

ANALYSIS OF BARLEY CONTRACTS IN NORTH AMERICA VIA AB INBEV

A Project Paper

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Master of Professional Studies in Agriculture and Life Sciences
Field of Applied Economics and Management

by

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ABSTRACT

The purpose of this project was to analyze three types of barley forwards contracts as they are used in North America by the company AB InBev. The scope of the project includes the profiling of farmers to determine what attributes they use in selecting a contract for the upcoming crop year. The goal is to determine the financial impact of these contracts on AB InBev cost cutting strategies.

BIOGRAPHICAL SKETCH

Lawrence Slocum graduated college from George Washington University in 2008 with a BA in Geography. He then served in the U.S. Marine Corps for 4.5 years as a logistics officer. After that, he worked for an international Palm Oil company in Guatemala doing supply chain management for 2 years. Next, Lawrence completed his MBA at the Johnson School of Management at Cornell University, and then entered an MPS in Applied Economics and Management also at Cornell University.

ACKNOWLEDGMENTS

I would like to thank all of the wonderful faculty that helped me get to where I am. I really wouldn't have done it if it weren't for you!

TABLE OF CONTENTS

[Table of Contents is required. Single Spaced. See example below.]

Biographical Sketch	i
Acknowledgements	ii
Background	1
Volume	2
a) Volume vs # of Contracts	
b) % Contract Type vs # of Producers	
c) % Volume of Contract Type Executed in Conjunction with other Contract Types (Last 5 Years)	
d) Volume vs Key Attributes	
i. Land Type	
ii. Grain Type	
iii. Producer	
iv. Region	
Price	12
a) Contract Price vs Volume per Year	
b) Contract Price vs Volume per Region	
c) Pricing Date: Market Price vs Volume (MGEX)	
Conclusions	16
Recommendations	17
Bibliography	18

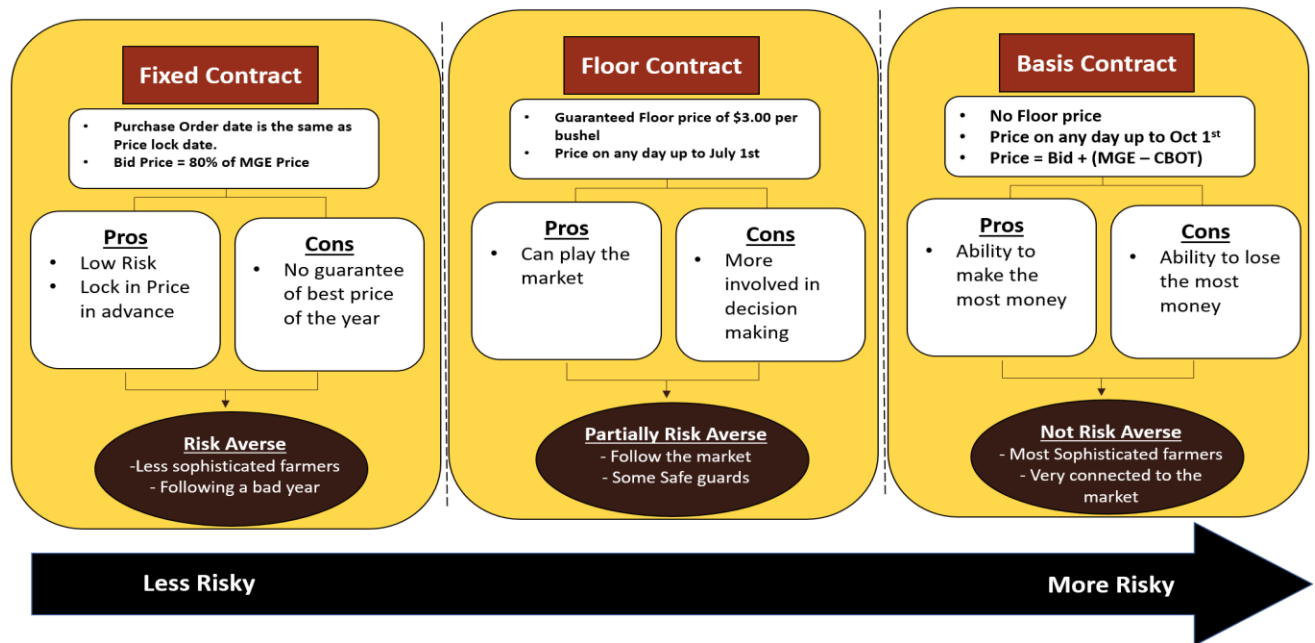
Background

AB InBev is a well know global beer company, responsible to produce several beer brands, such as Budweiser, Bud Light, Corona, and Goose Island. Please see below diagram for a complete SWAT analysis:



The three forwards contracts that are analyzed in this study are fixed, floor, and basis. Of note, the percentage use of the fixed, floor, and basis contracts is 65%, 26%, and 9% respectively.

Below is a diagram that illustrates the basic difference between them:



Content

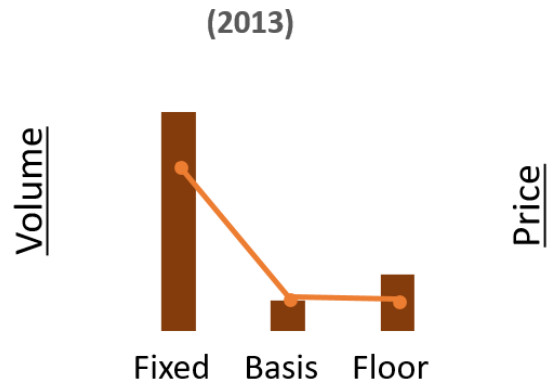
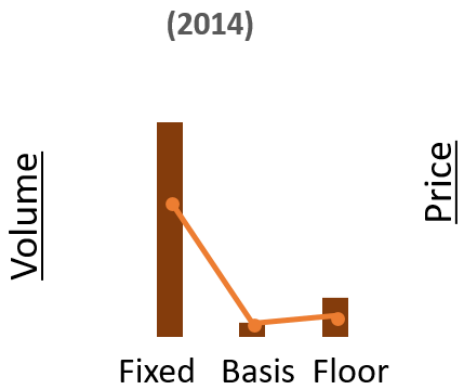
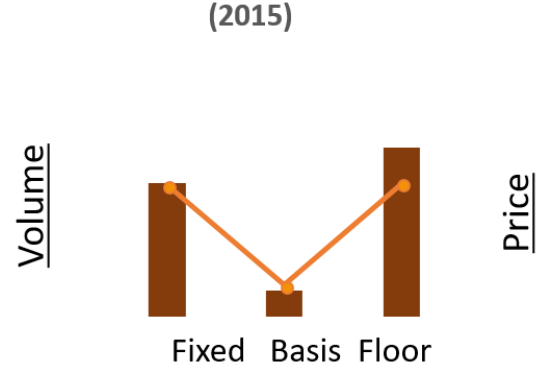
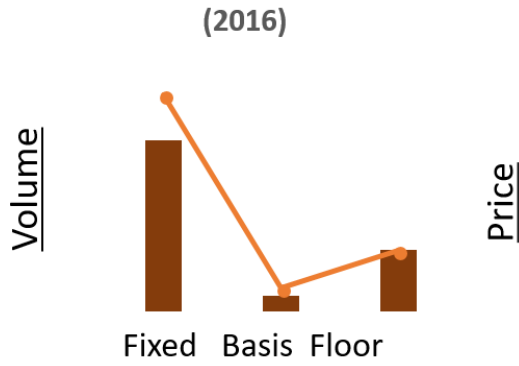
The following analysis is divided into two main sections. The first section strictly analyzes volume measured in bushels of barley and can be further divided into the following sub categories: Volume vs number of contracts, percentage contract type vs number of producers, percentages volume of contract type executed in conjunction with other contract types, and volume vs key attributes.

The second section is an analysis of price measured in dollars per bushels. This section can be further divided into the following sub categories: Contract price vs volume per year, and contract price vs volume per region.

Volume vs Number of Contracts

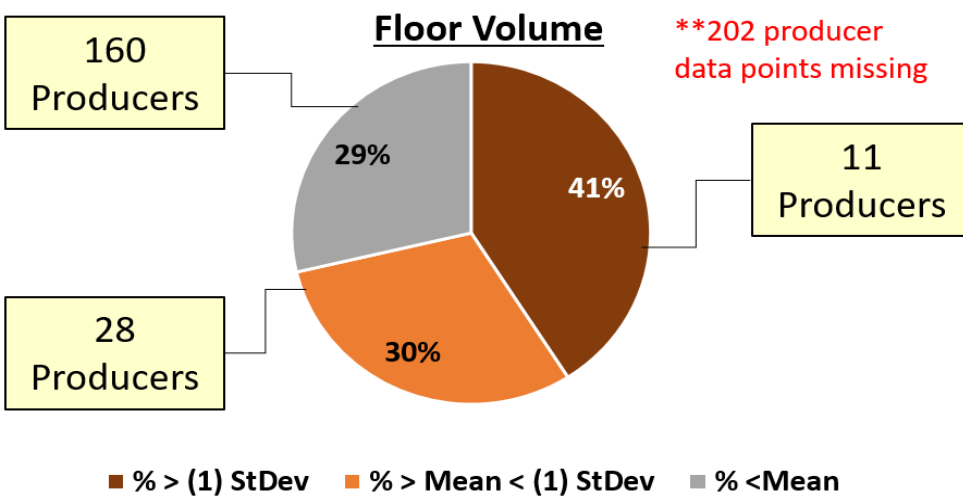
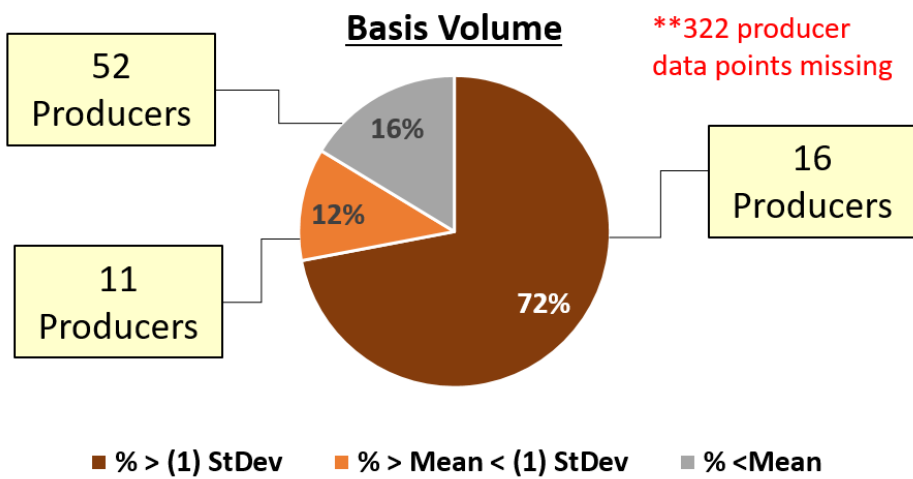
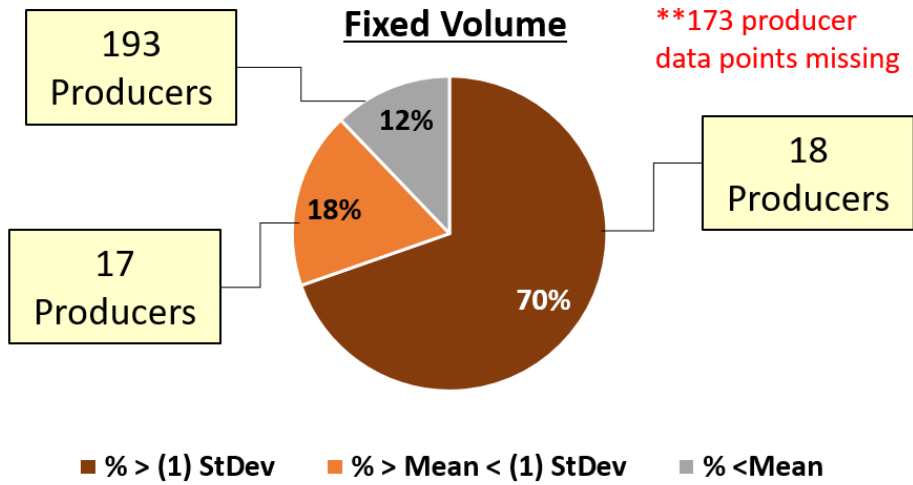
Per the below diagrams, we see that volume and number of contracts are positively correlated.

This implies that farmers do not prefer to use massive contracts, but instead prefer to price smaller contracts.



While this analysis does provide insight into volume per contract, it does not suggest whether farmers are using contract combination strategies.

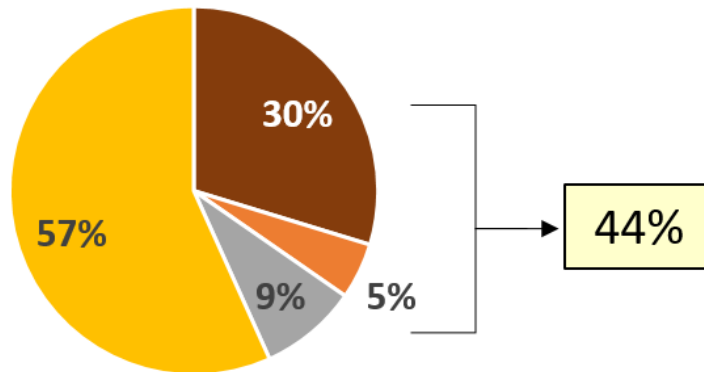
Percentage Contract Type vs Number of Producers



In the above graphs, we can see that the majority of fixed and floor contracts are used by a very small number of producers. Specifically, 70% of fixed contract volume, which coincides with contracts greater than one standard deviation, are responsible for 18 producers. The same can be said for basis contracts, with 72% and 16 producers respectively. Floor contracts, on the other hand, have more of a spread, in that 30% of contracts are produced by 28 producers. Thus, the standard deviation of floor is smaller than basis and fixed, which says that this is a contracting strategy used by medium and large-scale producers.

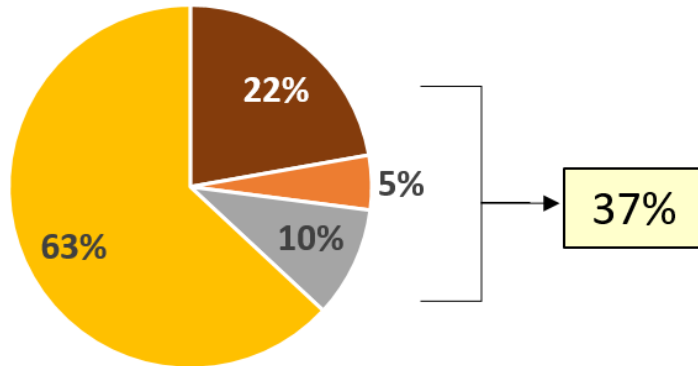
% Volume of Contract Type Executed in Conjunction with other Contract Types (Last 5 Years)

% Basis with Fixed vs Total Basis



- < the Mean (Basis With Fixed)
- Top (8) Producers (Basis With Fixed)
- >the Mean< (1) Std (Basis With Fixed)
- Remaining Basis (Not with Fixed)

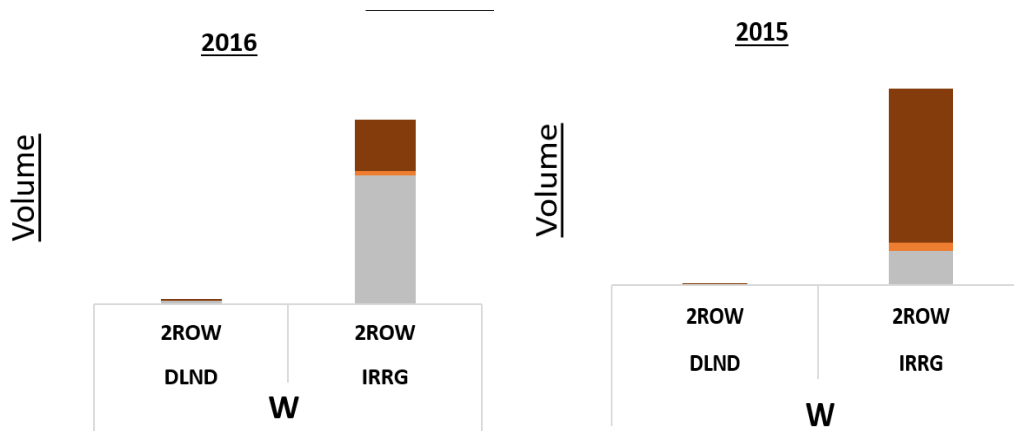
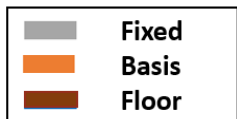
% Floor with Fixed vs Total Floor

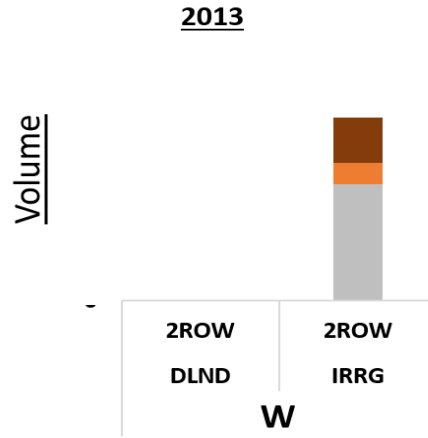
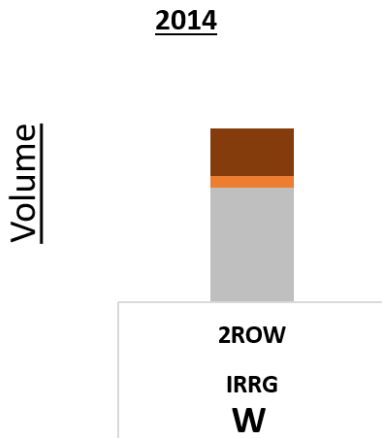


- < the Mean (Floor With Fixed)
- Top (12) Producers > (1) STD (Floor With Fixed)
- >the Mean< (1) Std (Floor With Fixed)
- Remaining Floor (Not with Fixed)

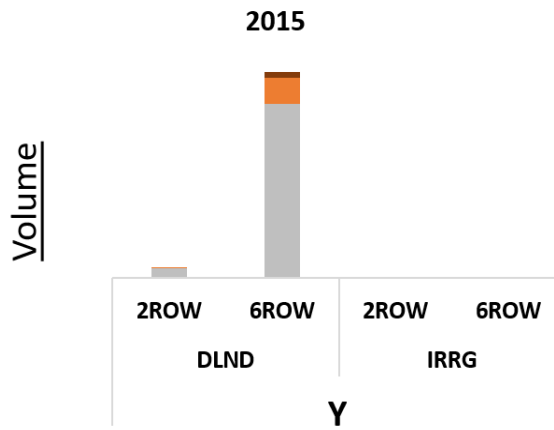
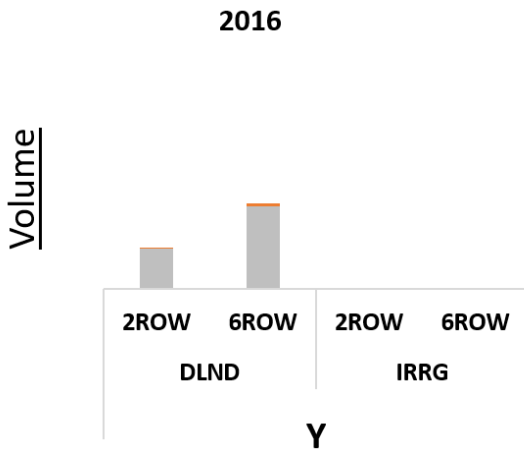
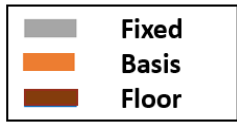
In the above diagrams, we see that many farmers are using basis and floor contracts in conjunction with fixed contracts. Specifically, 44% of basis contracts and 37% of floor contracts are used in conjunction with fixed contracts. This suggests that a good percentage of farmers tend to use complex contracting strategies that involve combining hedging strategies.

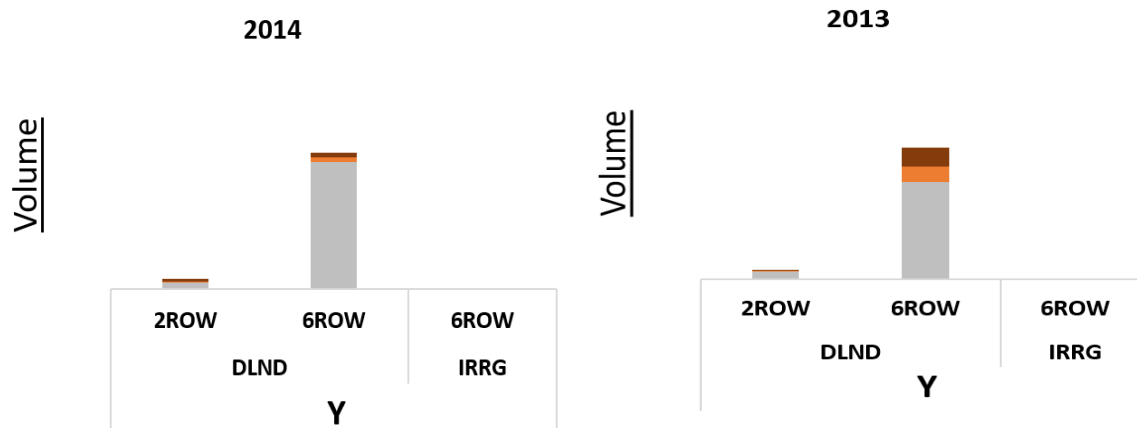
Volume vs Land/Grain Type per Crop Year (Region W)





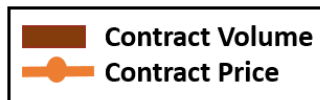
Volume vs Land/Grain Type per Crop Year (Region X)

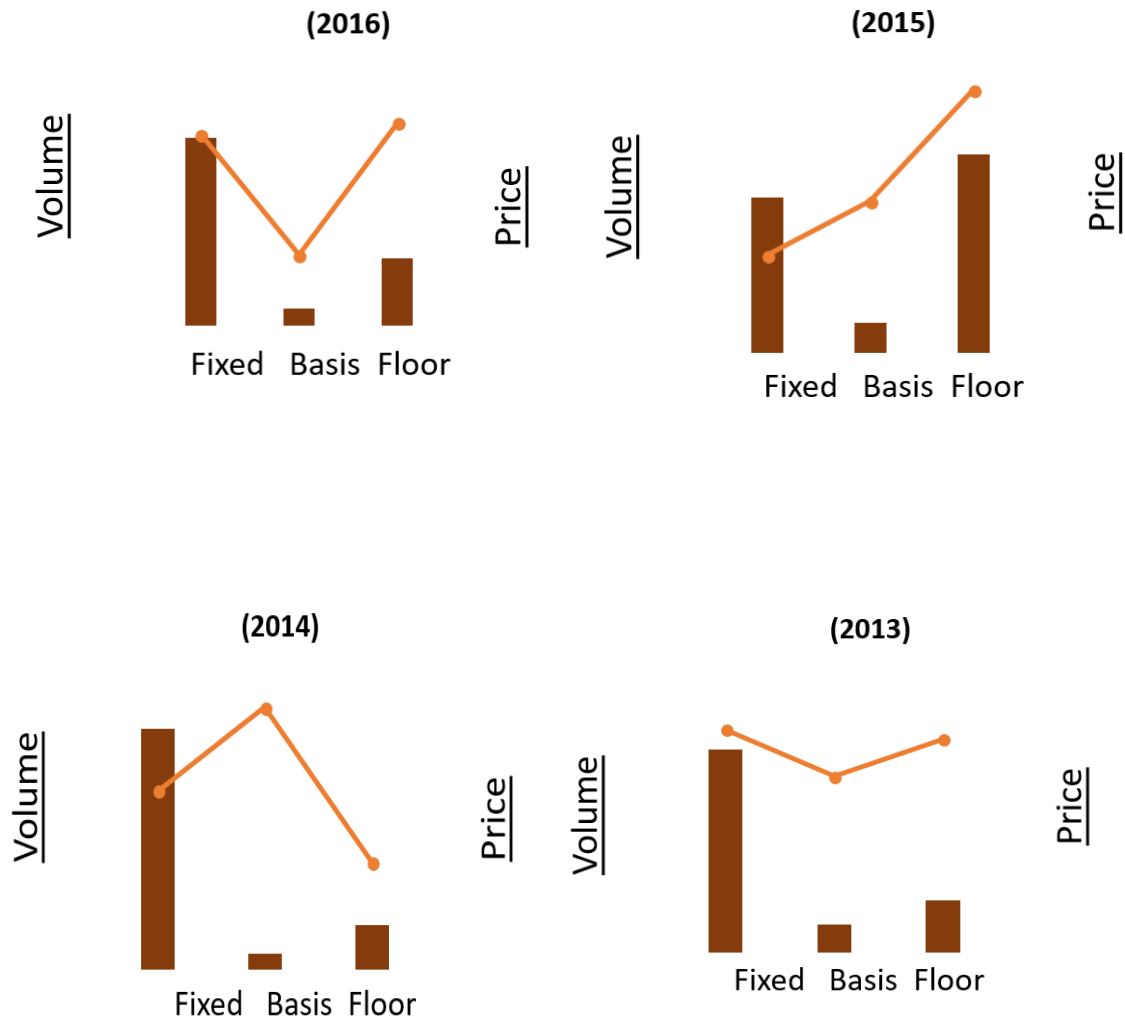




In the above graphs, we see two distinct regions divided into grain type and land type vs Volume. In region W, we see that floor contracts tend to be more focused in 2 Row irrigated lands, while region Y tend to be focused on 6 Row dry land. This makes sense for many reasons. First, 2 row crops sell for a higher price, and are therefore are considered a premium product. Second, as a result, farmers are more likely to invest in irrigation systems, which make production less risky. This leads them to execute riskier contracts given the fact that they are not as risk averse. On the other hand, the Midwest tends to grow 6 row crops on dry land. Given that 6 Row is less of a premium product, and the fact that dry land is riskier, they are more likely to use fixed contracts, which are less risky.

Contract Price vs Volume per Crop Year

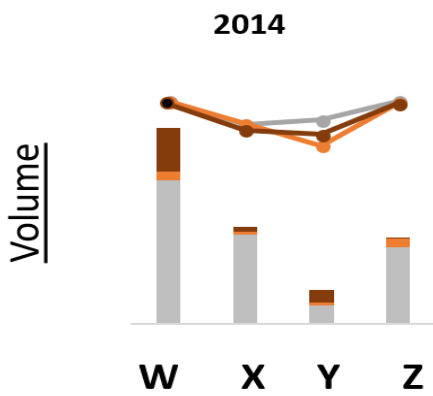
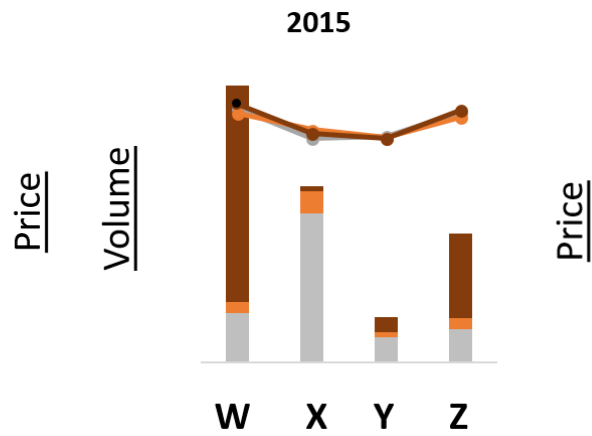
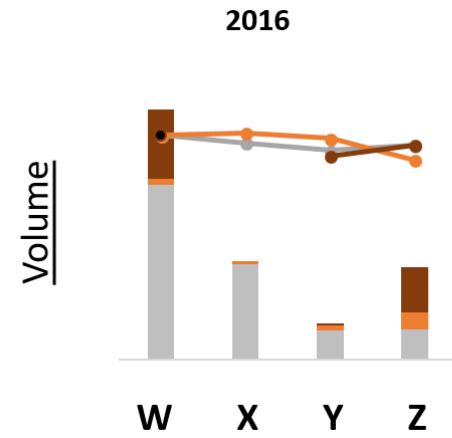




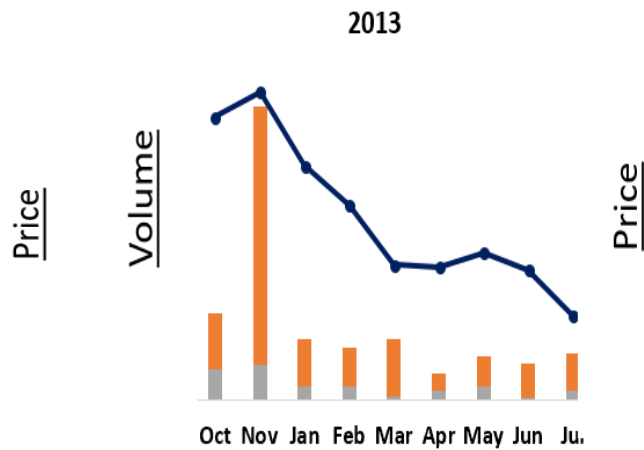
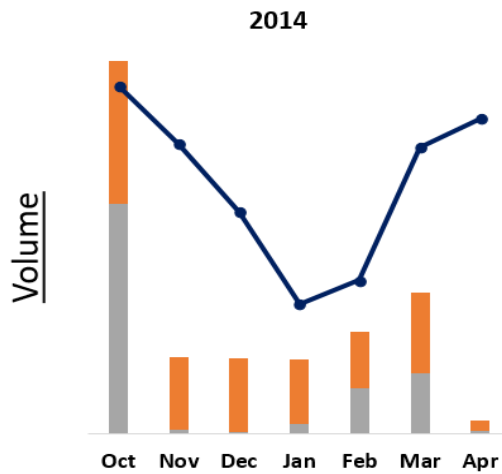
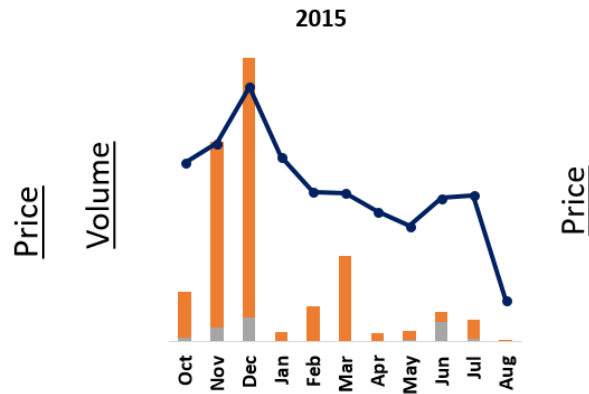
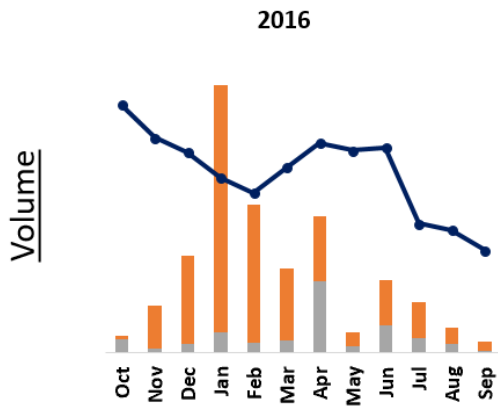
The above graphs show volume as it relates to contracted price by contract type. While there is some Mild to moderate level of correlation, overall the graphs do not suggest that the two are thoroughly related.

Region: Price vs Volume per Crop Year





In the above graphs, we see that prices are higher in places where there is more volume. This is an important revelation, given that InBev would prefer the exact opposite. Thus, I am recommending that InBev reevaluate their pricing strategy in areas with higher production.



The above graphs show the date on which the floor and basis contracts were priced. There are several key takeaways that are worth mentioning. First, there is a decent correlation between the MGEX and the actual price, which suggests that farmers do pay attention to the market. Second, farmers tend to price the most volume toward the beginning of the year. This would suggest that farmers do not like to wait too long for fear of running out of time.

Conclusions

Both the volume and price analysis provide insight in answering what cause a farmer to decide use one contract over the other. The below list sums this up:

Summary of Key Takeaways

Volume

1. The majority of farmers use fixed contracts
2. A small number of producers are responsible for the majority volume of all three contract types
3. A Large percentage of Basis and Floor contracts are used in conjunction with Fixed contracts
4. An overwhelming majority of Floor contracts are used with 2 Row irrigated fields, and are predominately produced in Region W
5. The majority of Basis contracts are produced in Region W

Price

6. Mild to moderate level of correlation between contracted price and volume.
7. Contract Price tends to vary with region where regions that produce less have lower prices and vice versa.
8. Farmers tend to price the most volume in the fall
9. Some correlation between MGEX and PO date
10. Some Correlation between MGEX and pricing date

Recommendations

There are 4 key recommendations from the above analysis. First, floor bid price should consider factors affecting two row crops and irrigation techniques in region W. As we saw from the graphs above, the market price does affect the volume that farmers price, which makes such further analysis valuable to InBev.

Second, dropping floor and basis contracts could have serious consequences given that a large portion of them are used in conjunction with fixed contracts. In the context of pricing strategies, farmers are using fixed and floor contracts together as well as fixed and basis. Thus, there is a complex system that must be further explored before making any sweeping changes.

Third, Regional pricing strategy should be re-evaluated to maximize cost savings. As suggested above, the highest prices occur in the areas with highest production. This, of course, is not favorable to InBev and should be looked at closer.

Fourth, InBev should re-evaluate the contracting window. Given that around 65% of their contracts are fixed, and that market prices are the highest in the fall, it makes more sense to put the contracting window in the summer to maximize cost savings.

Bibliography

*All data for this project comes from a proprietary data base provided by AB InBev. Key numbers have been taken out of the presentation.