SEATTLEU

Ticker: CME
Company: CME Group Inc.
Sector: Finance – Financial Service
Analyst: Ruiyang/Hazel Zhao

Recommendation: BUY
Current Price: $176.32
Target Price: $233.63
Date: 06/18/2020

CME Group
How the world advances

## Investment Thesis

After analysis, we recommended BUY on CME with a target price of $233.66, presenting 32.5% upside based on the date of report. The recommendation is presented based on 30% weight of relative valuation (60%/40% mix of P/E & P/B respectively) and 70% weight of intrinsic valuation (50%/50% mix of FCFF & DCF respectively).

| Market Snapshot | |
|---|---|
| Shares Outstanding (mn) | 357.52 |
| Market Cap (USD bn) | $ 63.76 |
| 52-week Range | $131.80-225.36 |
| TTM P/E | 26.79 |
| Beta | 0.32 |

*Source: Finviz.com*

**Mature company with outstanding market share in unusual business segment:**
As the biggest company in exchange service market, CME Group has mature structure and outstanding performance in the industry. Moreover, the nature of this business segment results that the companies in exchange market will have an increase in transactions when the whole financial situation is under high volatility. Hence, CME Group should be a valuable consideration and a great hedge verses the short-term volatility in the market.

**Limit Buy with Foreseeing of Possible revenue Drop in 2021 :**
Based on the historical performance of CME after 2008 Financial crisis in its business operation, we believe that there's high possibility that CME is having a possible large drop in revenue growth in 2021. Although we assume that the stock price has already reflected investors' expectation, we decided to apply a limit buy at $170 on this investment to avoid the possible loss in following year due to the possible underperformance.

| Valuation | | | |
|---|---|---|---|
| | Method | Weight | Value |
| | DDM | 35% | $ 239.36 |
| | FCFF | 35% | $ 277.66 |
| | Relative | 30% | $ 175.58 |
| **Target Price** | | | **$ 233.63** |

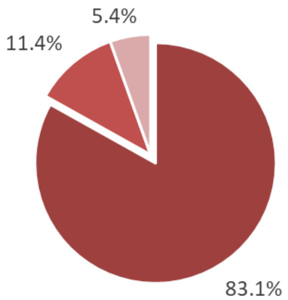
*Source: Team Analysis*

**Financial Impact due to COVID-19:**
Due to the financial impact and high market volatility brought by COVID-19, we determined that the present level of risks will not continue throughout the forecasting period and there will be a financial recovering in future. Hence, to reflect this anticipation, we developed a trend of weighted average of cost of capital(WACC) for the forecasting period assuming the economic environment will recover to normal level in 2025 and applied different WACC to discount each following years' future cash flows.

## Business Description

CME was founded in 1898 focusing in agricultural commodities exchange as a non-profit organization in Chicago. The company went public in 2002 and merged CBOT in 2007 and NYMEX and COMEX in 2008. Currently, CME Group is the world's leading and most diverse derivatives marketplace offering the widest range of futures and options products for risk management. It has access in 150 countries connected through 11 global hubs with 4500 employees.

**REVENUE BY SEGMENT**




- Clearing and Transaction Fees
- Market Data and Information Services
- Other*

*Source: Company Data*

**Clearing and Transaction Fees:**

Clearing and transaction fee income represents the largest source of earnings of CME which reflects CME's main businesses as derivatives exchanges and clearing. Derivatives exchanges business includes four main exchange marketplaces (CME, CBOT, NYMEX, COMEX) performing transactions in agricultural, equities, energy, metal, foreign exchange and interest rate products. Out of those categories, interest rate products exchanges performed very stable growth in daily volume and became the largest exchange category out of all the transactions. CME clearing business serves as the counterparty to futures and options trade. This segment had relatively most stable growth rate in the past six years compared to other segments. Moreover, clearing and transaction fees has consistently taken over 80% of the total revenue for more than a decade.

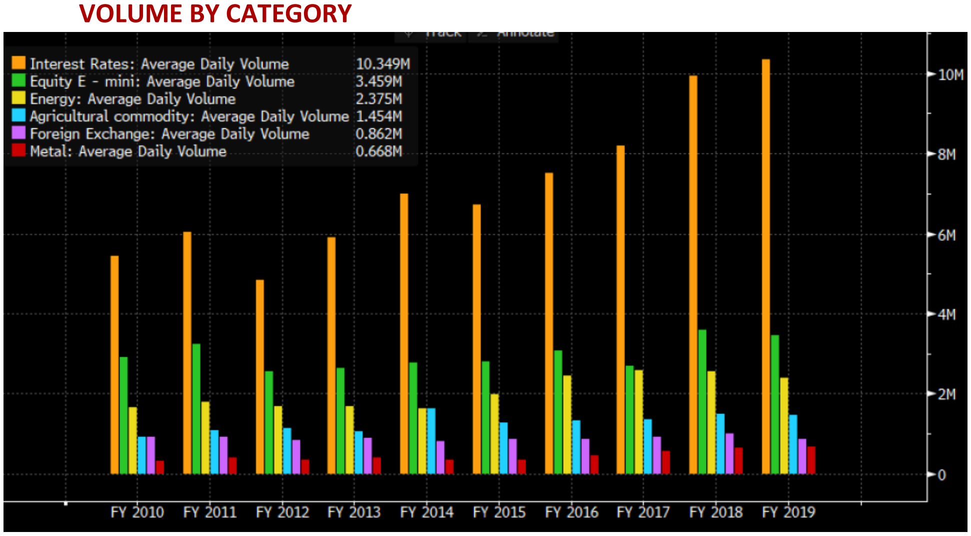
**CLEARING AND TRANSACTION SEGMENTS**


**Market Data and Information Service:**

Besides the main exchange services, CME also provides market data services for the futures, equities, OTC, cash and cleared swaps markets as well as information service including trade and portfolio management, financial resource optimization, regulatory reporting, and trade processing.

CME has also invested in developing electronic platforms including EBS and BrokerTec which represents its new segment as Cash Markets Business since 2019 with new platforms being available in 2020.

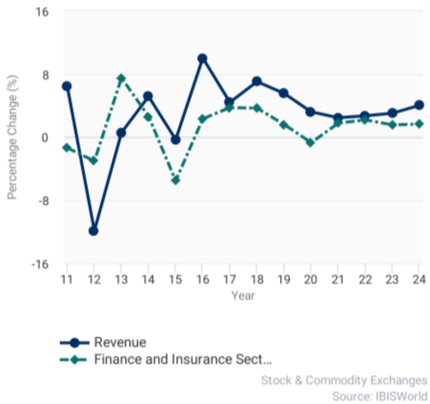
**AVERAGE DAILY EXCHANGE VOLUME BY CATEGORY**




*Source: Bloomberg*

## Industry Overview

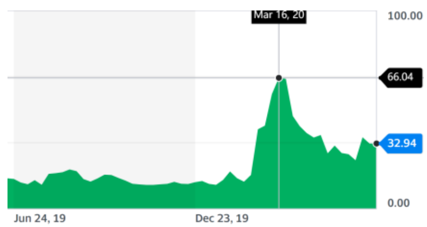
INDUSTRY OUTLOOK 2011-2024




**Industry Outlook:**

According to the IBIS World industrial analysis, stock and commodity industry is expected to have a down trend ends in 2020 with stable and increasing growth rates in following years. Although the COVID-19 has become the biggest concern for the economic circumstance in 2020 which also strongly influenced the industry, after months of quarantine and witnessing the re-bounce of the stock market, our team believe that the recovery of the economy is ahead.

VOLATILITY INDEX 1YR PERFORMANCE

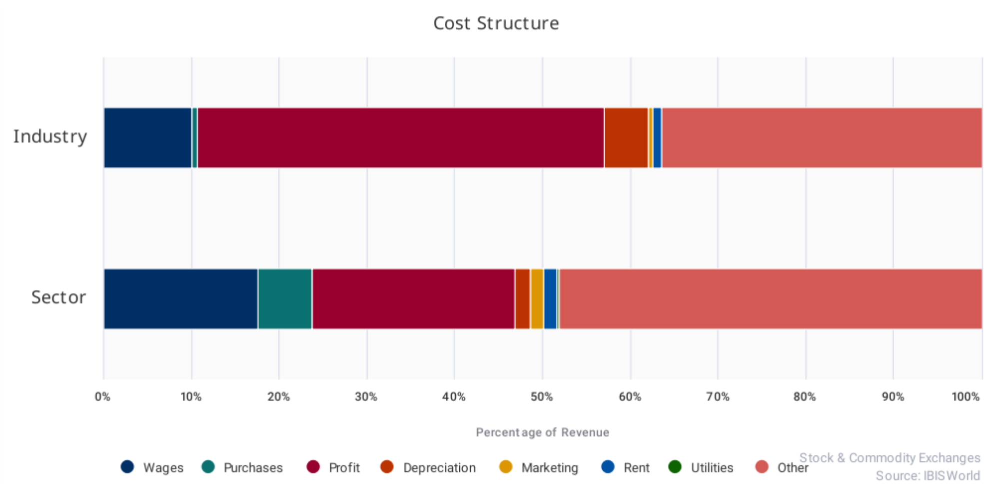



*Source: finance.yahoo.com*

**Unique Character of Stock & Commodity Exchange Industry:**

As we have mentioned in the investment thesis, unlike other industries in the finance segment, the nature of stock and commodity exchange industry results that the companies in exchange market will have an increase in transactions when the whole financial situation is under high volatility. Especially when an unexpected factor is negatively influencing the stock market, people tends to have more transactions to obtain protections or even get panic which will also create more transactions in the market than normal time. With the volatility index giving a top point, exchange industry may benefit from the short-term volatile market. Moreover, according to IBISWorld's analysis, this specific industry tends to have better profitability compared to the whole finance segment. Hence, as a company within the exchange industry, CME Group should be a valuable consideration and a great hedge verses the short-term volatility in the market especially when the influence of COVID-19 is hard to be estimated under present circumstance.

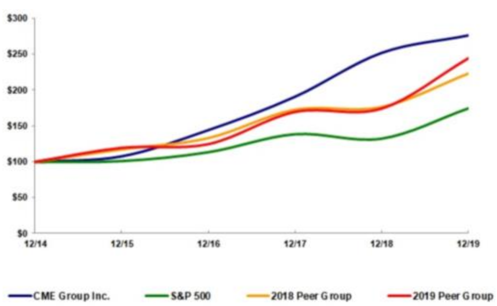
COST STRUCTURE – EXCHANGES INDUSTRY VS. FINANCE SECTOR



## PORTER'S FIVE FORCES


*Source: Team Analysis*

## COMPARISON OF 5YR CUMULATIVE TOTAL RETURN




*Source: CME 10-k FY2019*

# Competitive Positioning

**Threat of New Entrants:**

Due to the specialization of the industry, the barrier for new entrants in this industry is relatively high. New entrants are required to obtain highly specialized resource, technology, and authority to enter the industry, let alone the fact that CME takes the largest share of the market. Hence, we determined that the threat of new entrance is relatively low.

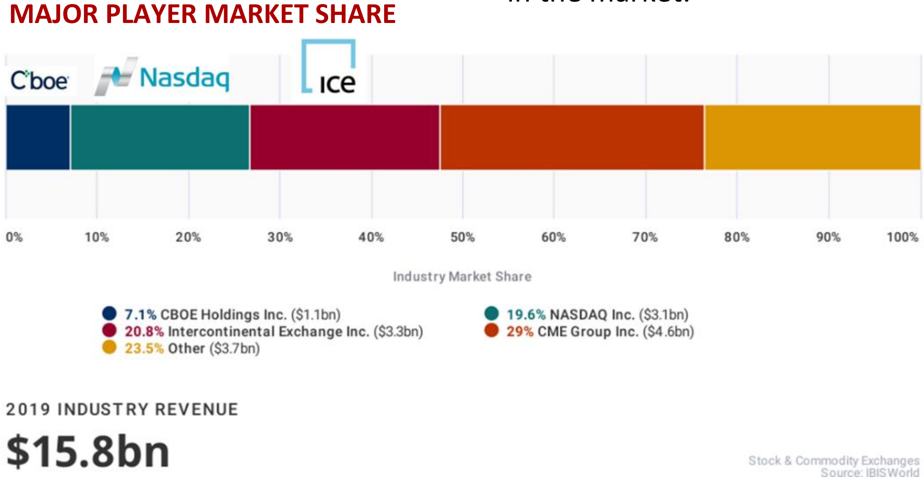
**Bargaining Power of Buyers and Suppliers:**

Considering the characteristics of stock and commodities exchanges industry, the bargain power of buyers is very low compared to other industries. For the same reason, the specialized business, product and service provided the industry determined that there's relatively less pressure from the supplier side and weaker limitations on the resources.

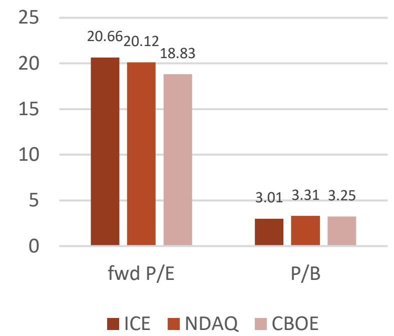
**Threat of Substitutes and Competitive Rivalry:**

Based on the research result of IBISWorlds, CME has become the largest participant in the US exchange market. Moreover, CME's 10-k of FY2019 shows that CME has outperformed its pears for past almost five years. The leading position of CME in the industry indicates that CME has some absolute advantage in its operation than competitors. However, the boundedness of the industry and the high barrier for new entrants indicates that the competitiveness in the industry is relatively higher for CME, especially from Nasdaq and ICE which also had performed large percentages of the industry revenue. Also, since the market and the business models of the industry are relatively stable, the appearance of a competitive and revolutionary substitute could be a strong threatens in the market.

## MAJOR PLAYER MARKET SHARE



COMPETITORS' PERFORMANCE




*Source: Team Analysis*

# Valuation

We issued a BUY recommendation for CME with a target price of 233.63 with a 30.68% upside from $178.78 per share on June 1st, 2020. Our target price is weighted from the relative valuation model with a target price of $175.58 and two intrinsic valuation models including discounted dividend model that returns a target price of $239.36 and discounted cash flow model with a target price of $277.66. We weighted two intrinsic valuation models equally each for 35% and relative valuation model for 30% based on the consideration on the lack of relative peers.

RELATIVE VALUATION WEIGHTING

| CME GROUP INC | P/E | P/B |
|---|---|---|
| Median | 20.12 | 3.25 |
| **Price** | | |
| Median | 133.02 | 239.12 |
| Weight | 60% | 40% |
| **Weighted Price** | **175.46** | |

*Source: Team Analysis*

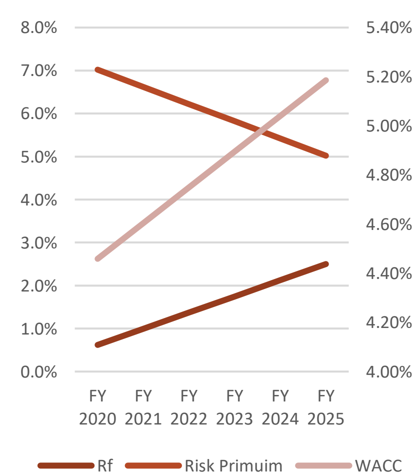
## *Relative Valuation Model*

Since the CME's business model is relatively simple and concentrated in exchange market and over 80% of the revenue is focused in clearing and transaction for years, we decided to take US-located major players in the market as relatives. Based on the operating structure, EV/EBITDA analysis is hard to performance for companies in financial industry. Hence, we calculated P/E and P/B ratio for valuation. Due to the significant difference in market size of relatives and CME, we decided to target our relative valuation result with 60% weighted with P/E valuation and 40% weighted with P/B valuation.

## *Intrinsic Valuation Models*

Considering that the operating structure of financial industry companies are different from other industries, we decided to perform both discounted dividend model and discounted cash flow model to estimate the price of CME since the company had distributed very stable dividend for years. Before forecasting the cash flow and dividend in following five years, we estimated the WACC of CME which is used as discount rate in both models and the future growth rate of revenue.

TREND OF WACC



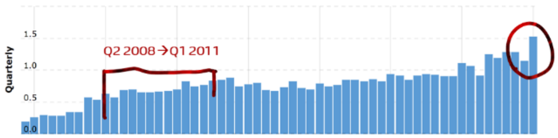

*Source: Team Analysis*

**Application of WACC:**

Before considering the future influence of COVID-19, we resulted a WACC of 4.46% for CME with following detailed breakdown:

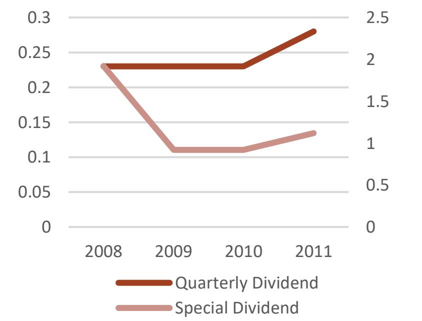
| Attribute | | Value | Source |
|---|---|---|---|
| Risk-free Rate | | 0.62% | 10yr Bond |
| Risk Premium | | 7.02% | http://www.market-risk-premia.com/us.html |
| Beta of CME | Aa3/AA- | 0.55 | Bloomberg Adjusted 5-yr |
| Interest Rate | | 5.20% | Historical Average |
| Tax Rate | | 24.50% | Valueline |

HISTORICAL REVENUE SINCE 2006



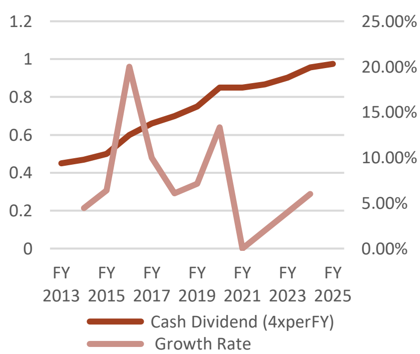

*Source: Macrotrends.net*

HISTORICAL DEVIDEND 2008-2011



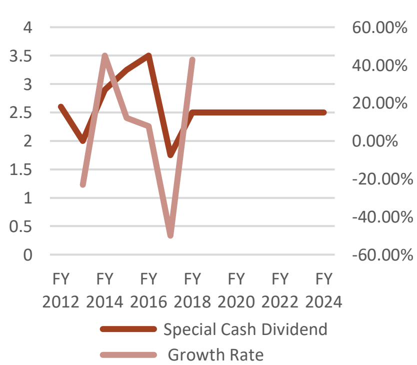

*Source: Team Analysis, investor.cmegroup.com*

QUARTERLY DIVIDEND




*Source: Team Analysis*

SPECIAL DIVIDEND




*Source: Team Analysis*

However, after witnessing the financial impact of COVID-19 and experiencing several months of quarantine, we noticed that the risk-free rate and risk premium is not at the usual level under present economic situation. Although we must admit and accept the current level of risks due to the impact of COVID-19, it is not applicable for future cash flows of following years especially when we're expecting a recovery in the next year. Hence, we decided to simulate a trend of WACC from present level to normal level for following five years and applied different WACC as discount rate for each year. We used US 30-yr treasury bond yield and the historical average risk premium of 50 years as the ending value for risk-free rate and risk premium of the WACC trend. This discounting method is applied in both DDM and DCF models.

**Future Growth Prediction:**

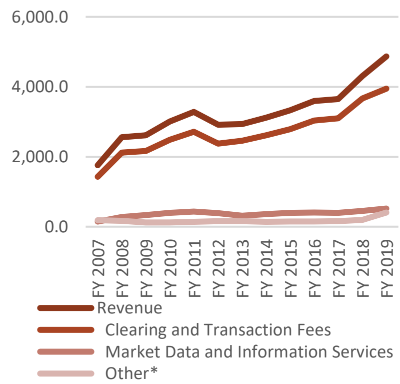
To predict the future growth of CME based on current situation that the economy is heavily impacted by COVID-19, we decided to review the historical performance of CME back in 2008 when Financial Crisis took place. Surprisingly, both historical data in revenue and dividend show that CME is not suffered from a strict financial circumstance and performed very well. However, it started to have a hard period after the year of the crisis that lasts for almost 2 years. On the revenue side, the revenue toped twice in Q3 and Q4 2008 right when the financial crisis crushed the stock market, had a drop in Q1 2009 and did not went back to previous level until middle of 2010. The dividend side is telling the same story. The quarterly dividend and special dividend in 2008 are very impressive with a steady growth from 2007 but the quarterly dividend stopped growing until 2011, the special dividend was cut to half in 2009 and did not increase until 2011.

Based on the observation of CME's historical performance in Financial Crisis, we decided to simulate the pattern of its performance under this recession caused by COVID-19. Based on the observation that CME will underperform the next year, we decided to apply a 0% growth rate in 2021 and giving a recovery period from 2022 with 2% increase in growth rate each year and terminal growth rate determined as 4%.

**Discounted Dividend Model:**

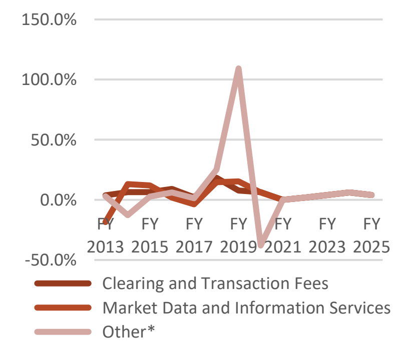
Discounted dividend model was performed based on the assumptions of WACC trend and future growth prediction. Estimation of future dividend is divided into quarterly dividend and special dividend. Quarterly dividend has unstable growth rate but the absolute increase of the dividend value each year is very stable. The quarterly dividend is announced as $0.85 for 2020 and we applied the future growth prediction on the future quarterly dividend. Since special dividend has

REVENUE BREAKDOWN - HISTORICAL



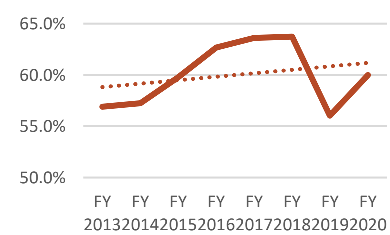

*Source: Team Analysis*

SEGMENT GROWTH RATE



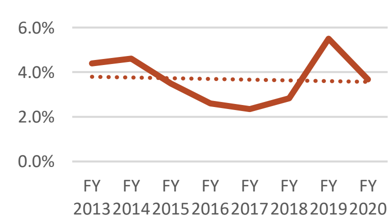

*Source: Team Analysis*

OPERATING MARGIN




*Source: Team Analysis*

CAPEX/REVENUE




*Source: Team Analysis*

been around $2-3 for years, we decided to keep a level $2.5 per year in predicting period.

**Discounted Cash Flow Model:**

Discounted cash flow model was performed based on the assumptions of WACC trend and future growth prediction as well. Estimation of future cash flow are mostly based on historical trend and were determined to be applied with average historical value or estimated value based on historical growth/decrease. Capital expenditure and revenues are separately estimated before applied to the DCF/FCFF model. Long-term liabilities are applied based on CME's own estimation referred in CME's 10-k. The model is build based on the assumption of plugging miscellaneous Short-term Assets due to the difficulty of identifying and estimating the account's contents.

- **Revenue**

Based on the historical revenue breakdown and segment growth rate showing that the clearing and transaction fees segment is the main and determining segment for CME's total revenue, we decided to apply 84% proportion of revenue as clearing and transaction fees in predicting period and apply the growth prediction directly to the clearing and transaction fees segment. Revenue of other segments and total revenue were calculated based on the prediction of the clearing and transaction revenues and average of historical segment portion.

- **Operating Margin**

Although CME's operating expense contains lots of complicated and unspecified expenses, the operating margin is stabilized around 60% in past 7 years. Based on the historical trend, we decided to apply the average historical operating margin for predicting period.

- **Capital Expenditures**

We expect CME to grow its capital expenditure at the pace of its revenue growth rate of around especially that CME is developing its new electronic platform in cash market business. Hence, we determined to apply the historical average capex/revenue ratio as the capital expenditure demand for predicting period.

**CME HISTORICAL PERFORMANCE**

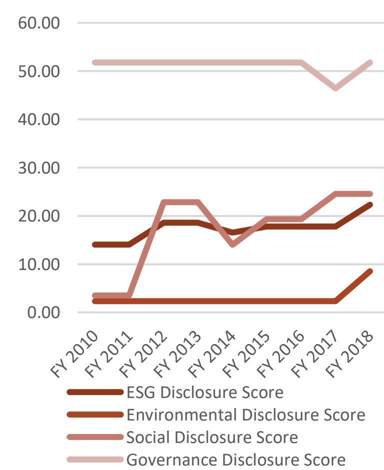

*Source: Finviz.com*

**CME vs. PEERS**

| | |
|---|---|
| EBITDA Margin (%) Average | 58.97 |
| Intercontinental Exchange Inc | 65.30 |
| CME Group Inc | 64.16 |
| Cboe Global Markets Inc | 63.88 |
| Nasdaq Inc | 50.53 |
| Operating Margin (%) - Average | 50.36 |
| CME Group Inc | 53.16 |
| Intercontinental Exchange Inc | 51.38 |
| Cboe Global Markets Inc | 47.25 |
| Nasdaq Inc | 40.12 |
| Net Income Margin (%) | 35.26 |
| CME Group Inc | 43.48 |
| Intercontinental Exchange Inc | 37.16 |
| Cboe Global Markets Inc | 32.98 |
| Nasdaq Inc | 30.53 |
| Sales Growth (%) - Average | 3.41 |
| CME Group Inc | 12.96 |
| Intercontinental Exchange Inc | 4.48 |
| Nasdaq Inc | 0.36 |
| Cboe Global Markets Inc | -6.57 |
| Basic EPS | 1.81 |
| CME Group Inc | 5.93 |
| Cboe Global Markets Inc | 3.35 |
| Intercontinental Exchange Inc | 3.44 |
| Nasdaq Inc | 4.69 |
| Payout Ratio (%) | 67.60 |
| CME Group Inc | 93.08 |
| Cboe Global Markets Inc | 40.25 |
| Nasdaq Inc | 39.41 |
| Intercontinental Exchange Inc | 32.13 |
| Estimated Dividend Yield (%) | 2.56 |
| CME Group Inc | 1.96 |
| Nasdaq Inc | 1.83 |
| Cboe Global Markets Inc | 1.53 |
| Intercontinental Exchange Inc | 1.34 |

*Source: Bloomberg*

**ESG SCORE**




*Source: Bloomberg, Team Analysis*

# Financial Analysis

As the largest market participant in the industry, CME has performed outstanding and steadily growing revenue and earnings for years. Moreover, out of the exchange market, CME is outperforming its competitors not only by the size and volume, but also in nearly every aspect of its operation from operating margin, net income margin, sales growth and dividend yield. Hence, in order to obtain the goal of hedging our fund during recessions, especially short-term economic downturn by investing in companies in exchange market, CME should be a valuable consideration among the industry.

# Investment Risk

**Market Risk | Governmental Decision on Interest Rate**

According to the revenue segment structure and volume of transactions by categories, interest rate is one of the most possible economic factors that could influence CME's revenue in large scale. Hence, governmental decision on interest rate could be a major market risk for CME. Especially under present circumstance when the economy is suffering a recession, interest rate control may a major method for the government to boost the economy and increasing consumption.

**Market Risk | Impact on Global Economy from COVID-19**

Due to the outbreak of COVID-19, we performed several adjustments to our models to apply the impact to financial market. Based on our assumptions, we adjusted the WACC in future years in consider of the recovery period and decreased the growth rate of 2021 to 0% based on CME's historical performance in last recession. After discussing with the management team, we decided to recommend a limit buy at $174 to avoid the possible drop in price caused by underperformance in 2021.

**Operating Risk | Limited Ability of Growth**

Although CME is a outperforming and leading company in the industry, a weakness of a grown company like this is that the growth in future is highly depended on the company's operating strategy and it's hard to obtain without revolutionary change in business tructure.

# Environmental, Social and Corporate Governance

Based on the ESG scoring analysis of Bloomberg, CME have been improving in all three aspects in recent years. As a company in finance industry, CME had a large improve in social aspect and it also increase the employment during this tough year when lots of businesses are impacted by COVID-19. Also, CME has a over 80% independent director rate on its board since 2015 with a increasing trend in recent years.