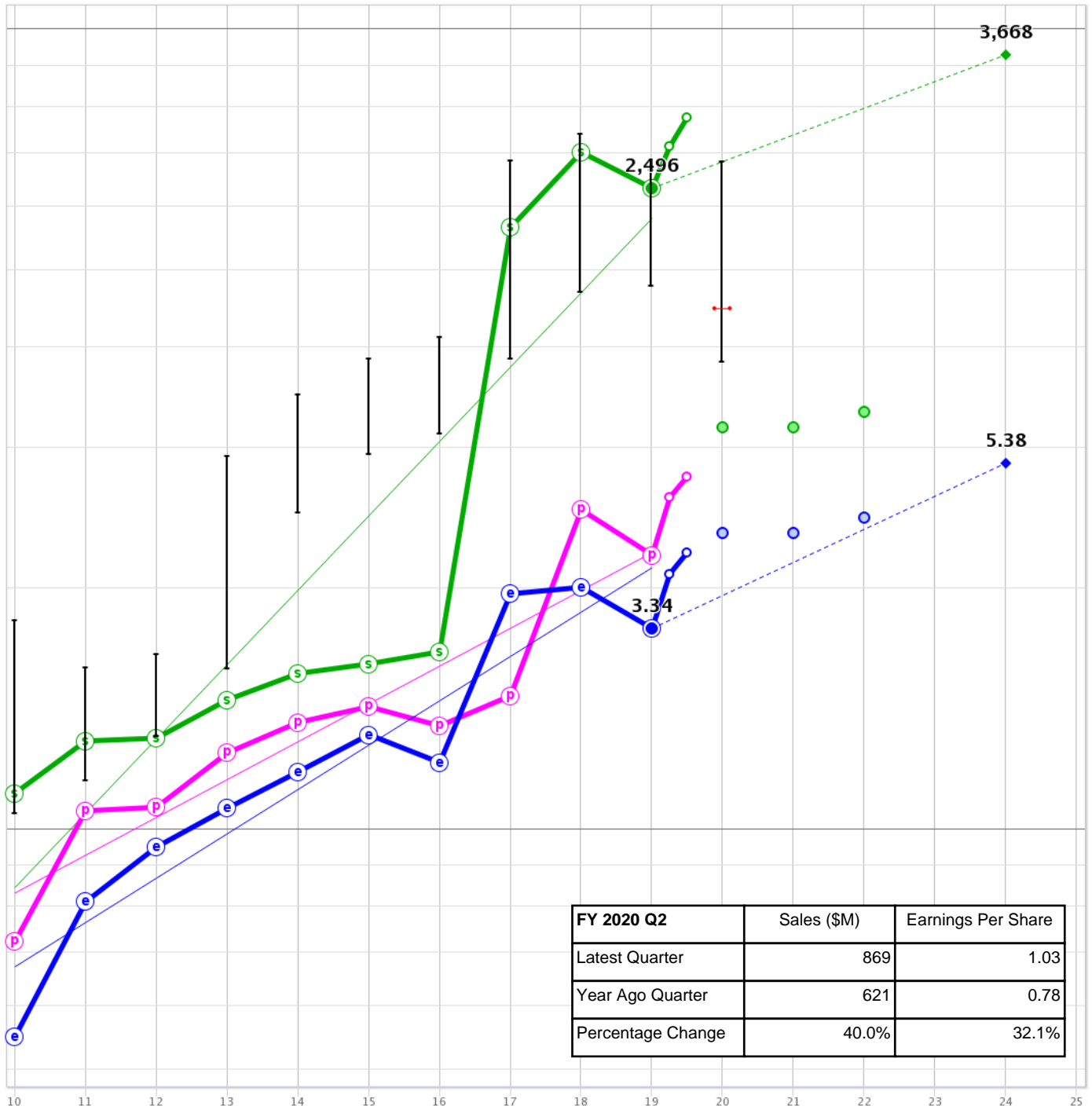


Company	Cboe Global Markets		Date	10/16/20	
Prepared by	FWIC		Data taken from	BI Stock Data	
Where traded	BATS	Industry	Financial Data & Stock Exchanges		
Capitalization --- Outstanding Amounts	Reference				
Preferred (\$M)	0.0	% Insiders	% Institution		
Common (M Shares)	109.6		1.7	67.3	
Debt (\$M)	1,005.9	% to Tot Cap	23.4	% Pot Dil	0.1

# Stock Selection Guide

Symbol: CBOE

## 1 VISUAL ANALYSIS of Sales, Earnings, and Price



- |                                   |       |  |       |
|-----------------------------------|-------|--|-------|
| (1) Historical Sales Growth       | 23.9% | (3) Historical Earnings Per Share Growth       | 13.6% |
| (2) Estimated Future Sales Growth | 8.0%  | (4) Estimated Future Earnings Per Share Growth | 10.0% |

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Last 5 Year Avg.
Pre-tax Profit on Sales	37.7%	47.2%	47.3%	49.6%	50.2%	51.1%	46.7%	15.0%	20.6%	20.1%	30.7%
% Earned on Equity	52.8%	54.9%	65.0%	53.1%	75.8%	77.7%	63.7%	14.5%	13.3%	11.1%	36.1%
% Debt To Capital	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.5%	27.3%	21.4%	15.4%

## 3 PRICE-EARNINGS HISTORY as an indicator of the future

This shows how stock prices have fluctuated with earnings and dividends. It is building block for translating earnings into future stock prices.

**CLOSING PRICE** 83.90 (10/16/20)

**HIGH THIS YEAR** 127.93

**LOW THIS YEAR** 72.01

	A	B	C	D	E	F	G	H
Year	Price		Earnings	Price Earnings Ratio		Dividend	% Payout	% High Yield
	High	Low	Per Share	High A / C	Low B / C	Per Share	F / C * 100	F / B * 100
2015	72.5	55.0	2.46	29.5	22.4	0.88	35.8	1.6
2016	77.3	58.4	2.27	34.0	25.7	0.96	42.3	1.6
2017	128.3	72.5	3.69	34.8	19.7	1.04	28.2	1.4
2018	138.5	87.9	3.76	36.8	23.4	1.16	30.9	1.3
2019	124.9	89.5	3.34	37.4	26.8	1.34	40.1	1.5
AVERAGE		72.7		34.5	23.6		35.4	
CURRENT/TTM			4.16			1.68	40.4	
AVERAGE PRICE EARNINGS RATIO: 29.0				CURRENT PRICE EARNINGS RATIO: 20.2				

## 4 EVALUATING RISK and REWARD over the next 5 years

Assuming one recession and one business boom every 5 years, calculations are made of how high and how low the stock might sell. The upside-downside ratio is the key to evaluating risk and reward.

### A HIGH PRICE - NEXT 5 YEARS

Avg. High P/E 29.0 X Estimate High Earnings/Share 5.38 = Forecasted High Price \$ 156.0

### B LOW PRICE - NEXT 5 YEARS

(a) Avg. Low P/E 20.5 X Estimate Low Earnings/Share 3.34 = Forecasted Low Price \$ 68.5

(b) Avg. Low Price of Last 5 Years 72.7

(c) Recent Market Low Price 72.0

(d) Price Dividend Will Support  $\frac{\text{Indicated Dividend}}{\text{High Yield}} = \frac{1.68}{1.64\%} = 102.3$

Selected Forecasted Low Price \$ 68.5

### C ZONING using 25%-50%-25%

Forecasted High Price 156.0 Minus Forecasted Low Price 68.5 = 87.5 Range. 25% of Range 21.9

Buy Zone 68.5 to 90.4

Hold Zone 90.4 to 134.1

Sell Zone 134.1 to 156.0

Present Market Price of 83.90 is in the **BUY** Zone

### D UPSIDE DOWNSIDE RATIO (POTENTIAL GAIN VS. RISK OR LOSS)

$\frac{\text{High Price} - \text{Present Price}}{\text{Present Price} - \text{Low Price}} = \frac{156.0 - 83.90}{83.90 - 68.5} = \frac{72.09}{15.40} = 4.7$  To 1

### E PRICE TARGET (Note: This shows the potential market price appreciation over the next five years in simple interest terms.)

$\frac{\text{High Price} - \text{Closing Price}}{\text{Closing Price}} = \frac{156.0 - 83.90}{83.90} = 1.8593$  X 100 = 185.93 - 100 = 85.9 % Appreciation

## 5 5-YEAR POTENTIAL

This combines price appreciation with dividend yield to get an estimate of total return. It provides a standard for comparing income and growth stocks.

**A**  $\frac{\text{Indicated Annual Dividend}}{\text{Closing Price}} = \frac{1.34}{83.90} = 0.0200 = 2.0\%$  Current Yield

### B AVERAGE YIELD - USING FORECAST HIGH P/E

$\frac{\text{Avg. \% Payout}}{\text{Forecast High PE}} = \frac{35.4\%}{29.00} = 1.2\%$

### AVERAGE YIELD - USING FORECAST AVERAGE P/E

$\frac{\text{Avg. \% Payout}}{\text{Forecast Average PE}} = \frac{35.4\%}{24.75} = 1.4\%$

### C COMPOUND ANNUAL RETURN - USING FORECAST HIGH P/E

Annualized Appreciation 13.2 %  
Average Yield 1.2 %  
Annualized Rate of Return 14.4 %

### COMPOUND ANNUAL RETURN - USING FORECAST AVG P/E

Annualized Appreciation 9.7 %  
Average Yield 1.4 %  
Annualized Rate of Return 11.1 %



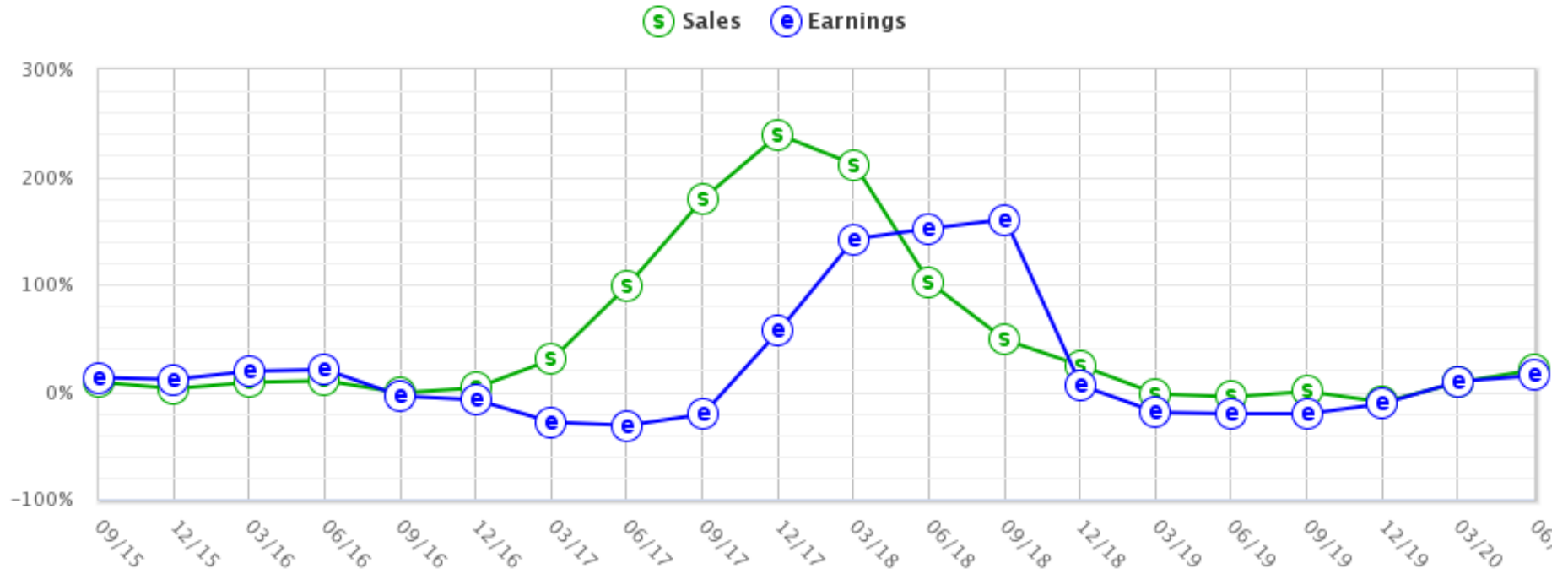
**Company: Cboe Global Markets**  
**Symbol: CBOE**

***Notes: CBOE 10/19/20\_AKK***

Date	Subject	Description	Type
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**Quarterly Growth Trend Data**

Graph: Trailing 4 Quarters, Last 5 Years of Data



Period	Quarterly Data								Last 12 Months Data								
	EPS		Pre-Tax Profit			Sales		Income Tax Rate	EPS	Pre-Tax Profit		Sales	Income Tax		%Change		
	\$	%Change	\$ Mil	%Sales	%Change	\$ Mil	%Change		\$	\$ Mil	%Sales	\$ Mil	%Rate	EPS	Pre-Tax Profit	Sales	
06/20	1.03	32.1	156.6	18.0	30.9	868.7	40.0	27.5	4.16	629.2	20.5	3,064.2	164.2	26.1	14.9	16.6	20.3
03/20	1.42	67.1	217.5	23.6	70.2	921.5	52.9	27.6	3.91	592.2	21.0	2,816.1	157.3	26.6	9.5	9.7	8.6
12/19	0.77	-37.4	114.2	19.1	-35.0	598.6	-19.9	24.4	3.34	502.5	20.1	2,497.2	130.8	26.0	-11.2	-12.0	-9.8
09/19	0.94	23.7	140.9	20.9	21.2	675.4	17.3	24.8	3.80	564.0	21.3	2,646.3	142.3	25.2	-20.7	12.9	0.2
06/19	0.78	6.8	119.6	19.3	-0.2	620.6	-7.0	29.4	3.62	539.4	21.2	2,546.8	138.1	25.6	-20.6	10.3	-4.9
03/19	0.85	-18.3	127.8	21.2	-19.8	602.6	-22.5	25.5	3.57	539.6	20.8	2,593.7	140.0	25.9	-19.4	13.5	-2.1
12/18	1.23	-45.6	175.7	23.5	68.8	747.7	20.5	21.2	3.76	571.2	20.6	2,768.8	148.8	26.0	5.9	70.8	24.2
09/18	0.76	43.4	116.3	20.2	9.8	575.9	-5.8	26.3	4.79	499.6	18.9	2,641.8	-80.0	-16.0	160.3	63.6	48.1
06/18	0.73	21.7	119.8	17.9	12.9	667.5	4.2	30.7	4.56	489.2	18.3	2,677.3	-57.8	-11.8	151.9	83.4	101.6
03/18	1.04	550.0	159.4	20.5	771.0	777.7	118.3	25.9	4.43	475.5	17.9	2,650.6	-50.0	-10.5	142.1	94.5	211.5

**Quarterly Growth Trend Data**

Graph: Trailing 4 Quarters, Last 5 Years of Data

Quarterly Data									Last 12 Months Data								
Period	EPS		Pre-Tax Profit			Sales		Income Tax Rate	EPS	Pre-Tax Profit		Sales	Income Tax		%Change		
	\$	%Change	\$ Mil	%Sales	%Change	\$ Mil	%Change			\$	\$ Mil		%Sales	\$ Mil	%Rate	EPS	Pre-Tax Profit
12/17	2.26	310.9	104.1	16.8	38.8	620.7	254.5	-147.0	3.55	334.4	15.0	2,229.1	-42.7	-12.8	56.4	9.1	239.3
09/17	0.53	6.0	105.9	17.3	57.3	611.4	291.4	43.1	1.84	305.3	17.1	1,783.5	103.6	33.9	-21.0	-1.9	179.6
06/17	0.60	-3.2	106.1	16.6	26.6	640.8	292.3	35.9	1.81	266.7	20.1	1,328.3	88.4	33.1	-31.4	-22.8	98.7
03/17	0.16	-73.3	18.3	5.1	-77.3	356.2	119.4	16.9	1.83	244.4	28.7	850.8	83.0	34.0	-28.5	-27.1	30.1
12/16	0.55	-9.8	75.0	42.8	-5.9	175.1	12.3	39.8	2.27	306.6	46.7	656.9	121.0	39.5	-7.7	-5.4	3.5
09/16	0.50	-38.3	67.3	43.1	-33.6	156.2	-16.5	39.9	2.33	311.3	48.8	637.8	120.5	38.7	-4.1	-5.2	-1.1
06/16	0.62	14.8	83.8	51.3	13.8	163.3	9.8	39.2	2.64	345.4	51.7	668.6	128.1	37.1	20.5	14.5	10.2
03/16	0.60	20.0	80.5	49.6	16.2	162.3	13.6	38.9	2.56	335.2	51.3	654.0	124.2	37.0	19.1	12.7	8.6
12/15	0.61	5.2	79.7	51.1	-5.1	155.9	-6.3	36.7	2.46	324.0	51.1	634.5	120.1	37.1	11.3	4.6	2.8
09/15	0.81	42.1	101.5	54.2	35.6	187.0	25.6	33.5	2.43	328.3	50.9	645.1	125.4	38.2	13.0	10.2	8.9
06/15	0.54	8.0	73.6	49.5	6.1	148.7	3.3	39.1	2.19	301.7	49.7	607.0	116.6	38.7	6.8	3.7	4.6
03/15	0.50	-10.7	69.3	48.5	-15.0	142.8	-9.5	39.0	2.15	297.4	49.4	602.2	114.2	38.4	3.9	0.3	2.5
12/14	0.58	11.5	83.9	50.4	16.3	166.5	17.4	41.2	2.21	309.7	50.2	617.2	119.6	38.6	11.1	9.2	7.9
09/14	0.57	21.3	74.8	50.2	10.2	148.9	8.9	35.4	2.15	297.9	50.3	592.6	111.3	37.3	12.0	10.0	5.8
06/14	0.50	-3.8	69.4	48.2	-7.3	143.9	-4.5	38.1	2.05	291.0	50.1	580.4	111.4	38.3	4.1	10.4	5.2
03/14	0.56	16.7	81.5	51.6	18.7	157.9	10.6	39.9	2.07	296.5	50.5	587.2	113.7	38.4	9.5	16.6	10.0
12/13	0.52	15.6	72.2	50.9	21.5	141.8	9.0	36.1	1.99	283.7	49.6	572.1	107.7	38.0	11.8	16.9	11.7
09/13	0.47	-9.6	67.9	49.7	12.2	136.7	6.6	39.1	1.92	270.9	48.3	560.3	100.9	37.2	14.3	15.0	11.5
06/13	0.52	18.2	74.9	49.7	14.1	150.8	13.7	38.4	1.97	263.5	47.8	551.9	88.4	33.6	22.4	5.6	6.6
03/13	0.48	29.7	68.7	48.1	20.6	142.7	17.6	38.3	1.89	254.3	47.7	533.7	87.2	34.3	23.5	5.9	5.6
12/12	0.45	28.6	59.4	45.7	13.5	130.1	8.2	33.1	1.78	242.6	47.3	512.3	85.0	35.1	17.1	1.0	0.8
09/12	0.52	15.6	60.5	47.2	-18.8	128.3	-10.6	24.4	1.68	235.5	46.9	502.5	86.2	36.6	12.8	-0.9	-0.6
06/12	0.44	22.2	65.7	49.5	16.6	132.5	10.2	41.4	1.61	249.5	48.2	517.8	103.9	41.6	29.8	26.1	10.7
03/12	0.37	2.8	57.0	46.9	0.1	121.4	-2.1	41.3	1.53	240.2	47.5	505.5	99.5	41.5	33.0	31.1	9.9
12/11	0.35	9.4	52.3	43.5	4.8	120.2	2.4	39.2	1.52	240.1	47.2	508.1	100.0	41.7	50.3	45.8	16.3
09/11	0.45	125.0	74.6	51.9	114.9	143.6	35.5	44.6	1.49	237.7	47.0	505.3	97.8	41.2			
06/11	0.36	33.3	56.3	46.8	35.4	120.3	6.8	40.7	1.24	197.8	42.3	467.7	79.7	40.3			
03/11	0.36	62.9	56.9	45.9	48.1	124.0	22.7	42.2	1.15	183.1	39.8	460.1	73.5	40.1			
12/10	0.32		50.0	42.6		117.4		37.2									
09/10	0.20		34.7	32.7		106.0		41.1									
06/10	0.27		41.6	36.9		112.6		40.1									
03/10	0.22		38.4	38.0		101.1		41.0									