investors’ behaviour

Clear description of 20th century behavioural finance concepts – too clear to be ignored!

- Disposition effect, endowment effect, loss aversion, cognitive dissonance, herding…

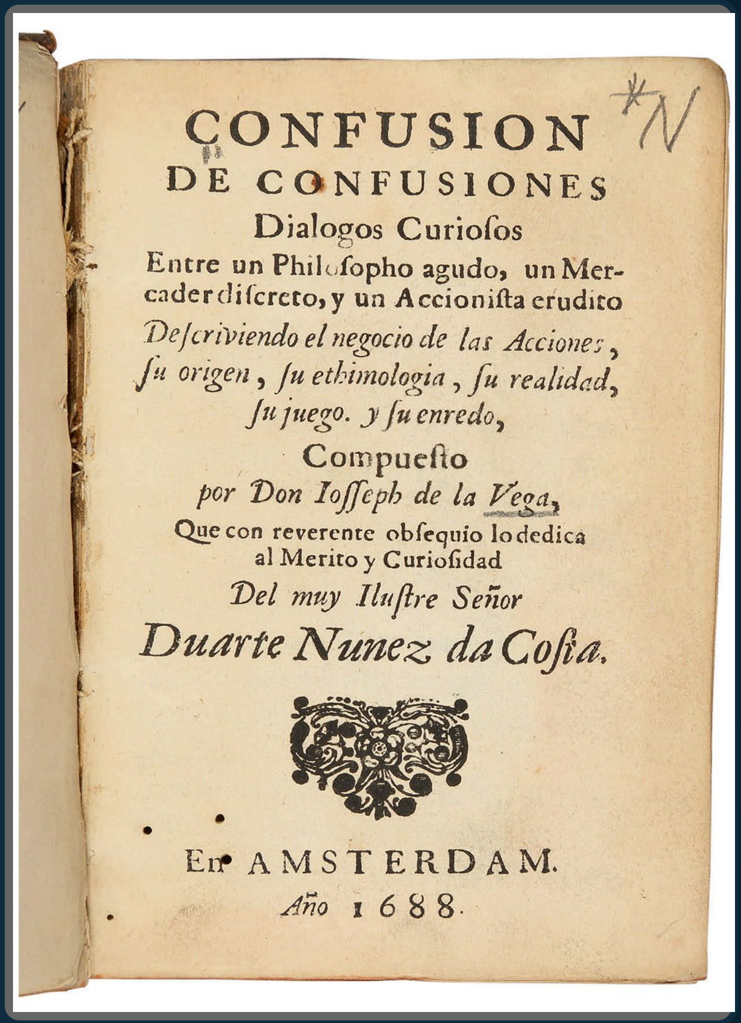
This implied that behavioural finance needs to be backdated

For this to happen, a scholarly analysis of Vega’s book based on the behavioural finance paradigm was necessary

“Dawn of Behavioural Finance, 1688” does just that!

Demonstrates for the first time that Vega constitutes the precursor to behavioural finance

And his book, the first behavioural finance treatise!

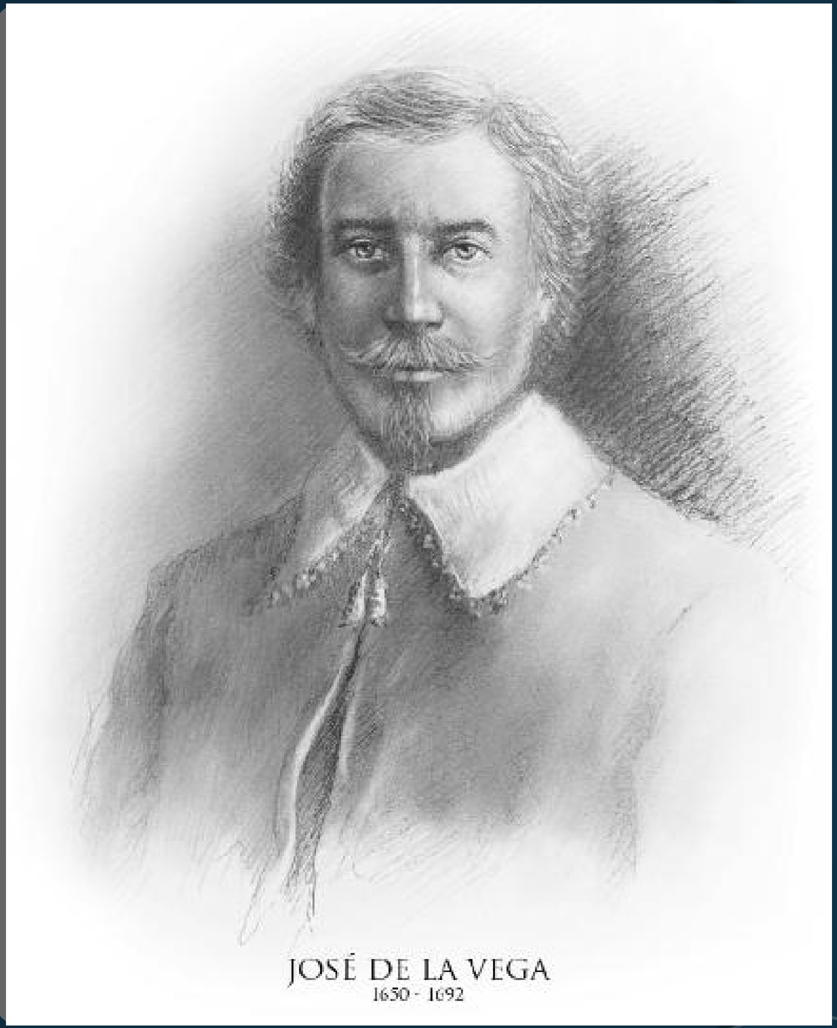

CONFUSION
DE CONFUSIONES
Dialogos Curioſos
Entre un Philoſopho agudo, un Mercader diſcreto, y un Accioniſta erudito
Deſcriviendo el negocio de las Acciones, ſu origen, ſu ethimologia, ſu realidad, ſu juego. y ſu enredo,
Compueſto
por Don Ioſſeph de la Vega,
Que con reverente obſequio lo dedica al Merito y Curioſidad
Del muy Iluſtre Señor
Duarte Nunez da Coſta.
En AMSTERDAM.
Año 1688.

# WHAT TODAY’S PRESENTATION WILL INVOLVE

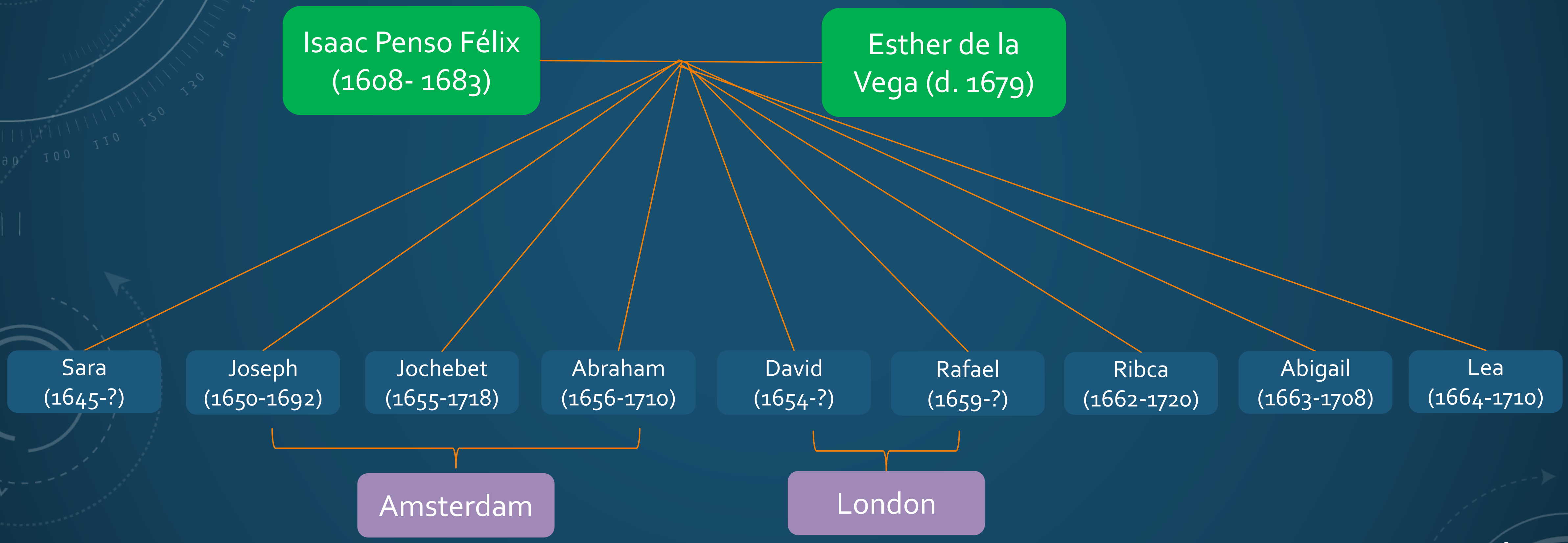
- Vega and his book
  - Brief bio of Vega
  - Overview of Confusion of Confusions (aims/objectives; structure; style)
- Dawn of Behavioural Finance, 1688
  - Structure
  - Key takeaways

# JOSEPH DE LA VEGA…

…And *Confusion of Confusions*



# JOSEPH DE LA VEGA’S FAMILY




# JOSEPH DE LA VEGA'S FAMILY

Vega-family were Sephardi converts from Spain

His father lived in Espejo, Cordoba

Evidence that Vega's father was detained by the Inquisition

Upon being set free, he took his family to Middelburg => Antwerp => short spell in Hamburg

Isaac Penso served as "*parnas*" (religious elder and administrator) within the Sephardi community in Hamburg in 1655

Hamburg: marriage + four of his children born

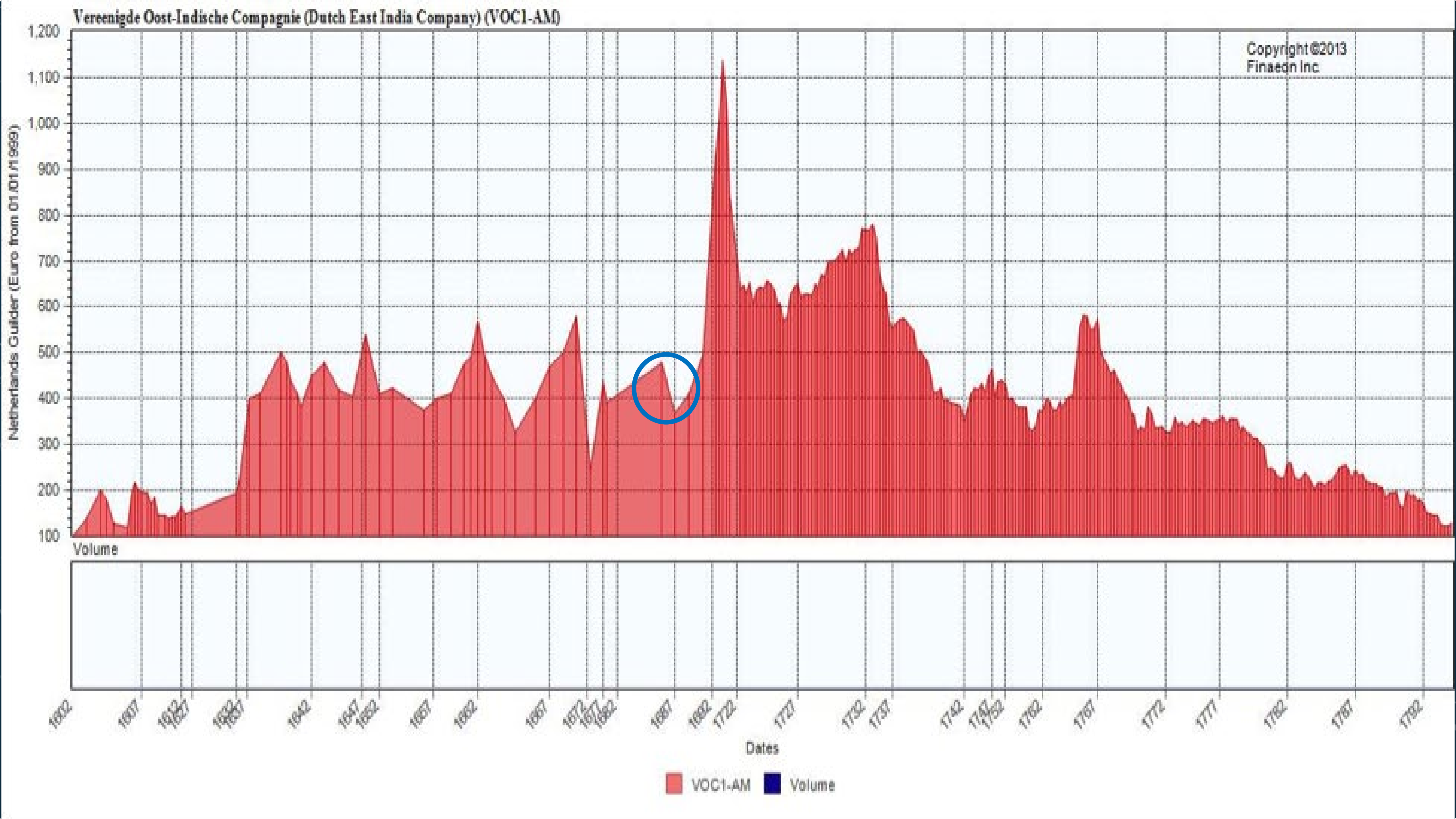
1656: family moves to Amsterdam: enters banking business

Contributes to religious education of his community

- Held religious meetings at home
- Participated in the establishment of a Talmudic academy
- Community donor

# JOSEPH DE LA VEGA'S LIFE


- Full name: Joseph Penso de la Vega Passarinho Félix
- Born in Hamburg in 1650 - moved to Amsterdam with his family in 1656
- Education: Ets Haim ("Tree of Life") yeshiva
  - Earmarked to join the local rabbinate
- Extensive travels: Antwerp, Livorno and Hamburg
- 1683: his father's passing prompts him to return to Amsterdam => focuses on stock broking
- Devoted much time to writing
  - Composed marriage poems, poems in praise of princes, novels, speeches, and treatises of moral and philosophical character
  - Became a member of several literary academies of his community in Amsterdam
    - Academia de los Sitibundos; Academia de los Floridos
    - These academies mirrored similar ones in Spain and Portugal, which the Sephardi elite brought as part of their aristocratic lifestyle to Amsterdam
  - Many of his works were written in Italy and later published in Amsterdam
- Died in 1692



Vereenigde Oost-Indische Compagnie (Dutch East India Company) (VOC1-AM)
Copyright ©2013
Finaeon Inc.
Netherlands Guilder (Euro from 01/01/1999)
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
Volume
Dates
VOC1-AM
Volume

# CONFUSION OF CONFUSIONS

- Manuscript largely completed when the stock market crashed in 1687
- Published shortly after the stock exchange crisis of 1688
  - Crisis was motivated by fear of the consequences of Dutch stadholder William III's invasion of England, which evolved into the Glorious Revolution.
    - August 1688: rumors spread about an upcoming war – led to massive sales of Dutch East India Company's fractional shares
    - What motivated the rumors: William the Stadtholder, Prince of Orange began to reinforce the Dutch navy
    - September 5th, 1688: it became clear that William was going to invade England and that France was going to declare a war
    - Massive purchases of Dutch East India company shares => show of faith in William's endeavor
    - "At last, William of Orange's success, the dethroning of his father-in-law, James II, and the occupation of England, Ireland, and Scotland justified the trust given to him by the patriots and the risk they took. When the crisis was over, shares went up gradually until the end of the year." – Davidi (2019)
  - 1688-crash focused suspicion on the Sephardi in Amsterdam => prompted London's Jewish community to prohibit its merchants from trading in precious metals in 1689 (Trivellato, 2009, 107)
  - Vega started writing the book before the crisis and the collapse
  - Parts were then rewritten/ enlarged but in a way that damaged the book's coherence

# *CONFUSION OF CONFUSIONS*

- Book written in Spanish => likely intended as a manual for stock exchange speculation
- Unclear whom for: Vega's brothers? Other Sephardi Jews in London?
- So what reasons did Vega give?
  - *"The author stressed in the preface to his book that he had three motives in writing the dialogues: first, his **own pleasure**; again, for those who were not active in the trade, he desired **to describe a business** which was on the whole the most honest and most useful of all that existed at that time; and, lastly, he wished **to describe accurately and fully the tricks** that rascals knew how to employ in that business."*
  - ***"There will be readers capable of understanding all of what I say. Perhaps there will not be many but there will be some and this is what I want."***

# *CONFUSION OF CONFUSIONS*

- Form & structure:
  - No particular order in the flow of the book – topics examined intermittently
  - Various issues bundled together: technical aspects of trading; ethical reflections; metaphors/analogies from the Bible, Greek and Roman history and their respective mythologies
  - Book is structured in **four dialogues**
  - Involves three "actors": the "Shareholder"; the "Merchant"; and the "Philosopher"
    - Shareholder echoes Vega's views
    - The Merchant and the Philosopher have heard about/witnessed share-trading before, yet know little about it and are hesitant to participate
    - They resort to the Shareholder for enlightenment on the issue
    - Shareholder explains to them how trading is conducted, what types of transactions exist and how fraud works in trading
    - Philosopher and Merchant both give it a shot — but with little success

# *CONFUSION OF CONFUSIONS*

- **First dialogue**
  - Moral evaluation of the exchange trading business
  - Definition of the word “share”
  - Introduction of the Dutch East Indies Co. + dividends
  - Typology of actors (large capitalists; merchants; speculators) in the exchange
    - Large capitalists (“princes”) => care about dividends
    - Merchants => care about hedging their risks
    - Speculators (“gamblers”) => care about profiting from price-differences; traded in “regiments” (lots of about twenty shares); ca. 20 very large speculators active
    - Additional actors: Bank of Amsterdam; persons offering leverage with equity collateral ; brokers; "rescounters" (in charge of settlement).
  - Definitions and applications of options & settlement details

# *CONFUSION OF CONFUSIONS*

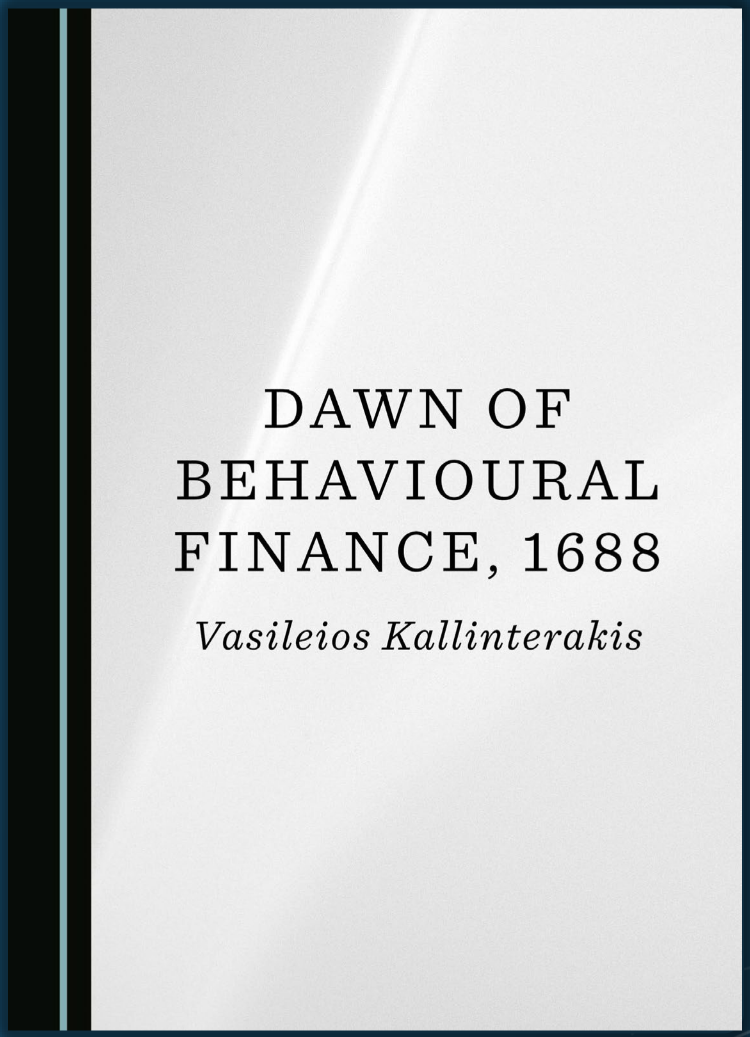
- **Second dialogue**
  - Price-volatility and its determinants: " *[…] there are three causes of a rise in the prices on the exchange and three of a fall: the conditions in India, European politics, and opinion on the stock exchange itself."*
  - Advice on investments
  - Variations in the behavior of buyers and sellers, as their opinions diverge
    - News is not always interpreted the same way - sometimes news is made up!!
  - Bulls and Bears – precursors to modern sentiment trading

# CONFUSION OF CONFUSIONS

- **Third dialogue**
  - Contracts: price-negotiations among participants and settlement procedures for cash & derivatives' purchases
  - Introduction to Dutch West Indies Company
  - Pair-trading between the two companies
  - Ducaton-shares (1683): fractional (1/10$^{th}$) shares of the Dutch East India Company
- **Fourth dialogue**
  - Speculative aspects of trading
  - Manipulative schemes for Bulls and Bears
  - Broker-ethics
  - News-processing: overreaction, underreaction; false & delayed news

# DAWN OF BEHAVIOURAL FINANCE, 1688

Backdating behavioural finance…



# DAWN OF BEHAVIOURAL FINANCE, 1688: STRUCTURE

- Chapter 1
  - Outlines the debate between neoclassical and behavioural finance
  - Presents the key precepts of mainstream finance
    - Economic Man and his features, e.g. rationality and utility-maximization
    - Market efficiency
  - Discusses how behavioural finance refutes them
    - Biases
    - Heuristics
    - Prospect theory
    - Limits to arbitrage)

# DAWN OF BEHAVIOURAL FINANCE, 1688: STRUCTURE

- Chapter 2
  - Provides a historical overview of several aspects key to the book
    - Sephardi history (until late 1600s)
    - Amsterdam's Sephardi community (aka "Portuguese Jews") organization
    - Evolution of the Dutch East India Company (world's first listed multinational company)
    - Evolution of the Amsterdam stock exchange (world's first organized secondary market for equities)
    - Bio of Vega

# DAWN OF BEHAVIOURAL FINANCE, 1688: STRUCTURE

Chapter 3

- Presents a critical discussion of several concepts from the behavioural finance literature evident in Vega's book
- List is long…

| | | | | | |
|---|---|---|---|---|---|
| Attention-grabbing | Herding | Loss-aversion | Prospect theory/reflection effect | Regret | Trade-based manipulation |
| Cognitive dissonance | High volume equity premium | Noise trading | Predatory trading | Satisficing | Trader disagreement |
| Endowment effect | Information-based manipulation | Non-fundamental speculation | Ramping | Sentiment/-driven trading | Underreaction |
| Fractional noise | Limits to arbitrage | Overreaction | Rational speculation | Spoofing | Violation of the "Law of One Price" (mispricing) |

# DAWN OF BEHAVIOURAL FINANCE, 1688: STRUCTURE

- Chapter 4
  - Presents implications arising from Vega's book
    - For researchers/educators
      - E.g., raising the importance of historical finance texts; motivating historical finance research; offering research ideas; useful text for behavioural economics/finance UG/PG/PhD students
    - For investors
      - E.g., as a nudge to learn more about investors' behaviour; or moderate overconfidence
    - For investment professionals
      - E.g., in financial advisory practice or financial counseling/therapy
    - For regulators/policy makers
      - E.g., in financial education; to inform positive (such as nudging), rather than normative, policies
    - For the Sephardi community
      - Adds another member of their community to the line of Sephardi writers on economics during the Renaissance (and beyond) years

# KEY TAKEAWAYS

- 2025
  - We lecture our students on biases, heuristics and behavioural trading patterns in behavioural economics/finance modules
  - We observe these in daily life/finance practice
  - Media report on those
  - Lots of self-help/popular finance literature
- 1688
  - Vega describes the same biases, heuristics and behavioural trading patterns in the Amsterdam market…
- Implies that behavioural forces in investment decisions are truly unremarkable
- Confirms that "nothing is new under the sun" => **backdates behavioural finance to the 17th century**

# KEY TAKEAWAYS

- The fact that the same biases/heuristics/behavioural trading patterns are observed over three centuries is not very reassuring!!!
  - Implies **we are not as evolved as we think**
  - We keep making the same mistakes
  - We are predictable
  - Perhaps, even exploitable!
  - A few examples will confirm this…

# EXAMPLE #1: LIMITS TO ARBITRAGE

- The Dutch East India Company (est. 1602) involved the participation of the various trading companies of the Netherlands' six chambers (*kamers*) of East Indian trade (Amsterdam, Delft, Enkhuizen, Hoorn, Middelburg, and Rotterdam), each of which retained a fixed share in the company's operations.
- Shares were nontransferable among chambers (e.g., shares traded in Amsterdam were for the Amsterdam chamber only) and priced differently across chambers.

# EXAMPLE #1: LIMITS TO ARBITRAGE

- *"The possibility of quick sales increases the value of the stocks in such a manner that **the shares of the Amsterdam chamber command a higher price than those of all other chambers**. This happens only **because speculation does not exist at the other places in these Provinces**. **The dividends, apart from small expenses, are the same for the outside chambers**; yet the shares of the chamber of Zeeland are quoted 150 per cent, of Enkhuysen 80 per cent, of Hoorn 75 per cent, of Rotterdam 30 per cent, of Delft 70 per cent less than the shares of the Amsterdam chamber."* - para 93

# EXAMPLE #1: LIMITS TO ARBITRAGE

- **Dutch East India Company shares traded at different prices across chambers**
  - An anomaly/inefficiency => perhaps the first recorded one in equity trading history!
  - One and the same stock was priced differently in each chamber, even though its fundamental value was the same across all six chambers
- **Should this not have motivated arbitrage activity?**

# EXAMPLE #1: LIMITS TO ARBITRAGE

- Barberis and Thaler (2003): arbitrage is costly AND risky due to several factors
  - Fundamental risk, implementation costs, horizon risk, synchronization risk, noise trader risk, model risk etc.
  - Some of these risks/costs are quite evident in Vega's book…
    - **Implementation costs**:
      - Institutional restrictions: shares were non-transferable across chambers.
      - Liquidity risk (even if transferability were possible, the lower volume of the other five chambers would have rendered arbitrage more costly)
      - Brokerage fees (3 gulden per stock traded)
    - **Noise trader risk**:
      - Vega ascribes Amsterdam chamber's higher prices to its levels of speculation => likely due to noise trading
      - Higher speculation => higher volume => higher prices
      - **High-volume premium anomaly: first historical evidence on its presence in equity markets**
        - Definition: trading volume shocks boost a stock's visibility => enhanced traders' interest => higher prices
        - See Merton (1987), Gervais et al. (2001), Kaniel et al. (2012), Bali et al. (2014), Wang (2021) and Israeli et al. (2022)

# EXAMPLE #2: RATIONAL SPECULATION

- "In order to be well-informed about the tendency of the market, even the bears [before launching their big operation] begin with purchases and take all items [offered]. If the shares rise in price, they pocket the quick profit; if the prices fall, however, they sell at a loss, content to have ascertained the weakening tendency. Moreover, the interest which the timid public takes in their proceedings is already useful to them, since the public thinks that conditions must be serious when the speculators sell at a loss. […] If [the timid souls] see the bears buy, they do not know whether the latter buy in order to sell later (which in the Exchange language means to "look for powder"), or whether they buy because they have changed their opinion or given up their position and therefore really want to buy. **If the [bears] decides upon this dissimulation, they offer for the stocks more than the price of the day (what we call "inflating" the price). They influence the price in this way in order to sell [short] at the higher figure and thus to gain in the end**." (De la Vega, 1957, 33, para 305)

# EXAMPLE #2: RATIONAL SPECULATION

- De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann. "Positive Feedback Investment Strategies and Destabilizing Rational Speculation." The Journal of Finance 45, No. 2 (1990a): 379–95. https://doi.org/10.2307/2328662.
  - Rational speculators interact with noise traders (who extrapolate from historical price-trends)
  - Rational speculators witness a signal indicating that good news about a stock will arrive in the near future
  - Rational speculators choose to pre-empt the market and buy the stock
  - Price starts rising
  - Noise traders witness this uptrend and start buying too – price goes to Jupiter!!
  - When the good news arrives at the market, rational speculators do two things
    - First, they sell the stock: with noise traders having boosted the upward trend, the price probably has risen by now far beyond what the good piece of news implied
    - Second, they go short on it: as soon as they start selling, they know the price will start declining and they know that noise traders will start selling too => price will decline even more => short-selling will be more profitable

# EXAMPLE #3: FRACTIONAL TRADING

- 1680s
  - Dutch East India Company dominated trading in Amsterdam's stock market
    - Only other listed stock => Dutch West India Company (much smaller)
  - Investors could buy **one-tenth** of the Dutch East India Company's share => ***ducaton***
  - Ducaton-trading fueled speculation (1683-1688)
    - Amplified participation by small, unsophisticated investors
  - **Ducatons systematically valued at more than a tenth of the whole share's value**
    - Inefficiency…
    - Clear case of overpricing => arbitrage opportunity
  - People tried to exploit this mispricing – but not for the sake of arbitrage!
    - *"The reason why nearly all of the [speculators] participate so eagerly in the trading in small shares is the intention of the buyers of large shares to sell them as small ones, (because* ***at the beginning of the month the price of the small shares is higher than that of the large ones****). […]"* - para 239

# EXAMPLE #3: FRACTIONAL TRADING

- 21st century
  - **Investing democratization => introduction of fractional trading => enables trading with minimal financial resources**
    - Since 2019: the case of investors on Robinhood and other platforms that allow fractional trading
    - Applicable in cryptocurrencies; since the late 2010s, also stocks
    - Appealing to retail investors (of modest financial means; Tripathi and Rengifo, 2023)
  - Boosts volatility (Bartlett et al., 2024), trading frenzies (Da et al., 2024), retail share-ownership (Gempesaw et al., 2022)
  - **A replay of the 1680s within a much more advanced technological environment**
    - Such speculation was easy to anticipate => fractional trades attract less sophisticated investors, be it now or 300 years ago

# KEY TAKEAWAYS

- We  have the capacity to learn from our mistakes => so why do we keep repeating them?
- Two possibilities
  - We fail to learn from them
    - E.g., due to biases distorting the updating process
  - We  are not bothered to learn
    - Learning involves effort => cost of effort may exceed expected benefit of learning
    - Inertia and habits => less effort
      - Habits = reinforcement learning (no need to process information)
      - Inertia = opt for the default option (less effortful)
      - Inertia and habits work well when the environment is stable
        - They offer constrained optimal outcomes
        - They do not work so well when stability disappears (you need to make an effort to learn about the new reality…)
- The main issue therefore rests less within the errors in our decisions per se, and more with **errors in our learning**

# KEY TAKEAWAYS

- We need a **shift in the behavioural finance debate**
  - What good is it arguing that bias X or heuristic Y exists, when the same bias/heuristic was recorded over 300 years ago?
  - It is like reinventing the wheel!
  - We need to move from simply identifying pitfalls in human judgement, to proposing tools on how to learn from them
  - Moving from **regret** to **change**
    - Self-help/popular finance literature => human errors are “irrational”
    - Academic literature often does the same!
    - Creates a sense of regret/guilt about our errors => not very constructive
      - Human errors are normal => we keep reproducing them over the centuries
      - From the most general (e.g., herding) to the most specific (e.g., endowment effect) behavioural patterns…
      - Suggests the need for improvements in our learning (from them)

# IN CONCLUSION…

*"The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun. Is there any thing whereof it may be said, See, this is new? it hath been already of old time, which was before us. There is no remembrance of former things; neither shall there be any remembrance of things that are to come with those that shall come after."* – Ecclesiastes 1:9-11