



# **Determining Whether a Stock (or Stocks) Traded Efficiently & the Deutschebank Decision**

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# Efficiency in the Market for a Stock



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## An efficient market

- A market “in which prices always ‘fully reflect’ all available public information is called ‘efficient’”
  - *In re PolyMedica Corporation Securities Litigation*, 453 F.Supp.2d 260 D.Mass., September 28, 2006.



Eugene Fama



Lars Hansen



Robert Shiller

# The Relevance of Market Efficiency



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- Market efficiency is required for reliance on a stock's price as incorporating all relevant information
  - Commonality, reliance, and typicality

The absence of a showing of fraud-on-the-market “would ordinarily preclude certification of a class action seeking money damages because individual reliance issues would overwhelm questions common to the class.”

—*Amgen*, 133 S. Ct. at 1193

# The Relevance of Market Efficiency



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- Market efficiency is required for reliance on a stock's price as incorporating all relevant information
  - Commonality, reliance, and typicality
  - Measuring causation and harm in the absence of an efficient market
    - 10(b)-5 damages
    - Sentencing in white collar crimes

# Efficiency in the Market for a Stock



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## An efficient market

- A market “in which prices always ‘fully reflect’ all available public information is called ‘efficient’”
  - *In re PolyMedica Corporation Securities Litigation*, 453 F.Supp.2d 260 D.Mass., September 28, 2006.
- Prices respond rapidly and without bias to new information
- According to the law, the price of a security can deviate from fundamental value and still be efficient (the Fama vs. Shiller debate)

# Market Inefficiencies

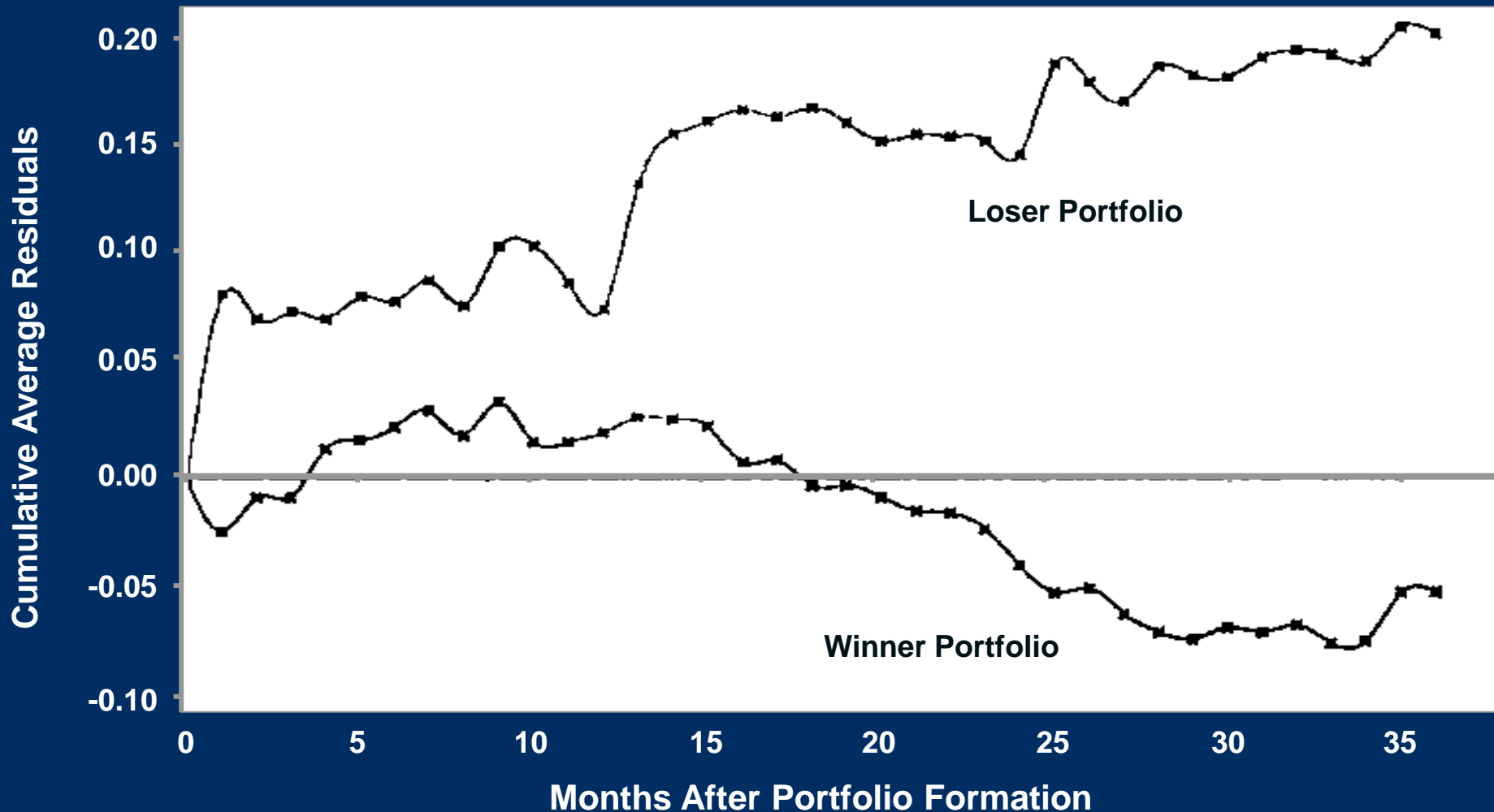


- Can arise in the market for individual stocks
- Market inefficiencies can also arise in entire markets for a large number of stocks

# Early Study on Inefficiency of Markets



## Cumulative Average Residuals for Winner and Loser Portfolios of 35 Stocks



# Tests of Market Efficiency in Litigation



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- Tests of an efficient market
  - Cammer criteria
    - Volume/Liquidity (typically measured as bid-ask spread)
    - Followed by analysts
    - Eligible for S-3 registration (shelf registration)
    - Number of market makers
    - Price Responsiveness to News
  - Additional tests
    - Reliability of responses
    - Predictability of stock prices / Randomness of stock prices
    - Constraints on arbitrage and short selling





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# Testing for the Price Responsiveness to News & Reliability



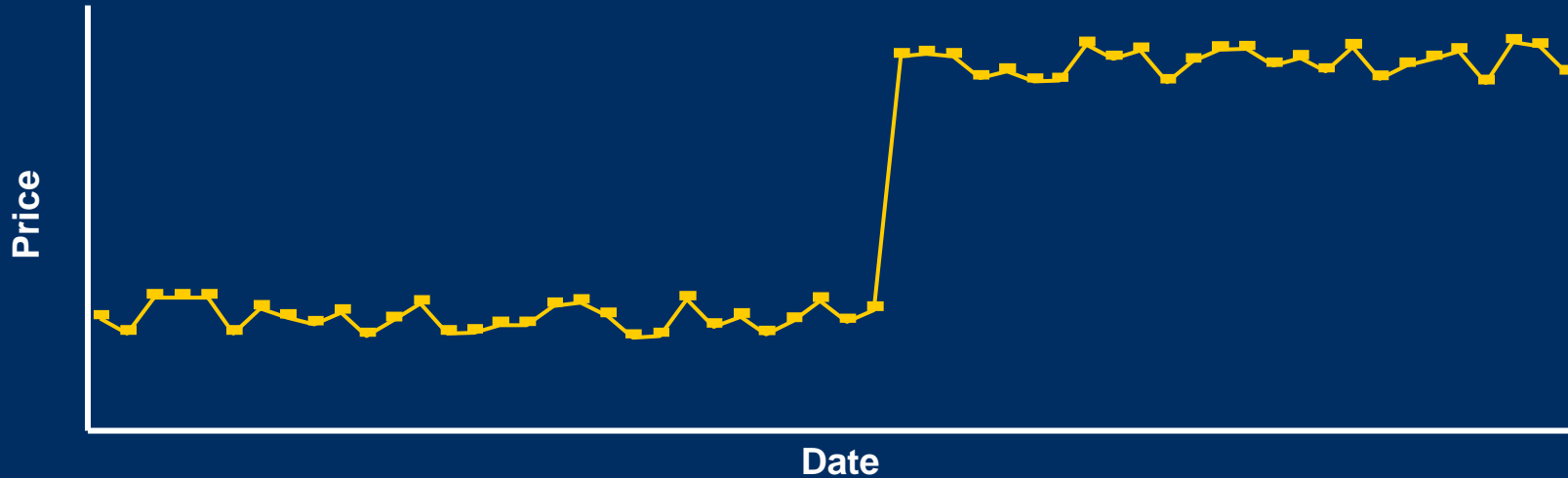
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- Does the stock price respond to news?
- Does it respond reliably?
- Does the stock price move significantly when there is no news?

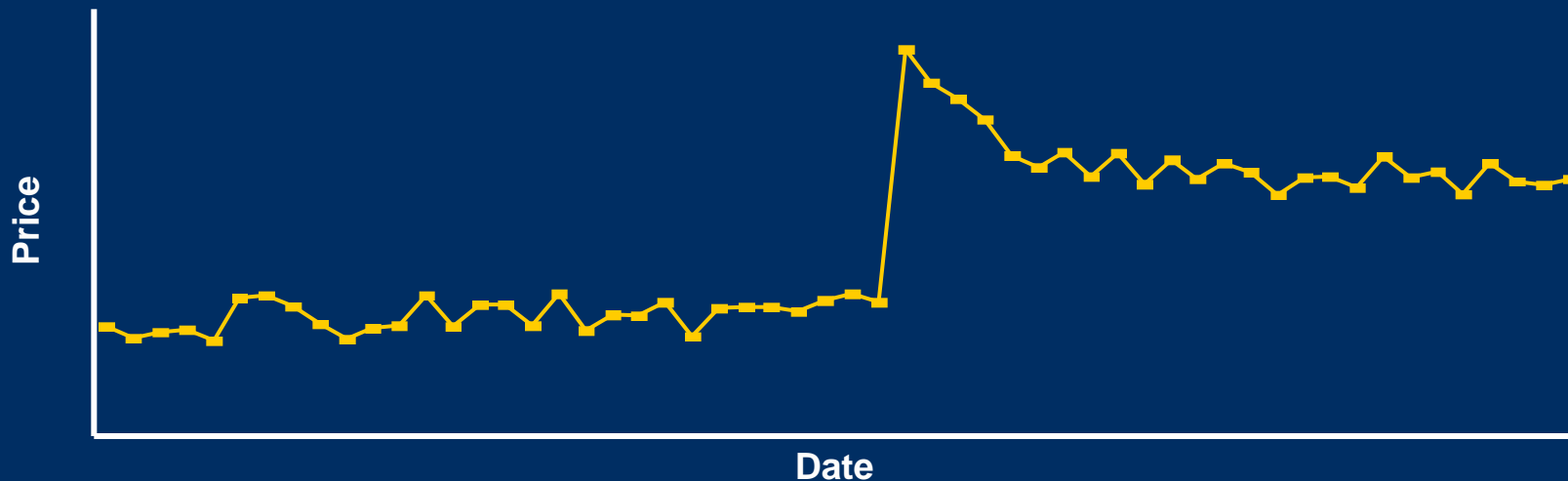
# Test of Accurate Responsiveness: Do prices overreact to news? (Reliability)



## Efficient Market



## Inefficient Market





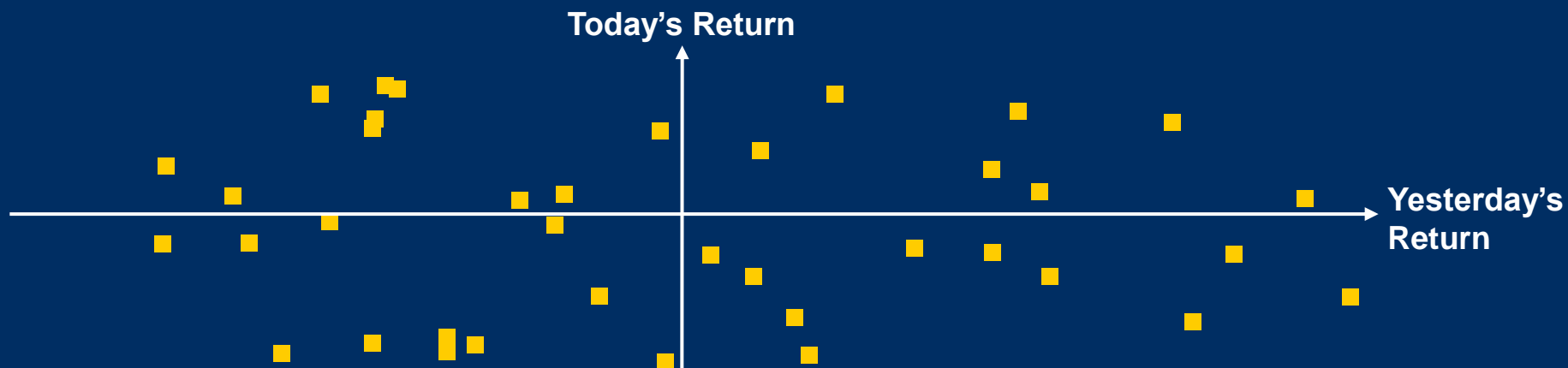
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# Test of Random Walk:

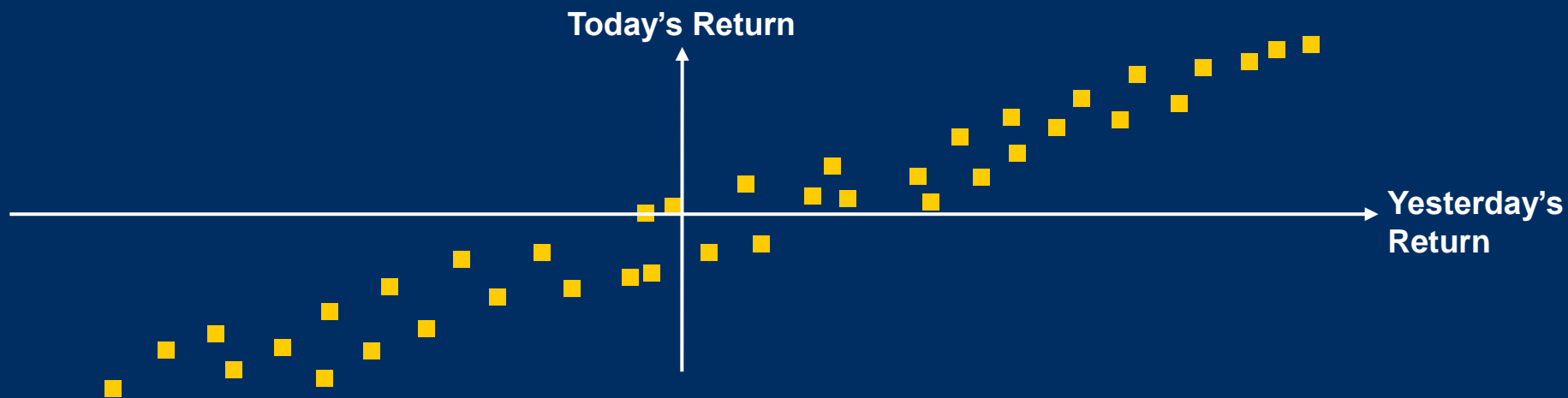
## Predictability of Stock Prices (serial correlation)/Randomness



### Efficient Market



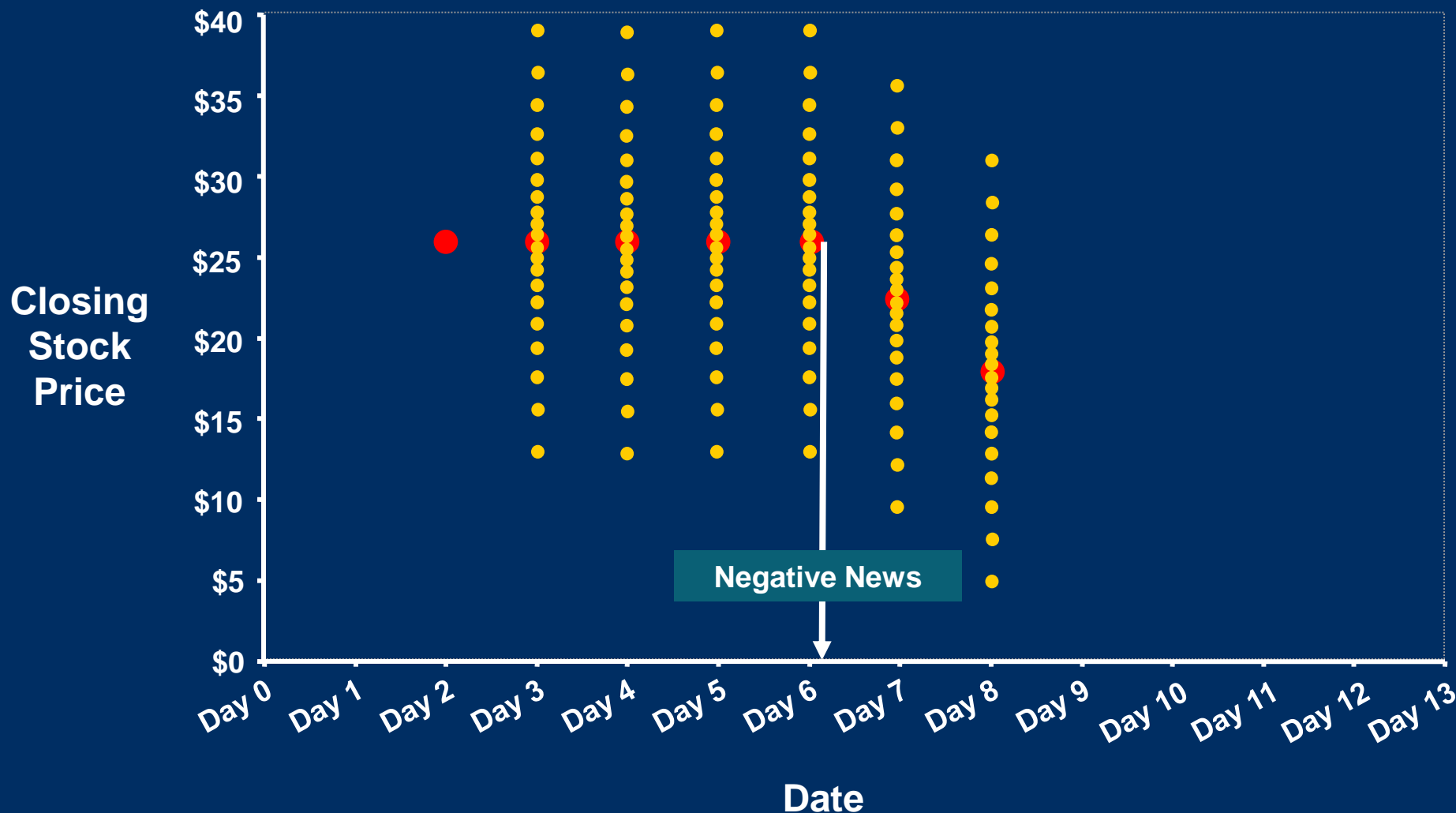
### Inefficient Market



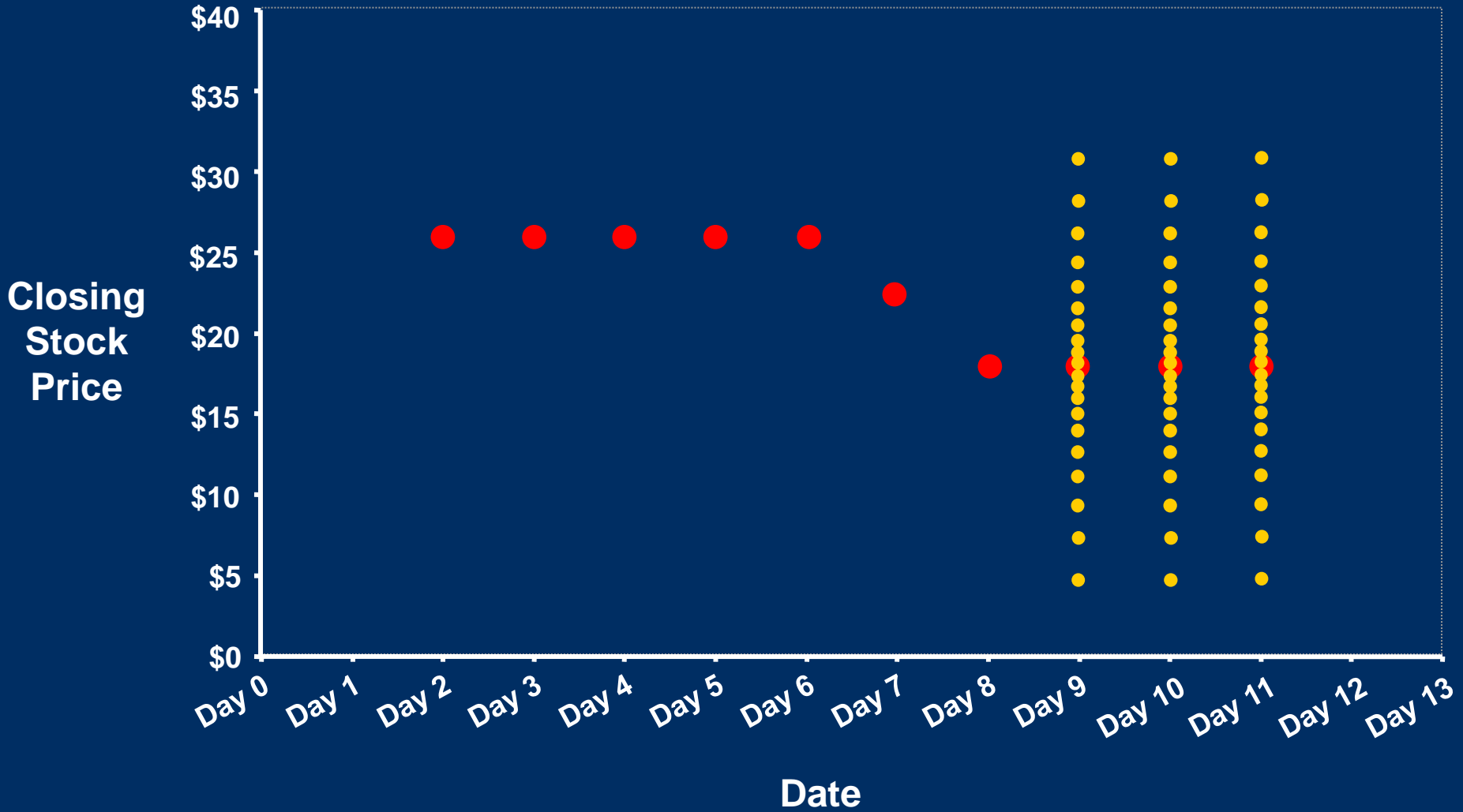


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# Price Setting is Determined Through Interaction of a Range of Opinions



# Biased Irrational Behavior Causes Deviations From the Rational Price

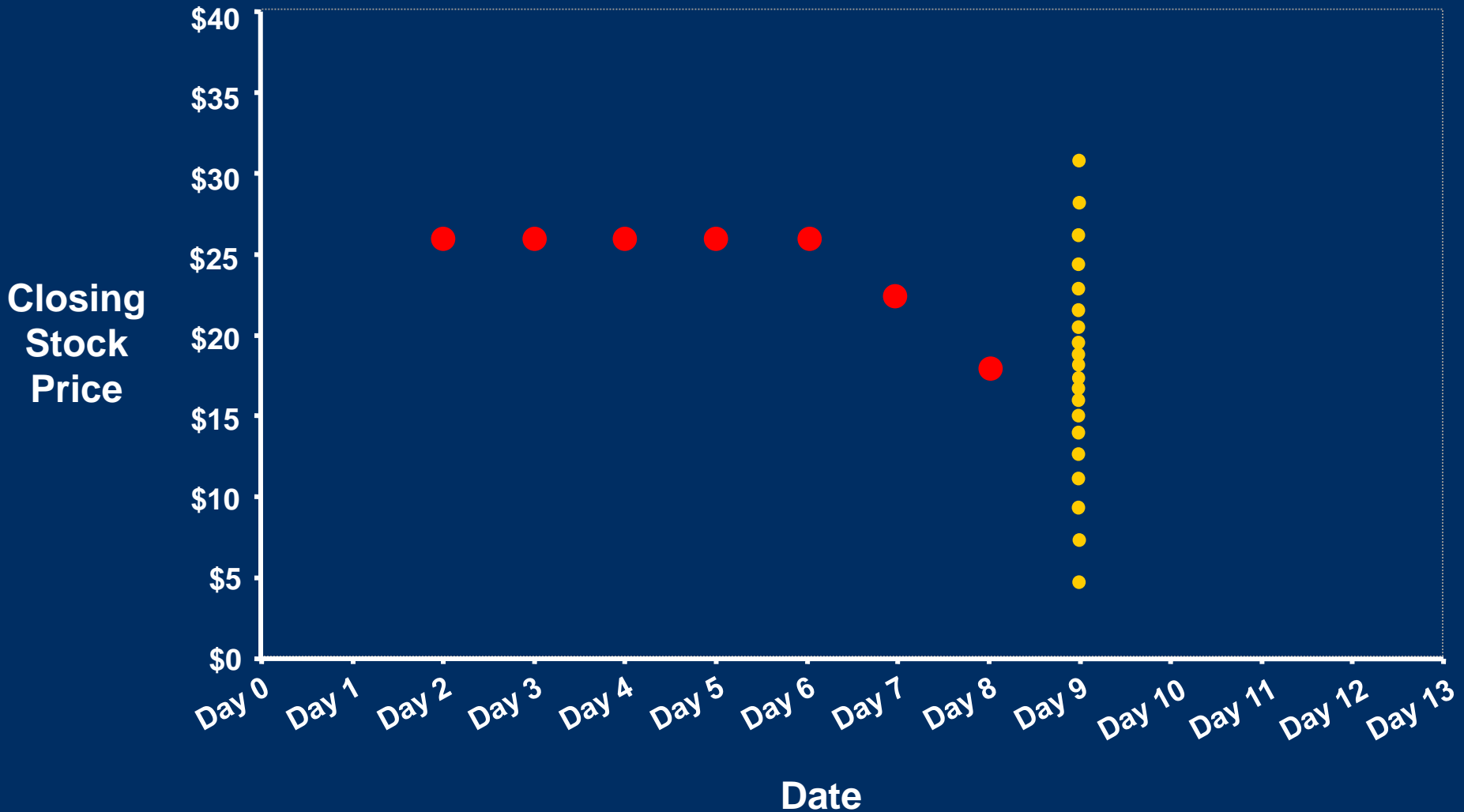




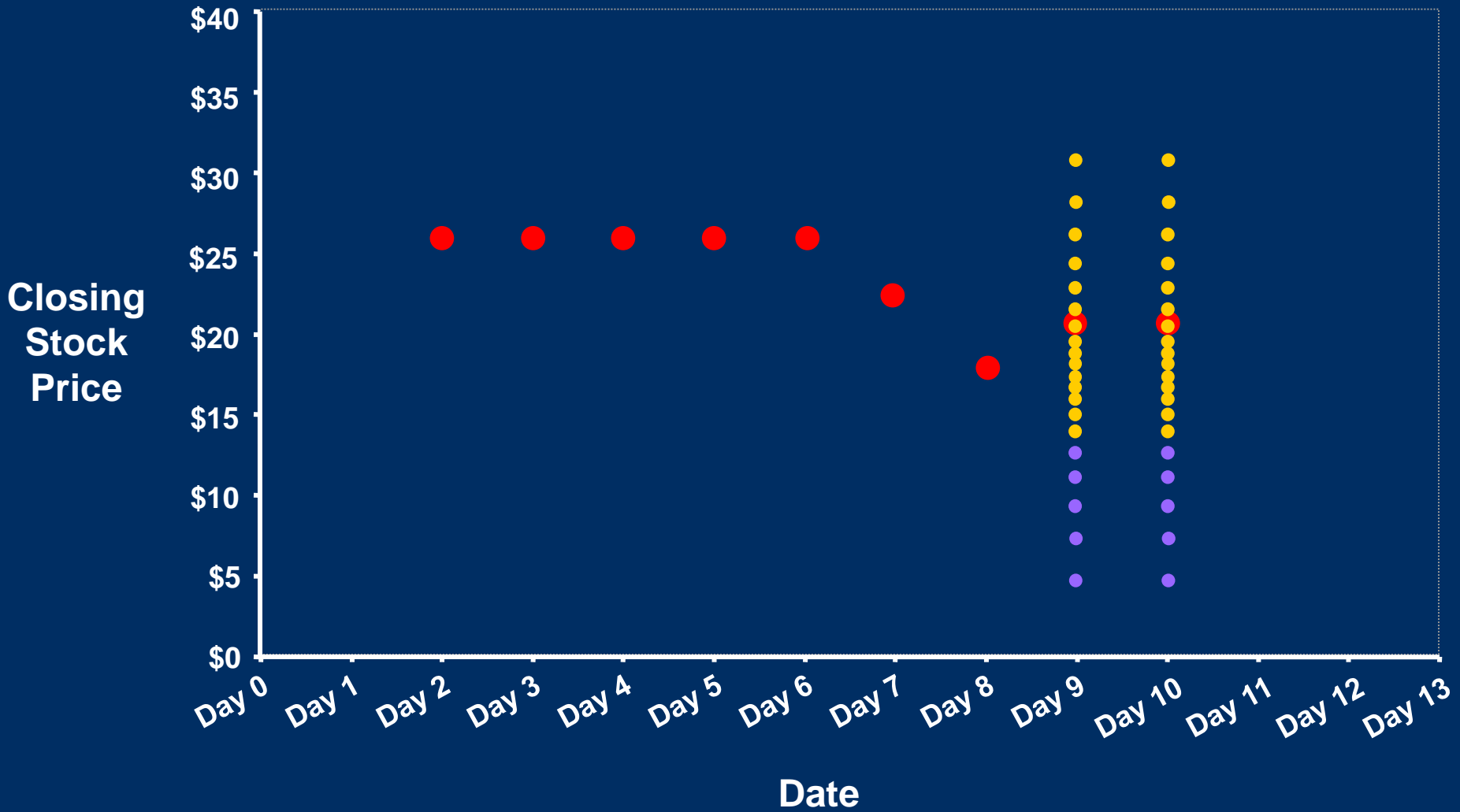
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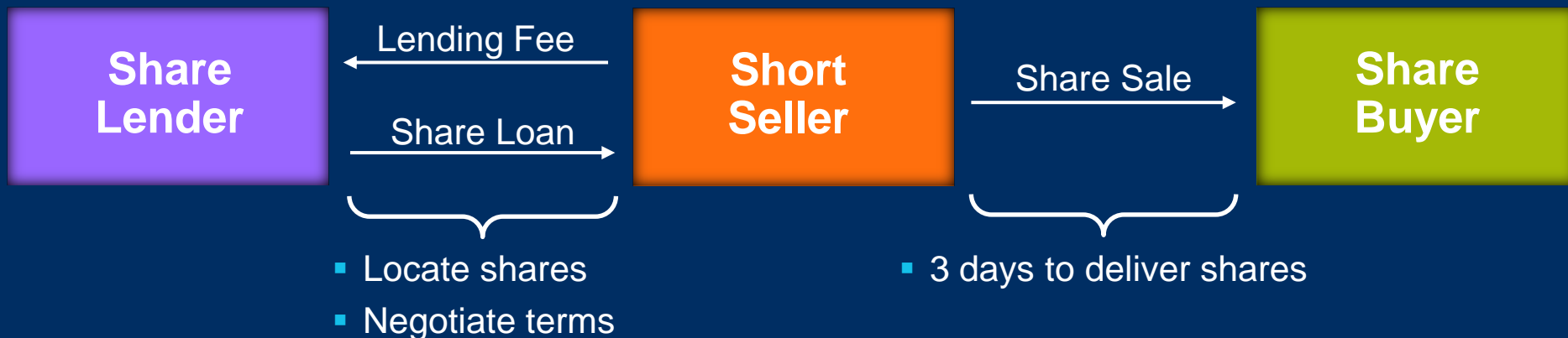
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# Biased Irrational Behavior Causes Deviations From the Rational Price



# Constraints to Trade in a Security



- **3COM and the PALM spinoff**



## *PolyMedica Corp. Sec. Litig* (D. Mass. 2006)

- Concluded that "evidence suggest[ed] significant barriers to short selling, a mechanism...to fundamental value efficiency"
  
- Cited:
  - Short interest:
    - "Shares outstanding represented by the short interest rose from 7.8% at the end of 2000 to 66% in April 2001"
  
  - High lending fees
    - "Stocks are labeled "special" if their loan fee rises above 1% per annum...PolyMedica's loan fee...was reported as anywhere from 15% to 35%"

# Other Observable Indicators of Constraints to Trade in a Security



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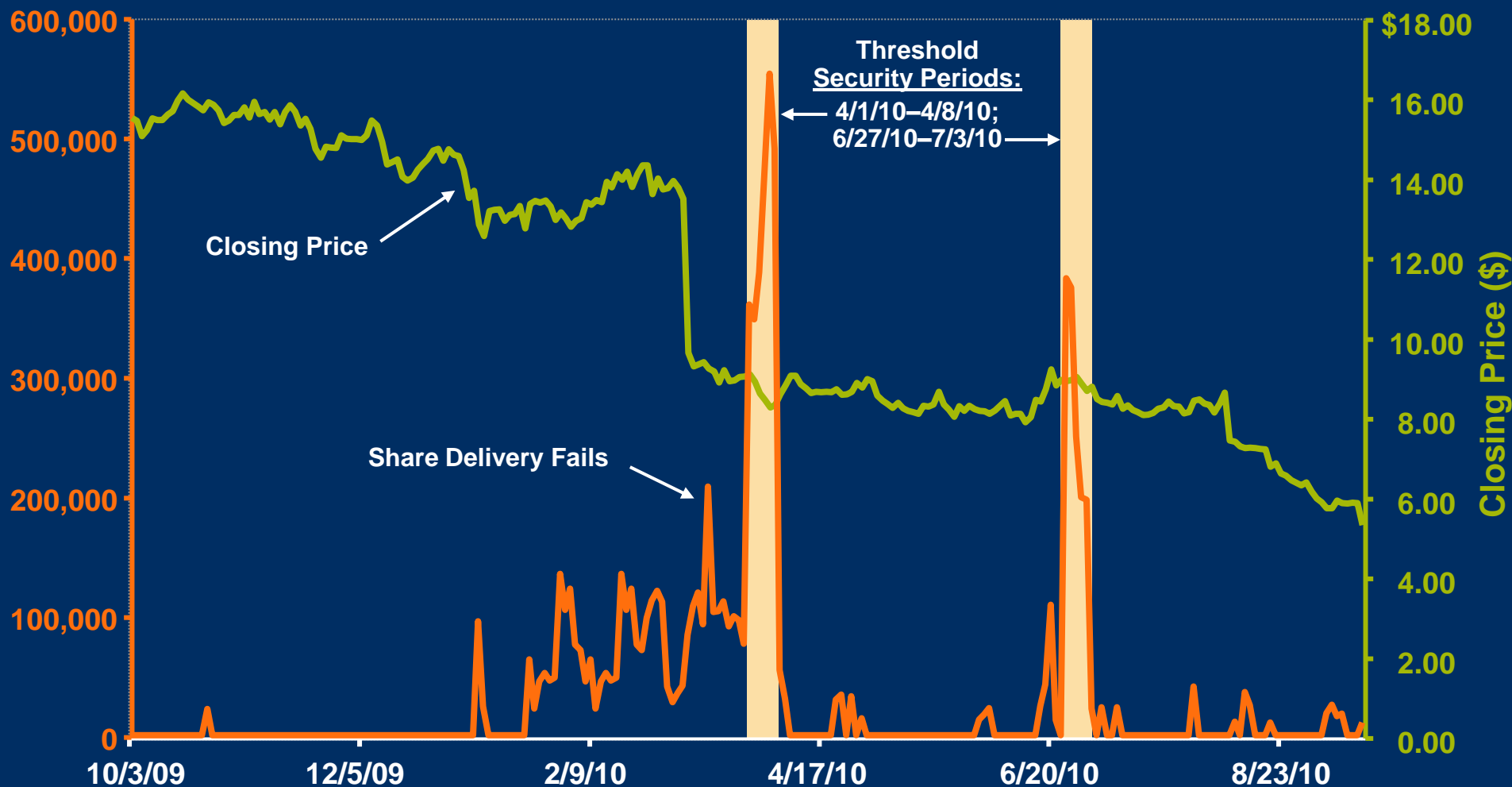
- ***Delivery Failure***
  - Violation of the 3-day delivery rule
  - Related to difficulty in locating shares and high share lending fees
- ***Threshold Security Designation***
  - SEC designation triggered by a large number shares have failed to be delivered for a long period of time

# Constraints to Trade in a Security



## Delivery Failures

### Acme Gear, Inc. Share Delivery Failure October 1, 2009–September 15, 2010



# Examples of Effects of Constraints on Entire Markets



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- The 2008 imposed short-sale constraints.

# Empirical Evidence of the Effects of Constraints



- Government imposed short-sale constraints...

Country	Ban Start Date	Duration (Days)
United States	19-Sep-08	19
United Kingdom	19-Sep-08	119
Japan	30-Oct-08	236
Italy	22-Sep-08	252
Ireland	19-Sep-08	277
Germany	20-Sep-08	276
Canada	19-Sep-08	19
Austria	26-Oct-08	240
Australia	22-Sep-08	245



# Empirical Evidence of the Effects of Constraints



- ...causes market inefficiency/illiquidity

## Percentage Bid-Ask Spread

Country	Average Bid-Ask Prior to Ban	Average Bid-Ask During Ban	Percent Increase
United States	0.49	1.68	242.9%
United Kingdom	0.14	0.46	228.6
Japan	0.6	0.7	16.7
Italy	0.57	2.77	386.0
Ireland	0.42	1.4	233.3
Germany	0.29	0.68	134.5
Canada	0.19	0.62	226.3
Austria	0.29	0.48	65.5
Australia	3.33	5.26	58.0
Average	0.71	1.42	100

# Empirical Evidence of the Effects of Constraints



- Did it change serial correlation? Yes.

## Weekly Autocorrelation

	Correlation
No Ban Stocks	0.08
Banned Stocks	0.1
<hr/>	
Difference	0.02

# Empirical Evidence of the Effects of Constraints



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*Knowing what we know now...the costs [of the short-selling ban] appear to outweigh the benefits*

—Christopher Cox, telephone interview to Reuters, 31 December 2008

# The Deutsche Bank Decision



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- **Plaintiffs:** IBEW Local 90 Pension Fund files for class certification from January 3, 2007 to January 16, 2009 due to Deutschebank's misrepresentation to investors.
- **Defendants:** Oppose certification of class.
- United States District Court of New York grants defendants motion and denies class and Daubert's plaintiff's expert on October 29, 2013.
- **Reason:** Plaintiff's failed to show the market for DB shares was efficient and hence could not take advantage of reliance for a fraud-on-the-market theory.

# The Deutsche Bank Decision



- Plaintiff's case **failed for several key reasons:**
  1. Plaintiff's expert had weak qualifications in finance.
  2. Plaintiff's expert failed to consider the efficiency of the main market where DB traded (look at US market instead of German market).
  3. Ignored the extended short-sale ban in Germany (September 20, 2008 – onwards) and the US.
  4. Earnings announcement day reactions ignored market expectations (Cammer specifically mentioned “unexpected”). Also, small sample of days.

# Summary



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1. Efficient markets important determinant in class certification and damages.
2. The techniques in this space continue to evolve (Kaplan et al. (2013)).



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