Mergers in Food and Agribusiness Companies and Stock Price Reactions:
Have companies gained in stock returns around merger events?

Aditya R. Khanal
Tennessee State University

&

Ashok K. Mishra
Arizona State University

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Background

- “*Merger and acquisitions (M&As) have become a popular business strategy for companies looking to expand into new market or territories, gain a competitive edge, or acquire new technologies*” (https://hingemarketing.com/)

- “*Acquisitions remain the quickest route companies have to new markets and to new capabilities. As markets globalize, and the pace at which technologies change continues to accelerate, more and more companies are finding mergers and acquisitions to be a compelling strategy for growth.*”
(Rappaport and Sirower, 1999/ Harvard Business Review)

Background

Food & Agribusiness M&A examples making big headlines

-ChemChina Acquisition of Syngenta
-Dow Chemical-Dupont merger
-Bayer-Monsanto merger
-John Deere and Blue River Technology
-Pepsico buys energy drink Rockstar
-Nestle buys Peanut allergy treatment maker
-McCromick buys hot sauce maker Cholula
-Utz Brands buying Truco Enterprises, a tortilla chips & salsa company

- Merger and acquisitions (taking over, purchasing, acquiring other companies) in food and agribusiness industry after 1970s have been significant.
- Agribusinesses involved in all main sectors—production, manufacturing, processing, and marketing has experienced mergers and has increased concentration. Input sectors, seed and machinery, meat processing and slaughter, food retails, dairy have significantly consolidated.
- Not only firms consolidate and integrate to gain size economies but larger firms gain significant market power through mergers. This has been received an increased attention (Wood 2013; Saiton and Sexton, 2017; MacDonald 2017; Hendrickson et al. 2017)
- Introduction of a bill in the US house of Congress to review Food & Agribusiness Industry's M&As.

Food and Agribusiness Merger Moratorium and Antitrust Review Act of 2019; Food and Agriculture Concentration and Market Power Review Commission

M&As and Food and agribusiness industry stocks

- Corporate restructuring events like M&As receive attention from stock market investors.

- The company’s stock prices around the event are the indicators of stock investors’ valuation on the company in response to the event. The market reaction to these managerial decisions could play important roles in company’s equity capital gains, stability, and trading continuity.

- However, there have been very limited studies related to these aspects in food and agribusiness industry stocks.

- **Research Question:**

--“do acquiring agribusiness companies gain in their stock prices due to the merger event and its signals?”;

--“how investors value acquiring companies stock prices in response to M &A?”

[gain (or loss) in stock prices expressed in percentage→ stock returns]

Data

- We used a large database of Center for Research in Security Prices (CRSP).
- We comprehensively identified food, agriculture, and agribusiness companies involved in production, processing, manufacturing, and distribution using 4-digit SIC codes.
- We identified pure merger events decoding 4-digit distribution codes (DISTCD) recorded in CRSP database.

Time period	# of 4-digit SIC-code sub-sectors of Food and Agribusiness	# of food, agriculture, agribusiness companies/firms	# of pure merger events	Number of observations # (firms*daily returns, including event days)
1970 to 2020	405	4,465	1,948	12,301,034

Method

- We computed and tested the effect of merger events using event analysis approach
  - Compute daily abnormal returns around merger event window
  - Test for statistical significance of abnormal returns in reference to benchmark period returns
  - Calculate average cumulative abnormal returns on event window and test for significance.

- Abnormal returns are excess actual returns the investors earn on an asset than the expected predicted using Capital Asset Pricing Model (CAPM).

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

$$AR_{it} = R_{it} - \widehat{\alpha}_i - \widehat{\beta}_i R_{mt}$$

$$AR_{it} = R_{it} - E(R_{it})$$

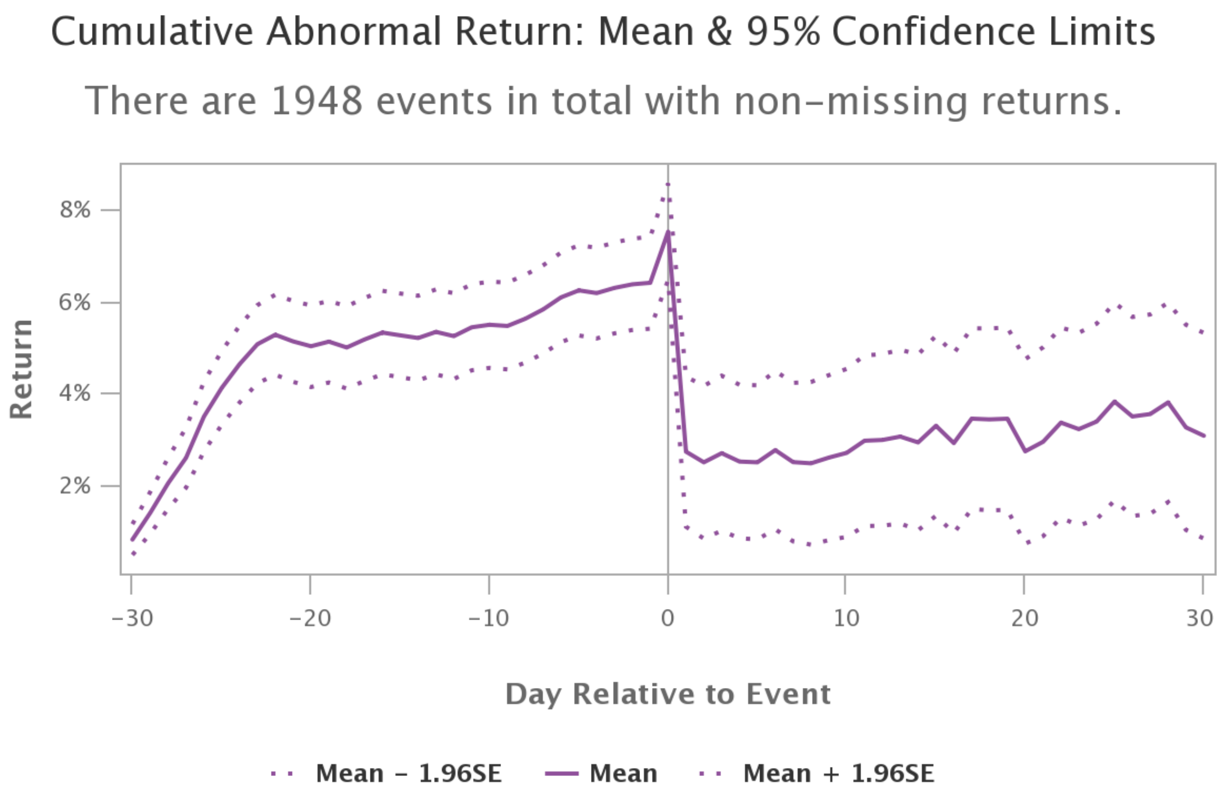
$$CAAR_{T_1,T_2} = \frac{1}{N} \sum_{i=1}^{N} \sum_{t=T_1}^{T_2} AR_{it}$$

Method

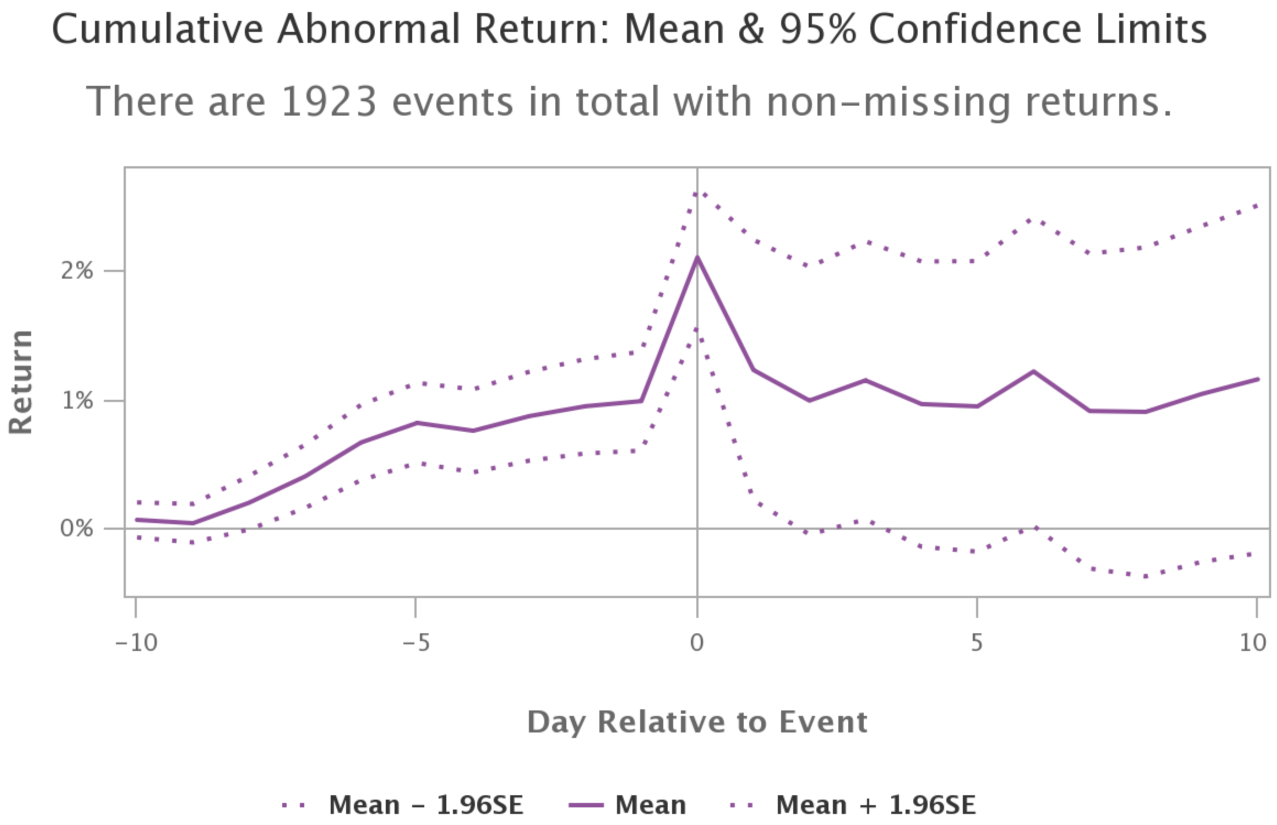
- In our estimation:
  - We used estimation length of at least 255 trading days.
  - Benchmark period should be at least 100 days prior to the event.
  - For the event, we chose 30 days pre and 30 days post the event and market-adjusted value weighted returns.
- We also considered returns on short period alternative windows: (-30,0), (-20,0), (-20,+2), (-10,+10), (-5,+5), (-1,0) and test for significance.

- We used merger payment date as an event for at least two purposes:
  - We are interested in acquiring firm (acquirer). Payment date facilitates identifying acquiring firm.
  - Since payment date is recorded, it is an indicator of the successful merger/acquisition event. Since many mergers are announced and unsuccessful, payment date may facilitates avoiding those
  - Specific to our sample, payment date is recorded clearly than declaration/announcement date.

Results



Cumulative Abnormal Return: Mean & 95% Confidence Limits
There are 1948 events in total with non-missing returns.
8%
6%
4%
2%
Return
−30
−20
−10
0
10
20
30
Day Relative to Event
Mean − 1.96SE
Mean
Mean + 1.96SE



Cumulative Abnormal Return: Mean & 95% Confidence Limits
There are 1923 events in total with non-missing returns.
2%
1%
0%
Return
−10
−5
0
5
10
Day Relative to Event
Mean − 1.96SE
Mean
Mean + 1.96SE

Results

Time window (days relative to event)	Mean **cumulative abnormal returns**, at the end of event window **(%)**	**(Parametric test)** t-statistic for cumulative abnormal return (at the end of event window)	Mean **buy and hold abnormal returns**, at the end of event window **(%)**	t-statistic for buy-hold abnormal returns (at the end of event window)	**(Non-parametric test)** Wilcoxon signed rank test statistics for abnormal returns
(-30, +30)	**3.07**	2.69** (0.007)	4.50	3.62** (0.000)	-2030.5 (0.620)
(-30, 0)	**7.35**	12.39** (0.000)	**7.78**	13.90** (0.000)	353318** (0.000)
(-20, 0)	2.23	6.81** (0.000)	2.18	7.15** (0.000)	353318** (0.000)
(-20, +2)	0.85	1.037 (0.299)	1.05	1.19 (0.234)	10135** (0.016)
(-10,+10)	1.15	1.67* (0.09)			10019** (0.017)
(-5,+5)	-0.2	-0.52 (0.600)	-0.2	-0.55 (0.582)	-12439** (0.004)
(-1, 0)	1.1	4.88** (0.000)	1.1	5.27** (0.000)	353319** (0.000)

Summary and Conclusion

- We found significant positive cumulative abnormal return around 3% in a 60-day event window. The highest CAAR on window: (-30,0): 7.35% significantly positive gain is attributable to M&A in this time period.

- We have at least two important observations:
  - One one hand, investors acknowledge that significant capital outflow due to acquisition may impact company in short run—as indicated by some adjustment in stock returns right after the event day (negative returns after merger for acquiring company is as expected and consistent with overall other sectors).

  - However, a some higher level consistent returns, higher than benchmark period returns, which are statistically significant indicate that investors value food and agribusiness firm’s acquisition (merger) and expressed the confidence for higher performance after merger.

Summary and Conclusion

- Together, we found overall positive stock price gains attributable to acquiring company’s M&A events in Food and Agribusiness Industry stocks. This means, acquiring companies have potential equity capital gains through stock returns to some level that are attributable due to M&A events.

- Also, based on our pre-acquiring price ramp-up, stock market investors tend to gain highest in “buy the rumor and sell the news” (merger arbitrage, short selling and price pressure around merger? (Mitchelle et al., 2004)—needs more investigation);

- Future studies: factors such as size and Book-to-Market effects, analysis and investigations on factors contributing to AR