Quick Service Restaurant (QSR) Sales Performance Analysis

Part 1- Introduction and Investing Thesis:

Dear Management Partners:

Thank you for providing the data and direction on the analysis. The dataset was quite extensive, as it contained 7.9M line items from the customers and nearly 3.5M unique orders from over 200K customers. Unfortunately the dataset was missing 2023 data but I still have a lot of analysis to provide.

To provide a restaurant investment recommendation, I have developed an equally weighted 5 criteria scoring algorithm. Using these criteria, we can create a comprehensive scoring mechanism that looks at a restaurant holistically and emphasizes our company's investing principles. Our company investing thesis, taken from our company website, is attached below.

"We seek to invest in well-positioned companies with operational and strategic improvement potential and partner with management teams to create sustainable value through revenue and earnings growth."

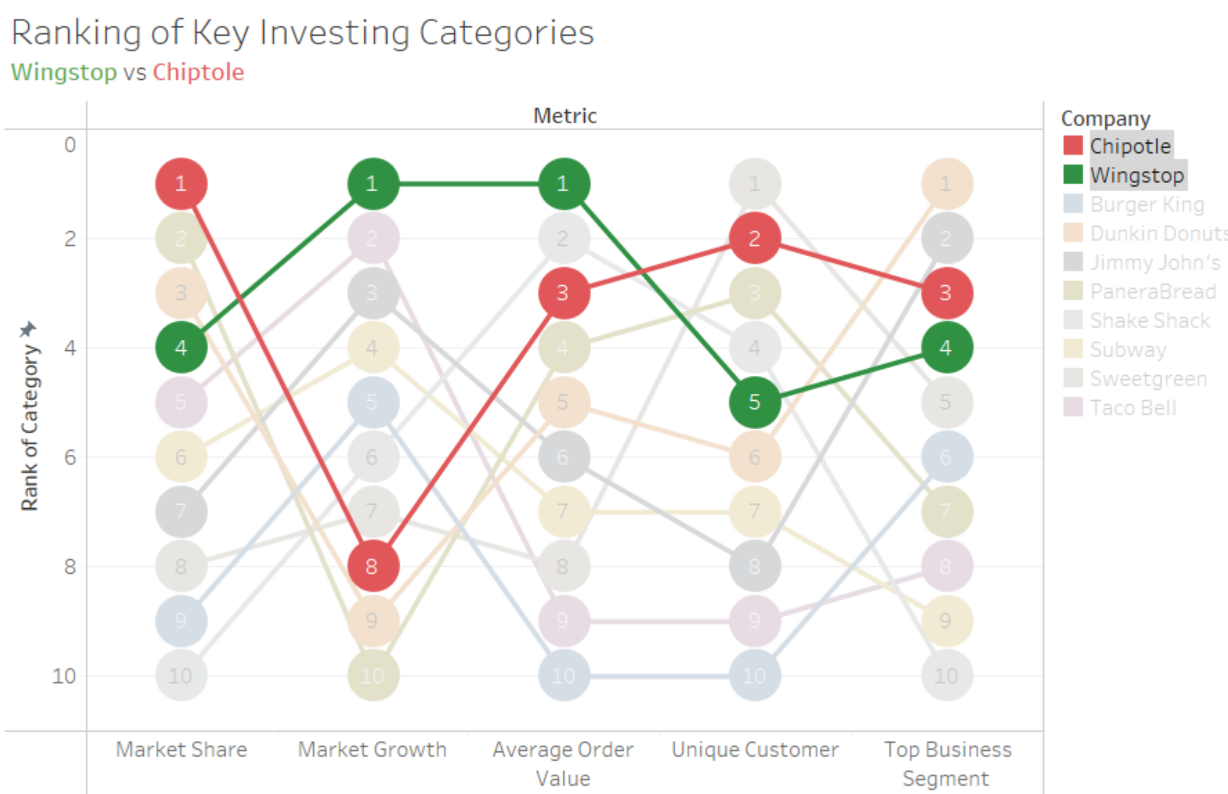
Below are the five equally weighted components:

1. **Market Share (20%):** The market share metric is crucial for evaluating earnings growth potential. A higher market share indicates a stronger position within the industry, which can lead to increased revenue and profitability.
2. **Growth in Market Share (20%):** While the restaurant industry may not be known for high growth rates, it is important to invest in a team that is outpacing its competitors. Assessing the growth in market share allows us to gauge the company's ability to capture a larger portion of the market, indicating its competitive advantage.
3. **Average Order Value (20%):** Larger orders are typically associated with higher profit margins, assuming similar fixed costs across restaurants. By considering the average order value, we can assess the potential for generating higher profits and overall financial performance.
4. **Cohort Analysis in Top Business Segment (20%):** To ensure sustainable growth, it is crucial to examine the company's ability to retain customers in its most successful markets. Conducting a cohort analysis in the top business segment helps evaluate customer loyalty and the company's effectiveness in expanding into new markets.
5. **Unique Customers (20%):** Acquiring and retaining unique customers is an essential aspect of building a well-positioned company. By focusing on unique customers, we can assess the company's ability to differentiate itself from competitors and establish a sustainable moat.

Each category was scored by a likert ranking system, and could receive a maximum of twenty points per category. The best restaurant in the category would receive 20 points for the category, and the second best restaurant would receive 18, etc.

I understand the importance of your time. Therefore, I will begin with the bottom line upfront approach: **I recommend investing in Wingstop**. This recommendation is primarily driven by two key factors in the scoring algorithm: Wingstop's recent surge in market share and its high average order volume.

Wingstop has demonstrated impressive growth in market share, surpassing its competitors and solidifying its position in the industry. This indicates a strong potential for increased revenue and profitability. Additionally, Wingstop boasts a consistently high average order volume, implying the possibility of higher profit margins compared to its peers.



Graph made with Tableau

In the scoring algorithm, Wingstop narrowly edged out Chipotle. Chipotle, the market leader, exhibited strong scores across the board, besides a decreasing market share. Moreover, our team is likely to pay a premium on Chipotle as it is the market leader, further strengthening Wingstop's case. The scoring algorithm can be tinkered with and we can weight the criteria that's important to you. Please see the sheet ("Scoring Algorithm") to play around with at your convenience.

During the rest of the letter, I will share with you my insights, visualizations, and answers to your market analysis. The rest of this letter is structured as a direct response to your previous email and it follows the same cadence. There is a supplemental excel file and code to aid this writeup per request. At the end, I additionally included Tableau visualizations and even began to develop a machine learning algorithm to predict 6 month customer retention (I ended up not getting very far). Thanks in advance!

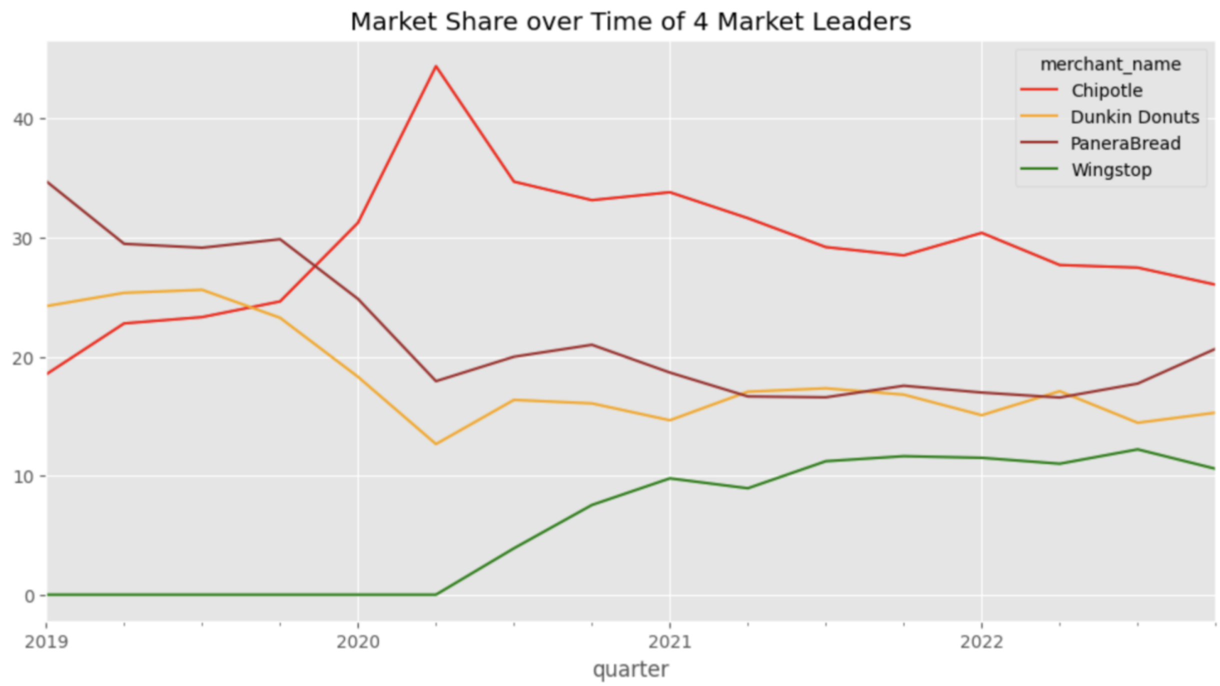
Part 2 - Overall Metrics:

At a high level, here are the market leaders.

1. Average Order Value ($): **Wingstop**
2. Median Order Value ($) : **Wingstop**
3. Revenue Market Share (%) : **Chipotle**
4. Order Volume Market Share (%): **Chipotle**
5. Number of Orders (#): **Chipotle**
6. Number of Customers (#): **Chipotle**

We can see there are two primary candidates from the onset. Chipotle seems to be the clear market leader, leading in metrics that indicate market share. Wingstop, on the other hand, leads in average order value. I am operating under the assumption that high average order value is equal to high profitability. A high order value is beneficial for profit because it allows businesses to maximize revenue per transaction, potentially covering fixed costs and generating higher margins.

We now transition to two of our 5 key criteria, namely Revenue Market Share and Revenue Market Share Growth. Revenue Market Share was prioritized as it ensures stable cash flows and a strong position in the market.



Graph made with matplotlib

1: Market Share (20%) In the plot above, we see the graph of the four market leaders. Chipotle still has a steady market position over time over the past few years, while increasing in the past 12 months. Panera and Dunkin each lost market share from earlier periods but have maintained a prominent position, seeing stabilized or even growing market share in the LTM. Wingstop has seen a huge increase in growth in recent years.

2: Growth of Market Share (20%): This metric calculates the average market share over each period dating back to 2019 and subtracts it from the previous year's market share. In general, this metric is trying to answer the following question: "Is the restaurant better or worse than it was a few years ago?". Given that the restaurant business is not necessarily seen as a high growth, the ability to grow underscores the potential of a brand's future earnings potential.
For a more detailed breakdown, see columns T,U on the "Overall" tab in the excel sheet.

Change in Market Share Over Time			
Company	'19-'22 Market Share	LTM Market Share	Change
Burger King	2.1%	2.6%	0.5%
Chipotle	29.2%	27.9%	-1.3%
Dunkin Donuts	18.1%	15.5%	-2.6%

Jimmy John's	4.8%	5.8%	1.0%
PaneraBread	21.8%	18.0%	-3.8%
Shake Shack	2.7%	2.3%	-0.4%
Subway	5.2%	6.0%	0.8%
Sweetgreen	5.6%	4.6%	-1.0%
Taco Bell	4.8%	6.0%	1.2%
Wingstop	9.8%	11.3%	1.5%

3: Average Order Value (20%): Fixed costs in the restaurant business refer to expenses that do not vary with the level of production or sales, such as rent, utilities, insurance, etc. These costs remain relatively constant regardless of the number of customers served. Our assumption is that most restaurants have a similar fixed cost structure, due to the consistent price of cooking machinery and leasing fees. Therefore, the best way to increase profitability is to increase average order size because it ensures minimal unused produce and it also decreases administrative time of the company's workers (ie serving customers and processing orders).

Graph made with Excel

The graph shows Wingstop has a much larger average order value than its peers, which is likely a good barometer that the company has high margins. Chipotle and Panera are each above the market in average order cost as well.

Part 3 - State Revenue Market Share:

Which competitor is the leader in each state?

1. California: **Chipotle**
2. New York: **Dunkin Donuts**
3. Texas: **Chipotle**
4. New Jersey: **Dunkin Donuts**
5. Florida: **Chipotle**
6. Pennsylvania: **Dunkin Donuts**
7. Colorado: **Chipotle**
8. New Hampshire: **Dunkin Donuts**
9. Iowa: **Jimmy John's**
10. Wyoming: **Jimmy John's**

The above list provides a solid insight on the ins and outs of the restaurant business. Most restaurants largely have regional footprints, as indicated by the prominence of Dunkin Donuts in the Northeast and Jimmy John's in the middle of America. Restaurants likely have a hard time scaling beyond its primary region due to high fixed costs, access to produce, and other barriers to entry. Chipotle's ability to dominate market share in all corners of the country relative to its competitors underscores its moat.

For each competitor, in which state do they have the highest market share?

1. Burger King: New York
2. Chipotle: Colorado
3. Dunkin Donuts: New Hampshire
4. Jimmy John's: Wyoming
5. PaneraBread: Pennsylvania
6. Shake Shack: New York
7. Subway: Wyoming
8. Sweetgreen: New York
9. Taco Bell: California
10. Wingstop: Texas

We can see that the Northeast is a largely saturated market as 5/10 competitors have its largest market share in a Northeastern state. Therefore, a lot of time and resources are allocated to competing in the Northeast. On the contrary, Wingstop has an outsized position in the southern and western states, namely Texas and California. This provides an infrastructure to gain market share over competitors in the two largest markets.

Part 4 - Income Bracket Market Share:

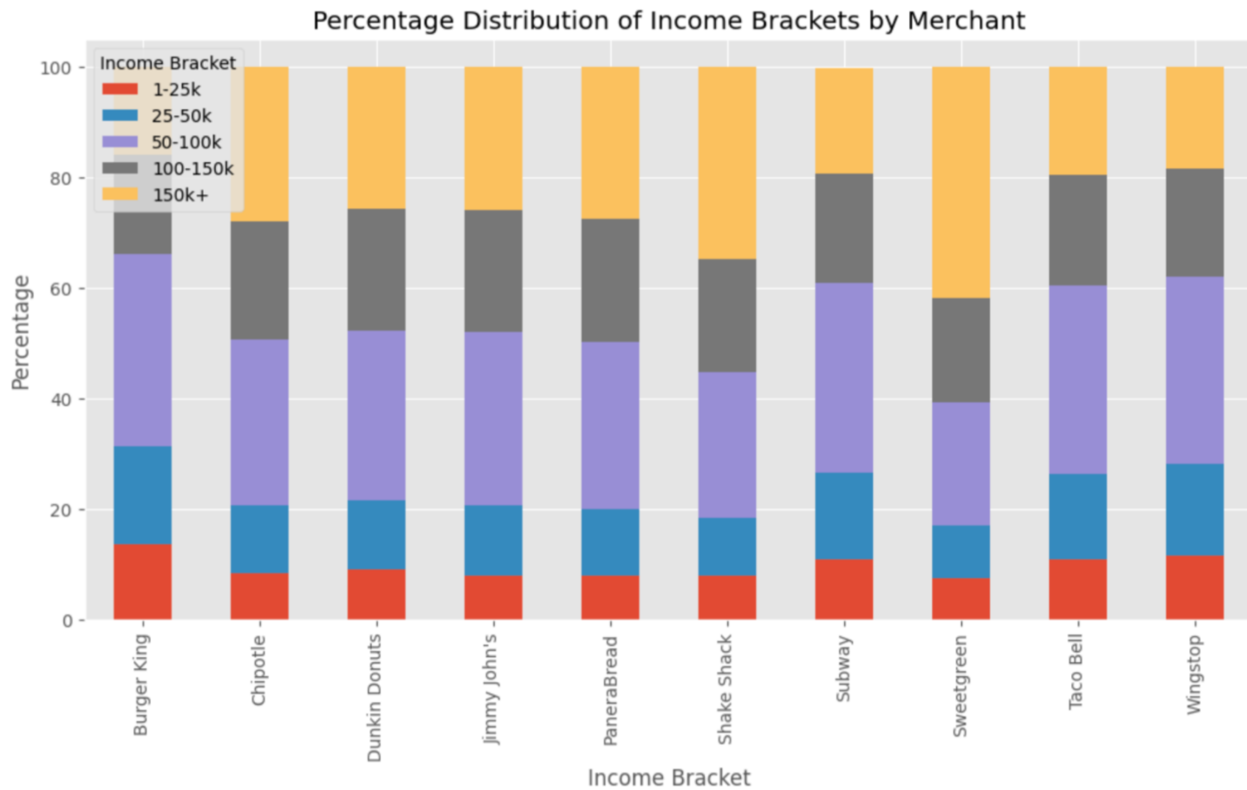
Which competitor is the leader among each income bracket?

1. 1-25k: **Chipotle**
2. 25-50k: **Chipotle**
3. 50-100k: **Chipotle**
4. 100-150k: **Chipotle**
5. 150k+: **Chipotle**

Chipotle is still the preeminent leader in the space, and the company's ability to attract and retain members of all income levels is impressive.

What is the distribution of customers by income bracket for each competitor?

Restaurant	1-25k	25-50k	50-100k	100-150k	150k+
Burger King	13.7%	17.6%	34.8%	18%	15.9%
Chipotle	8.5%	12.3%	29.9%	21.5%	27.8%
Dunkin Donuts	9%	12.7%	30.6%	22%	25.8%
Jimmy John's	7.9%	12.9%	31.4%	22%	25.9%
PaneraBread	7.9%	12%	30.3%	22.4%	27.4%
Shake Shack	8%	10.5%	26.3%	20.5%	34.7%
Subway	10.9%	15.6%	34.5%	19.8%	19.1%
Sweetgreen	7.6%	9.4%	22.4%	18.9%	41.7%
Taco Bell	10.8%	15.6%	34%	20.2%	19.4%
Wingstop	11.6%	16.6%	34%	19.4%	18.4%



Graph made with Matplotlib

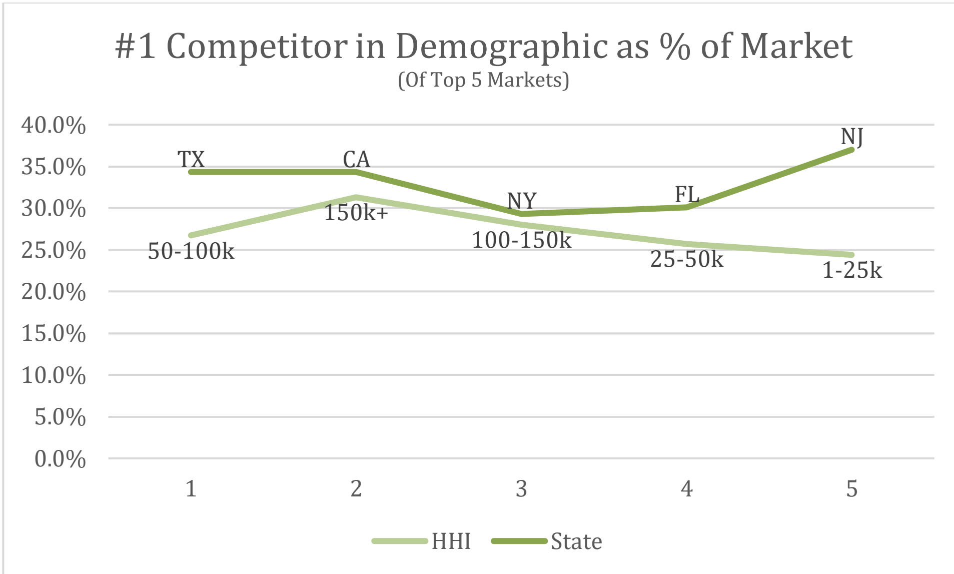
Although Wingstop has a high average order value, its average customer is not as affluent as its competitors. In the above graph, we want the stacked bar plot to have a lot of grey and yellow, the affluent customer bases. Affluent customers are the largest demographic by revenue as exemplified in our excel sheet (tab HHI Reveneue Market share). Moreover, the affluent customers tend to have higher propensity to spend, even during market down turns. Wingstop has some of the lowest rates of affluent customers. With a less affluent customer base and a high average order value, this may make it more difficult for the company to retain customers. If Advent were to invest in Wingstop, a strategic improvement would be to target more affluent customers.

Part 5 - Cohort Analysis:

We have included the new buyer cohort analysis as per request (see tab New Buyer Cohort on the excel). For the purposes of fluidity in writing, I merged the cohort analysis with our open analysis section.

I have pointed out a few regional trends of many restaurants. Companies like Jimmy John's and Dunkin Donuts had high regional presences. Moreover, while analyzing states, there seemed to be a trend that certain companies would have a large dominant position.

Comparing States to Income Brackets:



Graph made with Excel

When analyzing the #1 competitor of the 5 larges states vs. the 5 largest income brackets, the market leader in a state was consistently higher as a percentage of the population than the market leader in household income. Therefore, states/regions are highly penetrable relative to other demographic groups.

On top of the cohort analysis for the overall market, I then shifted to looking at the following criteria: *In the state with the largest market share for each given restaurant, what does the cohort analysis look like?* The thought process was twofold: if a restaurant is highly successful in attaining retention in its current key market, then it likely has a steady cashflow moving forward. In addition, if the competitor has a high cohort metrics in its largest state, we can begin to expand into bordering states that might share similar preferences.

My goal was to average the columns over a period. As an example, all of period 1 values were averaged into one score for period 1. After that, I compiled an equally weighted average retention dating back 18 months, or 6 periods. 6 months was used as a cutoff because it feels just long enough out to not be random buying patterns. It also shows systemic buying patterns for its customer base. In the table below, column 1 indicates the retention of customers from the first period to the second period. The table is sorted from highest to lowest based on the company average, the right most column. Dunkin Donuts, the highest performing customer, averages 51.9% retention over the 6 periods in New Jersey.*

**companies with small states as its largest market share were omitted due to sample size. A larger state was used*

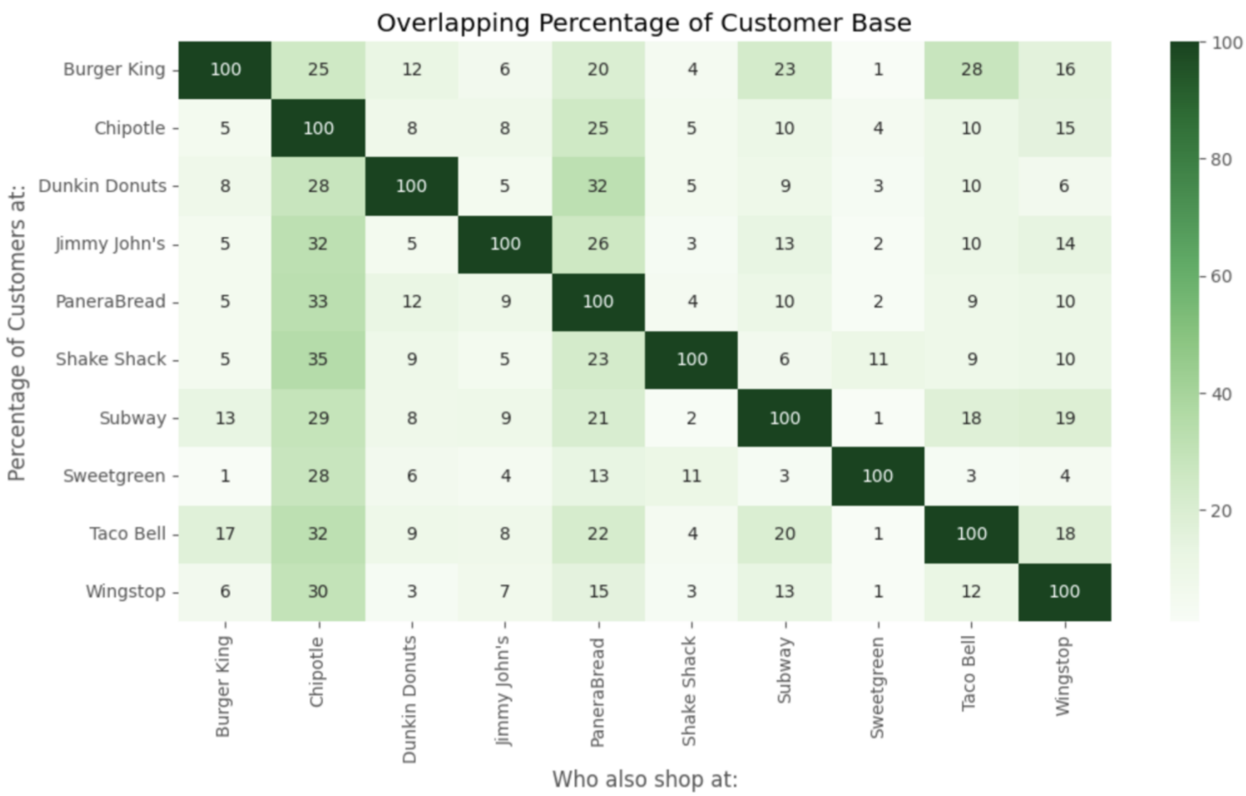
4: Cohort Analysis in Top Business Segment *(20%)*

Company	State	1	2	3	4	5	6	Average
Dunkin Donuts	NJ	59.2%	53.1%	51.4%	49.8%	47.9%	49.7%	51.9%
Jimmy John's	CO	34.5%	30.9%	31.6%	31.3%	30.4%	30.0%	31.5%
Chipotle	CO	35.0%	32.1%	30.1%	29.9%	29.5%	28.5%	30.9%
Wingstop	TX	32.3%	30.0%	29.4%	30.2%	30.0%	30.0%	30.3%
Sweetgreen	NY	39.7%	31.5%	28.2%	25.3%	25.5%	25.4%	29.3%
Burger King	NY	35.3%	31.0%	27.9%	28.5%	26.2%	26.3%	29.2%
PaneraBread	PA	30.3%	25.8%	25.0%	25.9%	24.9%	23.6%	25.9%
Taco Bell	CA	32.3%	26.4%	25.6%	24.2%	23.1%	22.6%	25.7%
Subway	CA	30.8%	23.8%	21.9%	20.0%	18.7%	17.7%	22.2%
Shake Shack	NY	21.1%	17.5%	16.3%	15.1%	14.3%	12.5%	16.1%
Average		35.1%	30.2%	28.7%	28.0%	27.1%	26.6%	29.3%

For Chipotle, Chipotle consistently outperforms the average benchmark (seen on the bottom row), which further emphasizes its brand loyalty. Wingstop, interestingly, underperforms its first couple of periods and then maintains strong averages towards the latter half of the cycle. This may be because of the primary customer's lower income and additional high average order cost. Therefore, the customers might not come immediately after going to Wingstop because it is expensive. However, the customer may return down the line for a special occasion. The spike from period 3 to period 4 indicates there might be some seasonality in the retention for Wingstop. Since 4 periods indicates a full year, customers might come for an annual event, such as the Super Bowl or a birthday party. In a future analysis, we can conduct an ARIMA time series model to analyze seasonal trends.

Part 6 - Customer Overlap:

Which competitor is doing the "best" at cultivating/maintaining an exclusive customer base?



See the attached matrix plot. We can see here that every customer of a Chipotle competitor loves going to Chipotle. This chart is largely correlated with customer market share since we look at the percentage of customers which overlap. If store A has more customers than store B, then the percentage will be lower for Store A because there are the same # of overlap customers but the percentage of store A's customer base will be smaller.

For Wingstop, we notice that Sweetgreen and Shake Shack have small overlaps. Sweetgreen and Shake Shack's customer demographics are some of the strongest in the 150k+ income bracket per the chart in the previous section. Should we invest in Sweetgreen, there is a huge market to tap into: affluent customers.

5: Unique Customer Percentage (20%) (Open Analysis part 2)

		2019	2020	2021	2022	2019-2022
% of Exclusive Customers	Part A/ Part B: Exclusivity Percentage% of Exclusive Customers					
	Sweetgreen	71.7%	57.8%	51.3%	52.6%	57.0%
	Chipotle	61.8%	52.7%	44.5%	42.2%	48.3%
	PaneraBread	65.7%	47.6%	40.3%	41.2%	47.2%
	Wingstop		49.2%	46.5%	45.3%	46.4%
	Dunkin Donuts	58.9%	42.3%	38.3%	39.2%	43.5%

	Shake Shack	56.7%	43.1%	37.2%	35.4%	41.1%
	Subway	57.9%	45.7%	35.7%	34.2%	40.1%
	Jimmy John's	58.8%	40.3%	35.7%	36.2%	39.8%
	Taco Bell	55.0%	34.5%	28.5%	29.2%	33.1%
	Burger King	54.3%	38.0%	30.5%	30.3%	32.9%

Unique customers are important to a business as it provides brand loyalty. This positive feedback loop strengthens the moat by making it harder for competitors to attract customers with strong brand loyalty.

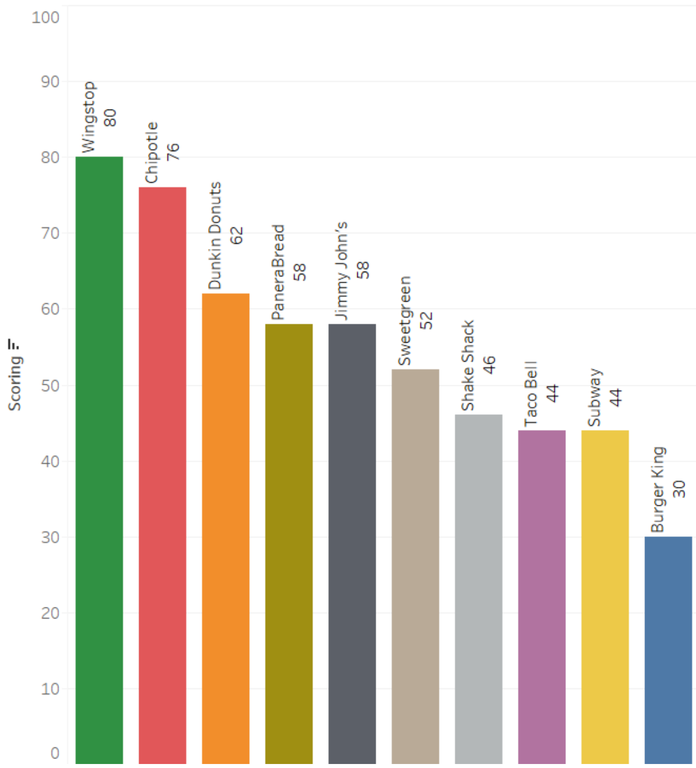
Chipotle has a strong network of customers but has seen a precipitous dip over the past few years. Wingstop, meanwhile, has shown consistently strong numbers.

Part 7 - Overall Scoring Weights

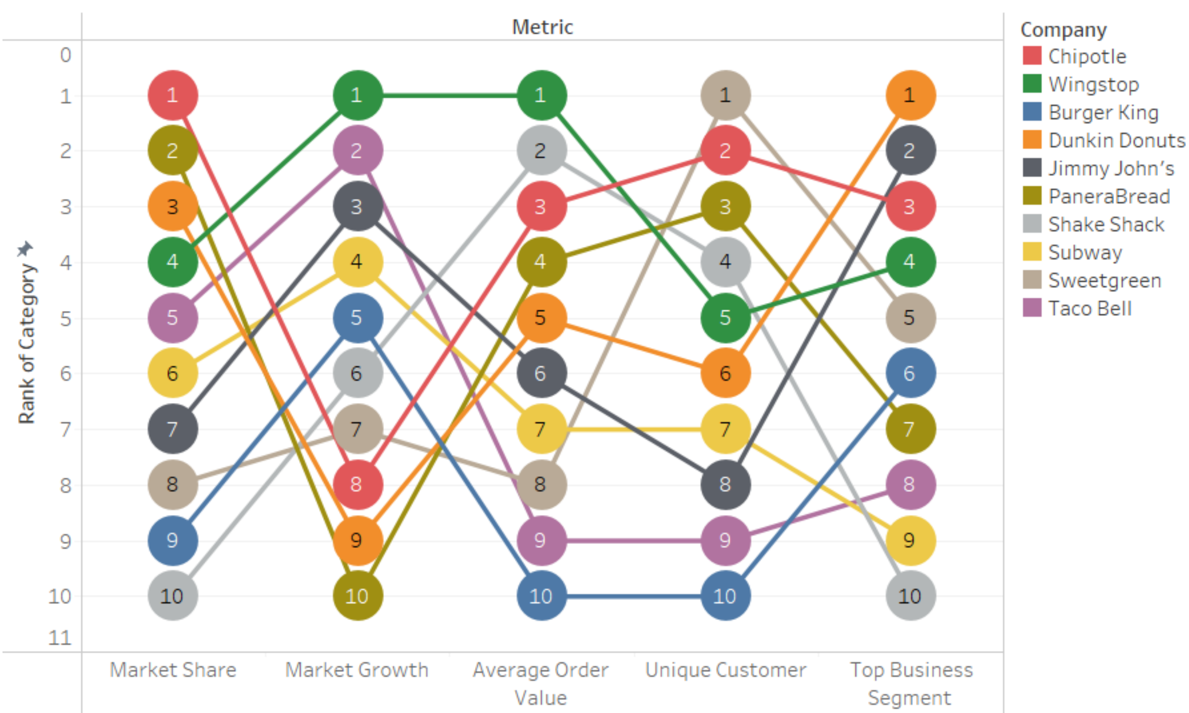
I reiterate our 5 key scoring metrics based on investing principles

1. **Market Share (20%):**
2. **Growth in Market Share (20%):**
3. **Average Order Value (20%):**
4. **Cohort Analysis in Top Business Segment (20%):**
5. **Unique Customers (20%):**

Total Scoring (out of 100)



Ranking of Key Investing Categories



The scoring between Chipotle and Wingstop is extremely close, but ultimately I chose Wingstop as highlighted by its recent market growth. The scoring algorithm can be tinkered with, and we can weight the criteria that's important to you. Please see the sheet ("Scoring Algorithm") to play around with at your convenience.

Insights for Wingstop to maximze growth and profits:

- Focus on market penetration on key states (TX,CA)
- Offer promotions to customers to develop stronger cohort analysis in earlier periods
- Derive variety in menu to attract affluent customers

Thank you for your time!

Best,
Noah