

DS2500

# M&As in Healthcare vs Stock Prices

Daniel Joung, Yugeun Park,  
Saeyoung Choi

Confidential

Copyright ©



# Industry Context:

## Pharmaceuticals and Healthcare Companies:

- Pharmaceutical company stock prices are known to be very volatile due to success rates of clinical trials, and approved drug regulations
- Competitive pressures, rising costs, and rapid technological advancements drive frequent mergers.
- Regulatory changes demand scale and efficiency, pushing consolidation.



---

# Why M&As in Healthcare?:

**Objective:** Explore how M&A announcements affect healthcare companies' stock prices, emphasizing the differences in market reactions to smooth acquisitions versus hostile takeovers.

**Relevance:** M&A events signal strategic growth but create diverse market responses, influencing shareholder confidence and stock valuation.

**Goal:** Provide actionable insights for investors and stakeholders to anticipate market movements and manage risks in healthcare investments.

Question: What is the impact of M&As in healthcare industry stock prices after public announcements?

# Table of Contents:

1	2	3	4
<b>Our companies</b>	<b>Code Execution</b>	<b>Visualizations</b>	<b>Final Analysis</b>
Our Data Sources  Hostile Takeovers vs Peaceful Acquisitions	Data Extractions  Data Cleaning  Regression Analysis	Regression Charts  Combined vs Individual Data	Our Research Analysis

---

# Stock Price Historical Data Source

Collected daily closing stock prices:

- **90 days** before the public announcement
- **30 days** after the public announcement



# Companies: Acquisitions



sanofi



AstraZeneca



Johnson & Johnson



Biogen.

NOVARTIS

# Companies: Hostile Takeover



sanofi

Johnson & Johnson



VALEANT

AMGEN®



teva



# Code Execution

## Data Extraction:

Custom function to access CSV files of company stock data or public announcement dates

Announcement dates stored separately to align with relevant stock data

## Data Cleaning:

Converted date columns in CSV file to datetime format for consistency

Dropped dividend lines in data

## Individual Stock Price Changes:

Used adjusted close prices to calculate for percent change in stock prices and rounded to nearest hundredth place

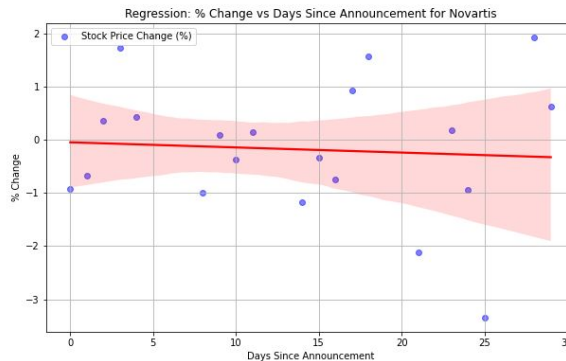
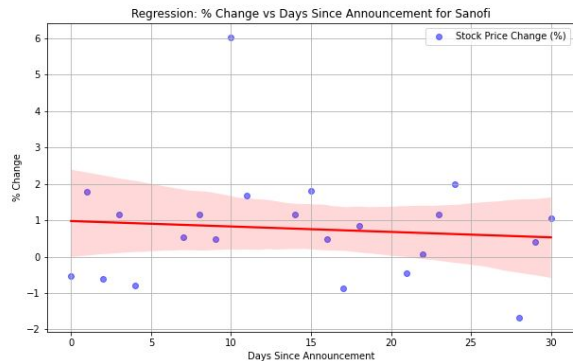
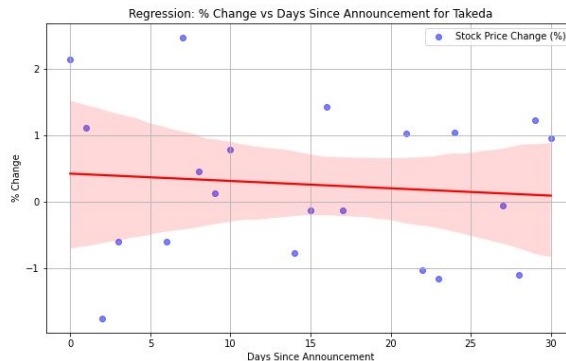
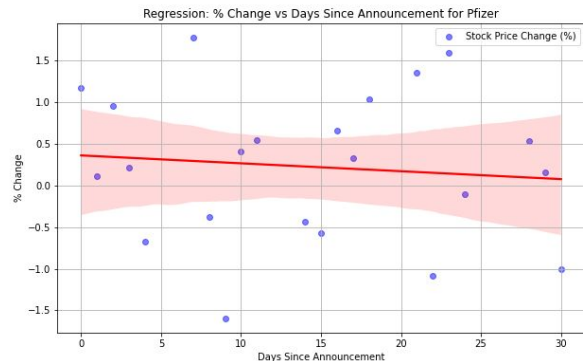
## Combined Regression:

Mapped each company's announcement date to its stock data

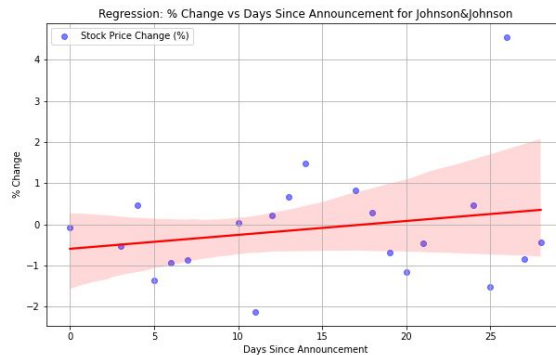
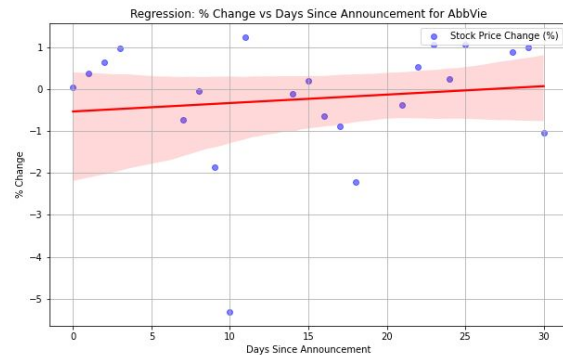
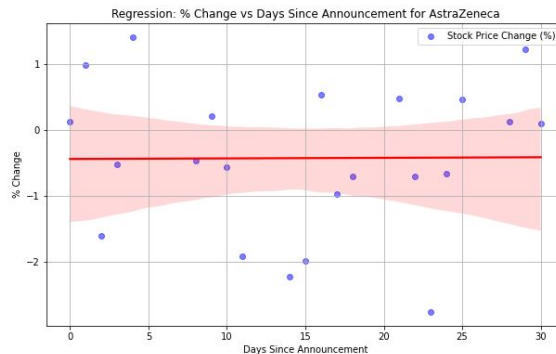
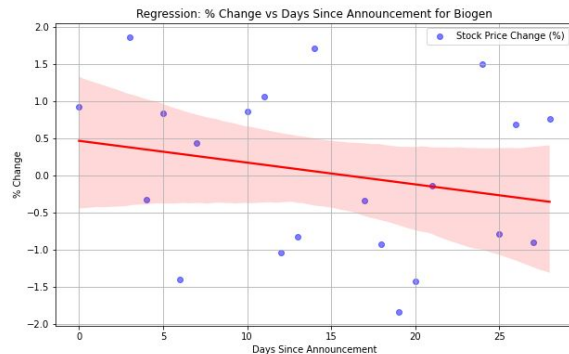
Filtered stock data to only keep dates after announcement

Calculated for number of days after announcement, creating new dataframe column for 'Days Since Announcement'

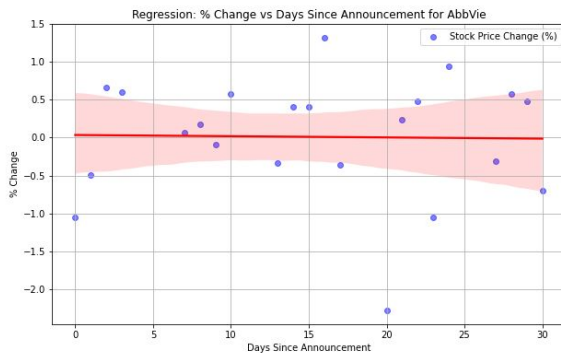
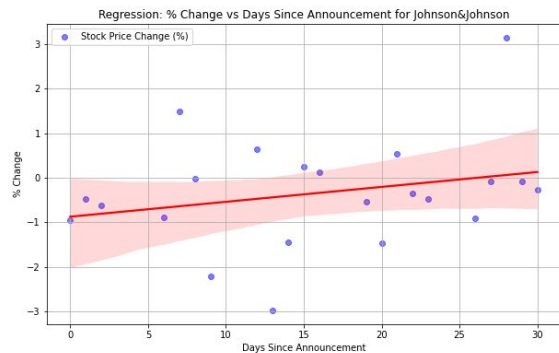
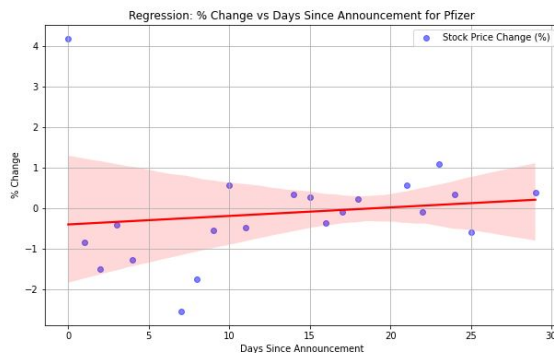
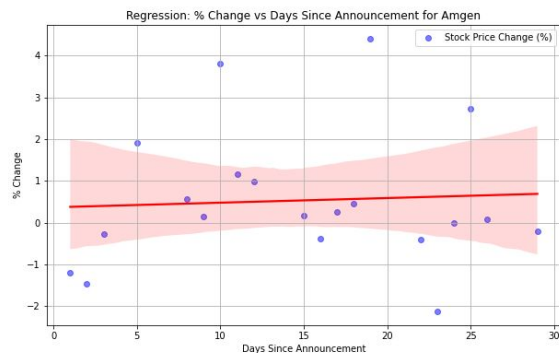
# Visualizations: Smooth Acquisitions



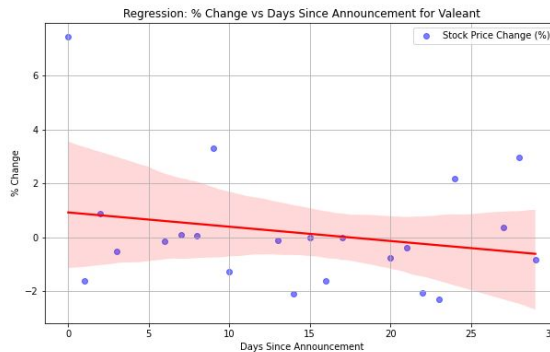
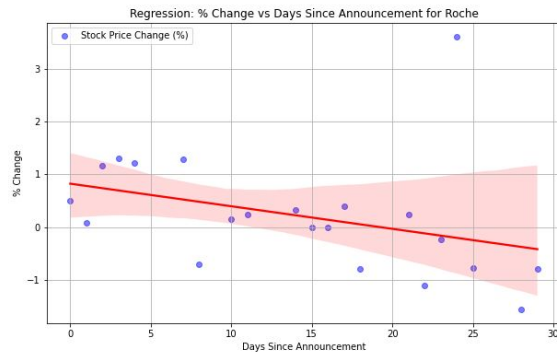
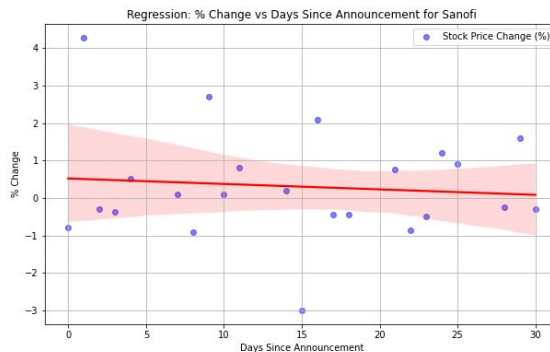
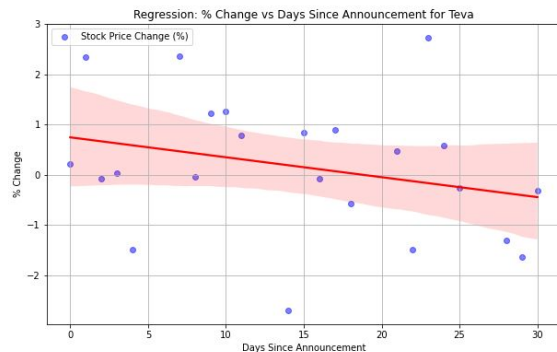
# Visualizations: Smooth Acquisitions



# Visualizations: Hostile Takeovers



# Visualizations: Hostile Takeovers



## Final Analysis:

**What is the impact of M&As in healthcare industry stock prices after public announcements?**



**Stock Prices in the Healthcare / Pharmaceutical Sector decline following M&A Announcements to the public**

**However, the investor reactions vary depending on whether the M&A event was a smooth acquisition or hostile takeover.**

# Final Analysis: Smooth Acquisition vs Hostile Takeover

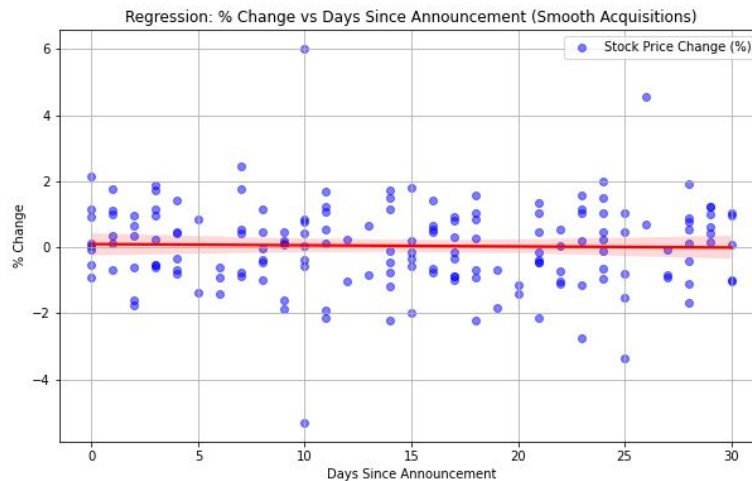
## Smooth Acquisition:

### Regression Insights:

- **Coefficient:** -0.0035
- **Intercept:** 0.0983

### Market Reaction:

- **Minimal negative impact** compared to hostile takeovers.
- Investors view these as **strategically beneficial** and **less risky** due to their **collaborative nature** and **smoother integration processes**.



# Final Analysis: Smooth Acquisition vs Hostile Takeover

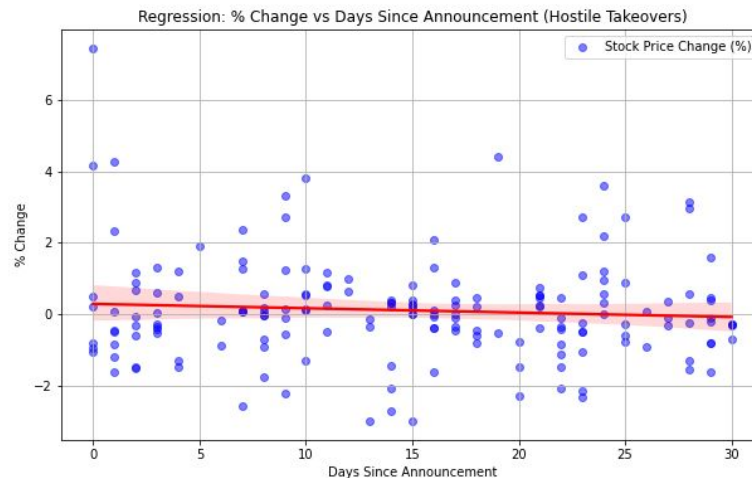
## Hostile Takeover:

### Regression Insights:

- **Coefficient:** -0.0122
- **Intercept:** 0.2905

### Market Reaction:

- **More pronounced negative impact.**
- Driven by perceptions of **heightened risks**, such as:
  - a. **Stakeholder conflicts.**
  - b. **Challenges in achieving synergies**





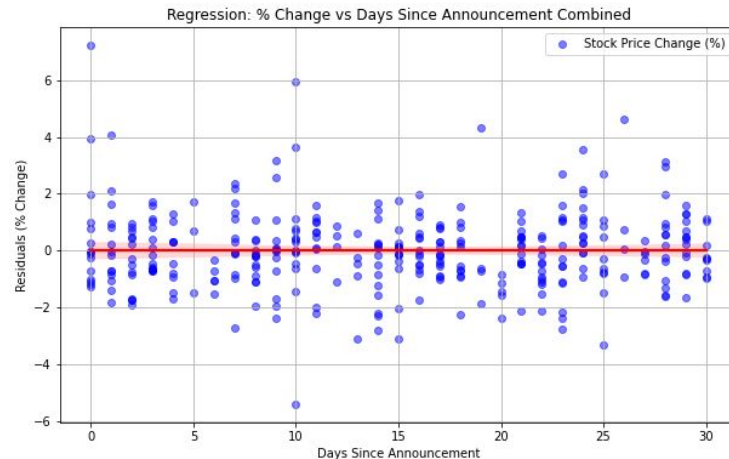
# Final Analysis: Combined Data Analysis

## Regression Insights:

- Coefficients: -0.0078 (Days Since Announcement), -0.0643 (Group: Hostile vs. Smooth).
- Intercept: 0.2266.

## Key Takeaway:

- Hostile takeovers have a **disproportionate influence** on the overall negative trend in stock performance.
- Highlights the importance of distinguishing between M&A types to assess their market impact accurately.



# Final Analysis: Takeaways

## Investor Response Varies by M&A Type:

- **Smooth acquisitions** and **Hostile takeovers** generate an overall moderate **negative reaction** from the market

## Strategic Takeaways:

- Investors and stakeholders should factor in the **nature of the M&A event** when making decisions.
- Developing strategies to mitigate risks can help manage **negative market perceptions** and **long-term integration challenges**

# Thank You!

Questions?