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# Cboe Global Markets: Strategic Audit

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# Cboe Global Markets: Strategic Audit

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# Abstract

This thesis fulfills the requirement for the strategic audit in MNGT 475H/RAIK 476. It provides in depth analysis of Cboe and its competitors, with particular attention given to comparing net income, market cap, and share price. Informed by this analysis, there is discussion of Cboe's acquisition of BATS, which appears to have had the best impact on share price of any decision made by an exchange operator in the last 5 years. Finally, this thesis provides a strategy recommendation for Cboe moving forward.

**Keywords:** strategy, cboe, ice, nyse, nasdaq, exchange operator

# Background

## Securities Trading

Cboe Global Markets is an exchange operator. Exchanges are a well-regulated place for market participants to exchange securities. Exchanges are subject to oversight of both the SEC and “Self-Regulating Organizations” or SROs. SROs are funded and staffed by the exchange, yet don’t interact with employees who run the exchange to help protect from conflicts of interest.

These Investopedia provides a layman’s definition of securities as “a fungible, negotiable financial investment that holds some type of monetary value” (Kenton). In the case of Cboe, a variety of securities get traded.

### Options

Cboe has 4 exchanges which facilitate options trading (Cboe Global Markets). Options give investors the ability to buy or sell a stock at a specific price at a future time specified in the options contract. These securities can be used to help hedge risks to other assets which the investor holds. For example, the VIX is a proprietary Cboe product which measures market volatility. An investor could hedge their equity holdings by purchasing a call option on the VIX. That way, if the market crashes (and the VIX spikes), the investor could exercise the VIX option below the market rate and profit from the increased volatility. The gains from exercising the option would help to offset the losses from the underlying equity holdings. This can help ensure that investors can meet certain earnings thresholds and minimize their losses.

### U.S. Equities

Cboe operates 4 exchanges which trade U.S. Equities (Cboe Global Markets). These securities represent an ownership interest in a US corporation. In 2018, Cboe conducted $1,400,000,000 in average daily volume for equity trades (Cboe Global Markets). This volume includes both shares of individual companies, and ETFs which combine many companies.

### Futures

Cboe has one futures exchange, CFE (Cboe Global Markets). Futures operate similarly to options. However, these securities require that the purchase or sale of an asset occurs, rather than simply giving the option to. Investors have opportunities to purchase futures on the VIX just as they can purchase options. It is useful to note that futures have a much smaller average daily value of $300,000 compared to $7,900,000 for options.

### International Exchanges

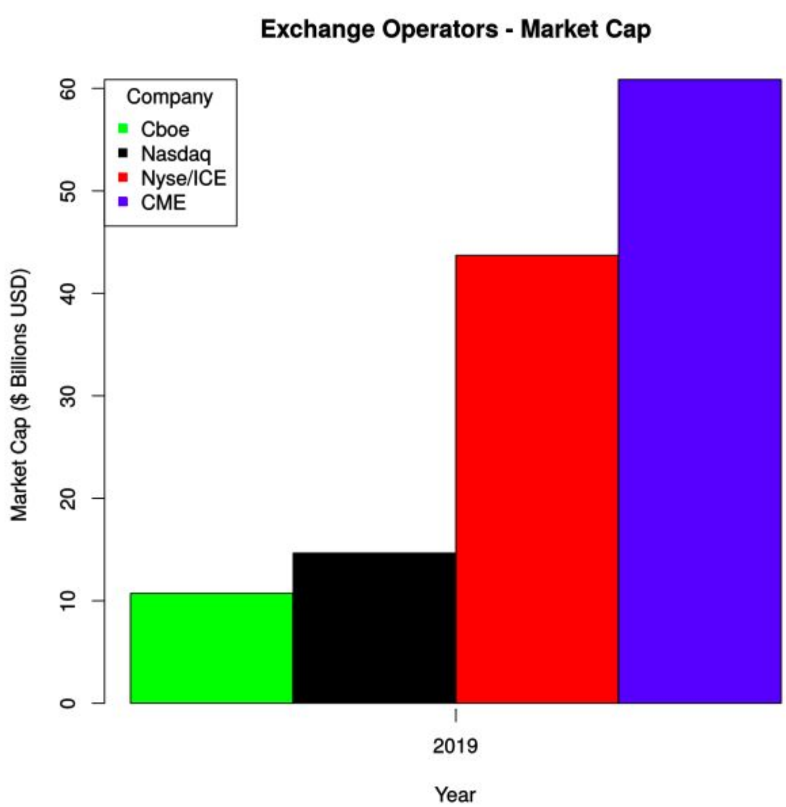
In addition to operating exchanges in the US, Cboe has equities markets in Europe and a Foreign Exchange market. These markets could help Cboe hedge risks to economic downturn in the US which does not spread to the rest of the world.

# Situation Analysis

## External

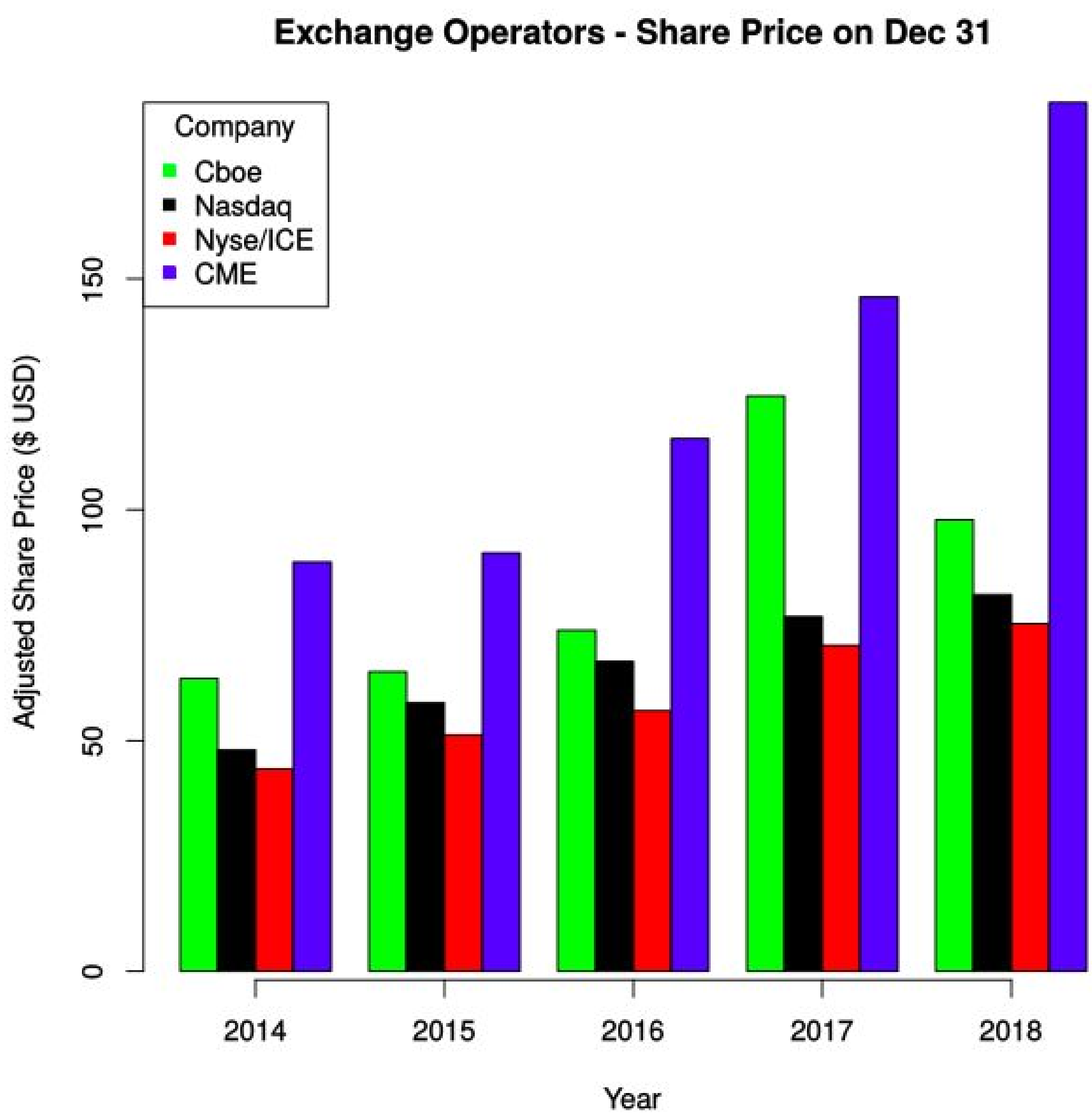
### Competitors

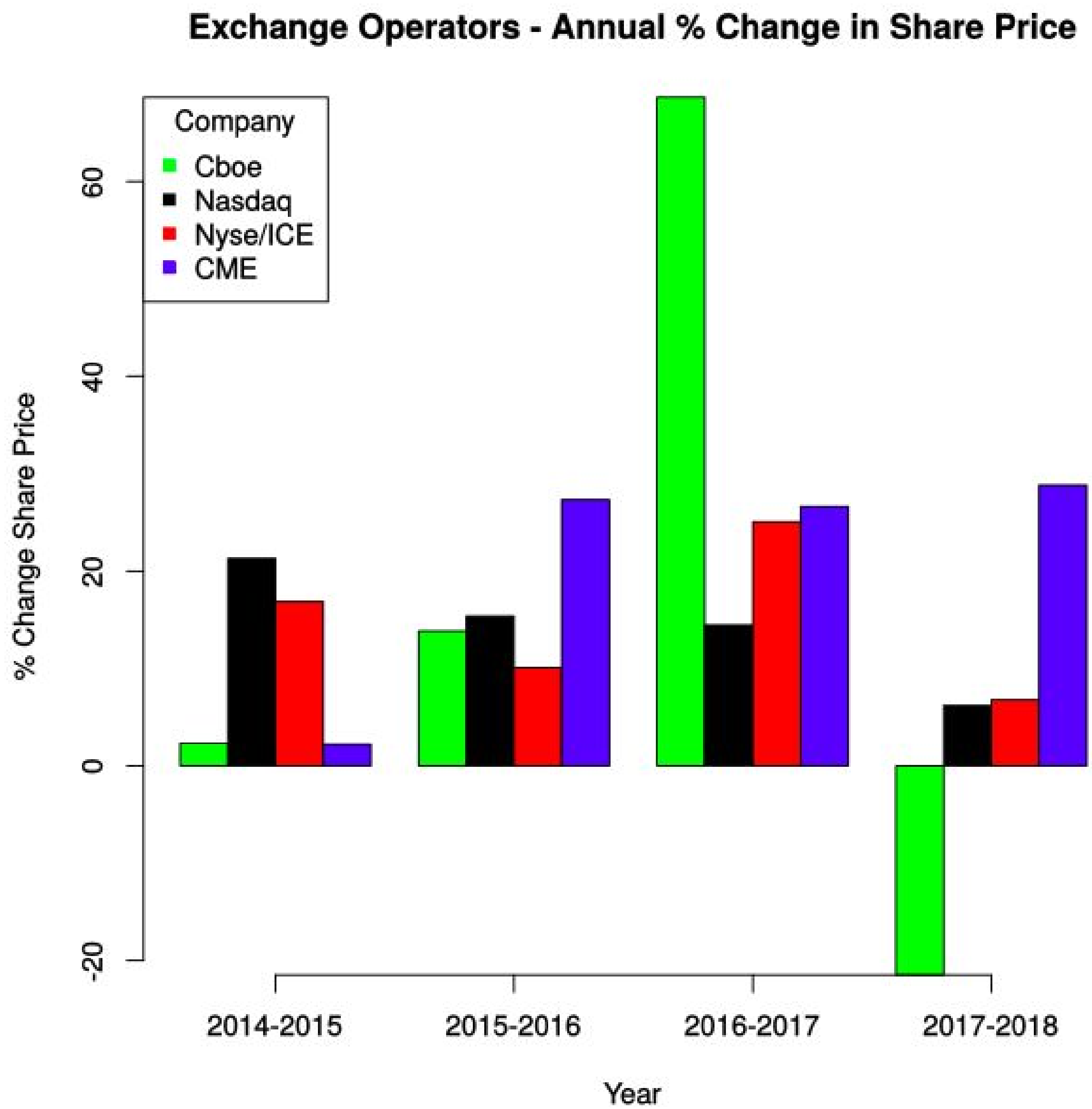
Cboe competes principally with the other three largest exchange operators in the US. Intercontinental Exchanges (ICE) which operates the New York Stock Exchange and NASDAQ are large equity players. On the other hand, CME trades futures and options on commodities. The following chart shows their respective market caps based on data from marketwatch.com (MarketWatch).



As visible from the graph, CME and ICE are huge, established players. While Cboe has the most diversified set of exchanges, the other players are doing very well financially. Any strategy decisions must be informed by the fact that Cboe is relatively small compared with the largest exchange operators.

While the chart shows Cboe is not the dominant player in the market, that does not mean they have not made some good decisions over the last few years. Here is a chart of each exchanges' stock price on the last day of trading in each of the last 5 years.

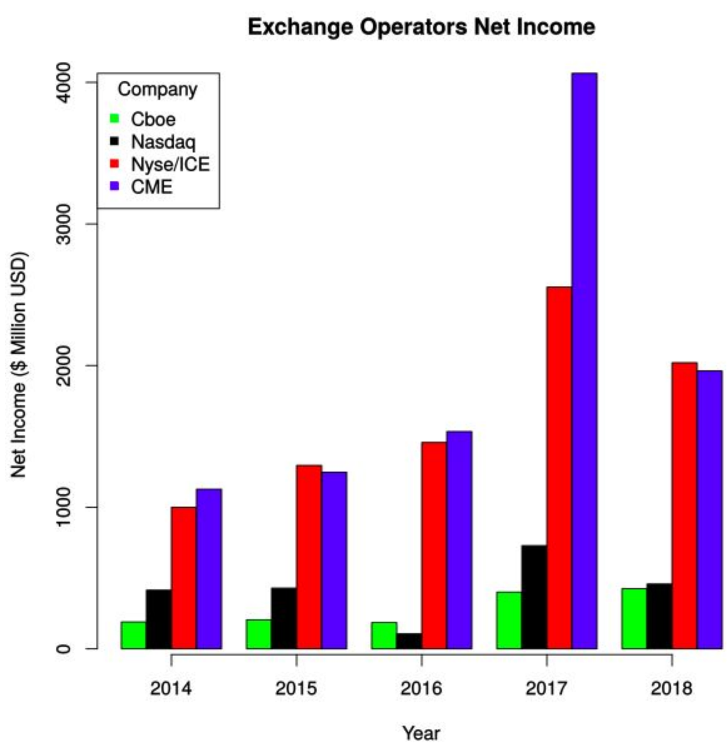


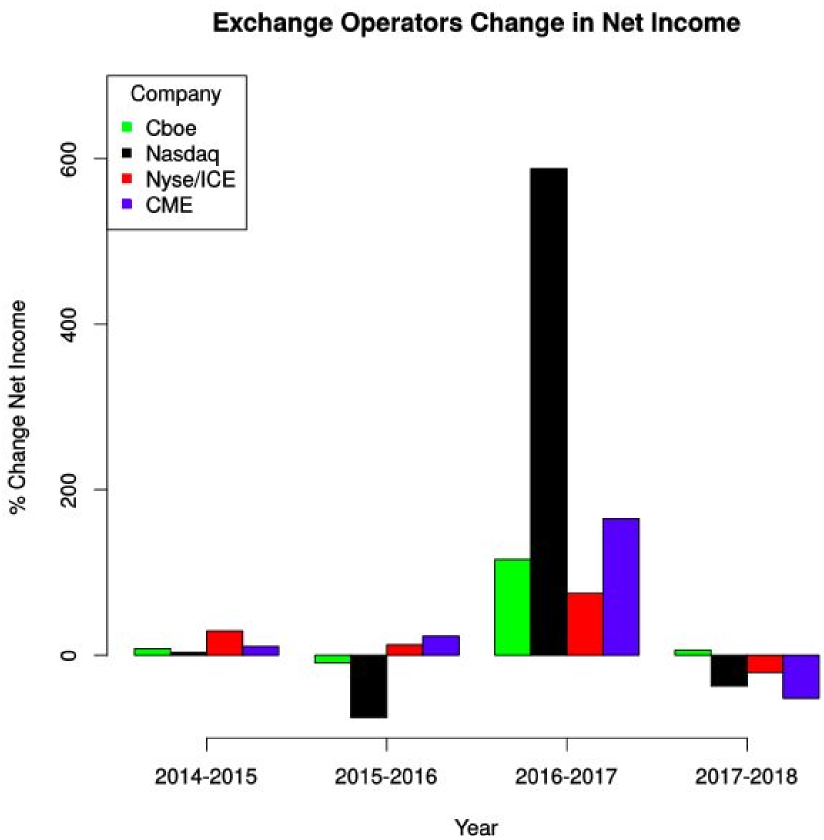



These charts indicate that Cboe's late 2016 acquisition of BATS was viewed very favorably by the market. Arguably, that move was the best decision any exchange has made in the last 5 years. That indicates that another acquisition, would possibly help Cboe gain a competitive edge against the larger players. Furthermore, it would indicate that Cboe could possibly entertain the idea of a merger with NASDAQ, if such a merger could produce outsized returns for both companies.

Interestingly, Cboe had the worst 2018 share performance of all of the big exchange operators. This could be seen as a correction for 'overhyping' the acquisition. However, an early hiccup in volatilities securities may have caused that decline in share price. Companies in early 2018 had come up with an inverse VIX security called the XIV. Essentially, purchasing the XIV is a bet against volatility. However, the VIX is not really meant to be an asset. Afterall, it is an index which is meant to revert to its mean. Unfortunately, since the markets were calm for an extended period of time, betting against volatility seemed like a good idea to people. Unfortunately, a day which happened to have high volatility caused XIV holdings to plummet. The resulting market turmoil further fed volatility, which caused the XIV to lose 80% of its value (Franck). While Cboe did not issue those notes, they were benefiting from those securities' purchases of VIX futures. Ultimately, the Credit Suisse's decision to stop issuing the XIV resulted in decreased revenue for Cboe, even though those revenues came from improperly trading the VIX. While this did not have an outsized effect on Cboe's earnings, it did harm brand perception which likely caused the dip in market cap.

Luckily for Cboe, that 2018 stock performance did not have a adverse impact on the company's net income. The following graphs are based on each company's net income.






Cboe was actually the only exchange to increase net income from 2017 to 2018. NASDAQ's huge changes in net income comes from it's acquisition of International Stock Exchange in 2016 (Langton). NASDAQ probably used different accounting than Cboe which resulted in more variability. However, while this acquisition did improve net income for NASDAQ, the change in share price indicates that the market did not respond as favorably to NASDAQ's acquisition as Cboe's. This lackluster response should inform any strategy recommendations involving acquisition.

# PEST

## Political

In addition to competitors, Cboe has a variety of external factors impacting its business. Politically, Cboe has oversight from the SEC. Cboe has to juggle respecting the regulations with pushing back on onerous ones. Recently, Cboe and other exchange operators successfully pressured the SEC to cancel a pilot fee program (McCrank). While this may represent a win for the operators, they cannot afford to cause too much uproar.

High Frequency Trading has recently become a scapegoat for the general public. Michael Lewis's 'The Flash Boys' provided a lashing for exchange operators and HFT firms; and served to advertise the new IEX exchange as the solution for all market woes[1] (Lewis). Since then, HFT (and trading in general) has become something of a boogie man in certain circles. For example, Senator Bernie Sanders has proposed a .5% tax on every equity trade in order to create free public university tuition, in addition to smaller taxes on options and derivatives (Sanders). This bill figures that it could cover two thirds of current college tuition given no increase in enrollment and no decrease in the volume of trades conducted. Unfortunately, for both Senator Sanders and exchange operators, such a move would likely decrease the volume of trading on the market since any trade would need to be viewed as .5% more profitable in order to make economic sense. So not only would exchanges probably lose money, but Sanders would not get the amount of money he expects. Further, less liquidity is almost universally better for HFT firms. HFT often exploit the gap when a trade is too large to fill on just one exchange. They can respond to large orders in one exchange before the full order hits other exchanges. This results in a more consistent price nationally. Lower volume means less liquidity and a greater number of trades which get filled in multiple exchanges. Exchanges would do well to manage new legislation which could harm the entire industry.

### Economic

In addition to political factors, macroeconomic forces affect Cboe. More trading always helps exchange operators. In addition, Cboe benefits from any trading on its VIX index. So trading and volatility really help Cboe's bottom line. Lately, the market has been reasonably calm for a long time. However, with the yield curve recently inverted and a long time since the last recession, another could be coming soon (Chappatta). This may or may not benefit Cboe. The other exchanges have generally been hurt during the recessions.

However, increased trading on the VIX could possibly make up for these losses. Even if Cboe didn't come out ahead after a recession, coming out less behind could provide an advantage over other exchanges. Unfortunately, Cboe did not go public until after the most recent recession, so one cannot learn how well they faired last time.

### Social

Social factors don't really affect Cboe too much. Most retail investors are one step removed from the exchanges. They trade through broker-dealers (TD Ameritrade, E Trade, etc.) who ultimately place orders on the exchanges. The most common way that ordinary folks would get involved with Cboe would be through purchasing ETFs which get listed on Cboe's exchanges.

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[1] IEX's claim to fame is connecting to other exchanges using equally long, fiber optic cord. Hypothetically, if HFT firms were extracting a large amount of value from speed arbitrage between exchanges, this technique would make their gains impossible. However, IEX has failed to claim a substantial portion of the equities market 7 years later. Further, if the HFT industry is as bad as Lewis makes them out to be, then IEX would no longer provide the advantage they claim they do.

With the recent trend away from stock picking and towards ETFs, Cboe could see more holdings of securities they issue. However, this will likely have a marginal impact at the end of the day compared to the volume from large, institutional investors.

### Technological

Once upon a time, exchanges operated completely analog. Open outcry pits dominated securities trading. As time went by, technological innovations were slowly integrated into existing systems. BATS was founded after these innovations as an 'electronic only' exchange. By recruiting top technical talent, and not needing to maintain legacy systems BATS was able to create a superior technical product. While 'superior' may not seem to mean much, it results in faster exchanges and less cost to maintain over time. Cboe's acquisition of BATS allowed them to take advantage of the founding of BATS timing.

Aside from that, there have not been too many extreme technological changes affecting exchange operators. One notable innovation, Bitcoin, briefly had some effect on exchanges. Cboe was the first exchange to offer futures on Bitcoin. However, Cboe will discontinue those contracts in the near future. CME will still trade those futures, but after the Bitcoin bubble popped, many people exited the market and liquidity dropped. While that adjustment is probably better for the long term sustainability of Bitcoin, it will remain on the fringes of more conventional finance for some time now.

## Porter's Five Forces

### Power of Buyers

Technically, a broker-dealer could choose to trade on any exchange they want. However, due to a need for liquidity and regulations involving providing a good price to trade for your client, broker-dealers often end up having to trade on a variety of exchanges. Due to this, buyers don't have tons of power.

While there are not many non-exchange options, switching between exchanges is extremely easy. Most exchanges use similar order types and going from one to another does not constitute a huge cost.

### Power of Suppliers

The exchanges have a small number of inputs. Principly, labor, commodity computer hardware, and external software. Commodity computer hardware largely does not cost a ton. While Cboe does not have a ton of influence in the cost, the market writ large causes prices to go down. Further, Moore's Law results in cheaper computers.

Cboe does not rely on a large amount of external software. The computers which developers use run open-source operating systems, which do not cost any money to use. Since it is not software specific to exchange operators, market forces make this software cheaper.

Labor at exchanges is fairly expensive. Developers with knowledge of the markets are very specialized, and could easily be poached by other financial firms. However, Cboe has two factors which help it retain developers.

Cboe's location in Lenexa, Kansas helps it retain developers. It is much more expensive and challenging to move from Lenexa to New York City or Chicago, than it is to simply change firms within the same city. Since Cboe is isolated from other exchanges and financial firms, it's developers are less likely to leave or get poached.

Furthermore, Cboe offers a laidback quality of life compared to other exchanges. Lenexa Kansas is a much cheaper place to purchase a home and raise a family. Anecdoteally, many employees work 40 hours a week or less. This way of life is a far cry from a more intense New York City Finance lifestyle. This work-life balance draws developers towards the exchange and reduces labor costs as a trade for slightly lower output.

### Power of Substitutes

In addition to public exchanges, some broker dealers operate 'dark pools' these are basically less regulated exchanges which don't list all trades on an ongoing basis. The advantage to institutional firms using dark pools is that they don't have to expose large buy or sell orders to the larger market. On the other hand, the opacity of these markets makes it harder to know if you are getting a good price on your trades. Further, such dark pools are subject to conflicts of interest. For example, if Goldman Sachs operates a dark pool and acts as a broker-dealer to that dark pool, then how do you know that trading on that pool will net you a fair price? If the Goldman Sachs prop desk is trading in that pool, will they get more preference and access than an outside trader?

Aside from dark pools, there are not many other great ways to trade securities in the US. In this sense, there is low power of substitutes.

### Ease of Entry

Exchanges can be challenging to create. They require a high degree of specialist knowledge regarding the market. They necessitate huge compliance costs in order to ensure that SEC regulations are in place. They require a huge degree of testing and technical investment before one can even think of turning a profit. Most necessitate expensive real estate for servers in downtown New York City or Chicago to get close to other exchanges.

All in all, there is a very high barrier to entry for new exchanges.

### Competitiveness

All things considered, the exchange industry is not a highly competitive market. This means that Cboe can focus on its core offering and profit without having to take huge risks. This is good news for Cboe and indicates that the company can enjoy a level of stability not found by many other technology and finance companies.

## Internal

### BATS Acquisition

Cboe acquired BATS global markets in 2017 for $3.2 billion (Reuters). As shown above, the market responded favorably to that acquisition. BATS was viewed as a market leader in technology. Having been founded as an electronic only alternative trading by former prop traders, BATS had fast, reliable and efficient trading systems.

On the other hand, Cboe had a variety of advantageous financial products and licenses. Cboe has the exclusive right  to sell options on the S&P 500 until 2033 (Cboe Global Markets). This deal also includes derivatives such as their VIX index (Cboe Global Markets).

Following the acquisition, Cboe decided to convert all of its exchanges to BATS technology. This integration has proceeded smoothly. The final, and largest, exchange will get transitioned October 7, 2019 (C1).

### Leadership

Oftentimes, acquisitions result in the larger company retaining more control. However, Cboe execs committed to allowing BATS talent to take up leadership positions. Immediately following the acquisition, Cboe made Chris Concannon, the former BATS CEO, the Chief Operation Officer (Cboe Leadership Team). Additionally, 3 other BATS alums took over top executive spots in the operation. Furthermore, Chris Concannon recently left, and Chris Isaacson (Raikes School Alumni and BATS co-founder) is filling his spot (Cboe Global Markets Press Release). Cboe’s humility in bringing BATS into the fold is commendable and has resulted in a smoother and more productive transition.

# Strategy Recommendation

## Metrics

As an exchange company, it seems fitting that the most important metric should be market capitalization. Specifically, increasing market capitalization over the long run.

## Strategy Alternatives

Cboe has a number of options which it could pursue.

- Continue integration and reevaluate large moves in a few years.
- Acquire exchanges or alternative trading systems.
- Merge with NASDAQ
- Expand by creating new exchanges

Continuing integration could most maximize market cap because it causes the least amount of chaos. This will allow the BATS acquisition to fully take place and all of Cboe getting on the same page. This suggestion presupposes that new integrations and mergers would cause unrest or inefficiencies which would not be worth the acquisition.

Acquiring smaller exchanges would work under two circumstances. In one case, if they are poorly managed, and Cboe gets a good price for them. Cboe would be able to transition the exchange to their technology and profit. Alternatively, if the exchange is run very well, an acquisition could provide Cboe with favorable access to resources. Unfortunately, such an acquisition may not pan out extremely well. As stated above, NASDAQ's acquisition of International Stock Exchange barely had any positive impact on NASDAQ's market cap.

A merger with NASDAQ would result in a larger company which could more easily size up with CME and ICE. Further, it would get Cboe involved in the equity listings business. Unfortunately, such a could result in some antitrust attention. While the result would still be smaller than ICE and CME, the Department of Justice could get skittish in a market sector with only 4 big players. Further, such a merger might not go as smoothly as the BATS acquisition. Who would take over technical aspects? Would they have parallel teams of former Cboe and NASDAQ software engineers? How would the leadership restructure? Mergers and acquisitions don't always go well. If there is no motivation besides making a larger company, such a merger would probably do more harm than good.

Creating new exchanges could be a good move for Cboe. However, it obviously depends on how much more value each exchange would add. Further, there is a question of whether any given exchange adds more value than it is worth. Ultimately, since the exchanges make money based on volume, adding a new exchange could cannibalize other Cboe exchanges.

## Recommendation

Cboe should continue with its integration and keep a low profile for a few more years. Any new products which it may develop should get rolled out. However, large capital expenditures, acquisitions and mergers should be avoided. The BATS acquisition has gone extremely well, and Cboe would do well to not make any rash moves which could end up badly.

# Conclusion

In conclusion, Cboe is in a very good position. Their BATS acquisition represents a great case study for successful acquisitions. They have access to a number of favorable resources in a fairly uncompetitive market. They don’t need to make any large strategy moves for a while in order to steadily grow their market cap.

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