

June 17, 2018

Course: CIS570 – Business Intelligence  
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Assignment: Reading Discussions – Week4-Session1  
Due Date: Sunday, June 17 @ 11:59pm

Question 1. For a data set with a minimum of 100 rows and two columns of numeric data, a) calculate descriptive statistics (i.e., mean, median, mode, variance, standard deviation, minimum, maximum, range), and b) create plots (e.g., box-and-whiskers, scatter, histogram).

For this assignment I chose the following data-set:

Website: <https://www.quandl.com>  
URL: <https://www.quandl.com/data/EOD/HD-Home-Depot-Inc-The-HD-Stock-Prices-Dividends-and-Splits>  
Content: Home Depot stock prices, splits, and dividends, 1981-2017 monthly, quarterly, and yearly.  
Sample Data: 9527 records

Date	Open	High	Low	Close	Volume	Dividend	Split	Adj_Open	Adj_High	Adj_Low	Adj_Close	Adj_Volume
6/5/2018	190.44	192.38	189.7	191.94	4231073	0	1	190.44	192.38	189.7	191.94	4231073
6/4/2018	188.22	191.54	187.97	191.36	4101118	0	1	188.22	191.54	187.97	191.36	4101118
6/1/2018	187.21	188.83	186.52	187.35	3706013	0	1	187.21	188.83	186.52	187.35	3706013
5/31/2018	187.16	187.36	185.25	186.55	4839928	0	1	187.16	187.36	185.25	186.55	4839928
5/30/2018	184.83	187.8	184.01	187.09	3976000	1.03	1	184.83	187.8	184.01	187.09	3976000

From this dataset I created the plots shown below which provide trending of the stock's open, close, high, low prices over the full yearly span of the data. In general, the stock seems to hold fairly stable in terms of both open/close and high/low prices as shown by the means of each of these. The yearly average open and close prices are within 0.005 of each other. The stock would generally be considered a highly active stock as shown in Figure 5. While the market does not have a specific benchmark for this, it is accepted

that trade volumes on the order of millions per days is considered *active*. HD averaged ~5.5mil trade over this period and as of 2017 it still trades with a corresponding volume.

The most interesting aspect of what I have seen with this data is that shown for the period between ~2006-2010. This period is when the housing market crashed and the recession began. As shown in Figure 5, HD experienced it's highest ever trade volume of ~94.5mil. There was huge panic in the market during this timeframe and many investors were cutting there losses. Huge sell-offs were occurring and HD being a home improvement supplies company incurred a major hit. Home improvement supplies are typically not needed when new home are not being built and that is just what happened during the housing collapse.

In 1999, HD average high was \$67.18. It had a slow decline and in 2005 the average high was ~\$39.7. However during the brunt of the recession the stock reached a yearly average low of ~\$24.61 (actual daily low of \$17.05 10/10/2008). However, during the recession recovery as the economy start to get back on track, the stock has since recovered quite nicely and as of 06/08/2018 the current trading prices is ~\$196.86. As they say, hindsight is 20/20. UGH!

Figure 1 Descriptive Statistics

Open Price Metric	Open Price	High Price Metric	High Price	Low Price Metric	Low Price	Close Price Metric	Close Price	Volumen Metrics	Volume
Mean	50.16109279	Mean	50.7098226	Mean	49.60558162	Mean	50.166721	Mean	5561017.915
Standard Error	0.354734624	Standard Error	0.356844	Standard Error	0.35243525	Standard Error	0.354897764	Standard Error	70881.3763
Median	40.75	Median	41.2	Median	40.185	Median	40.69	Median	3614889.5
Mode	18.25	Mode	18.25	Mode	18.25	Mode	18.25	Mode	427
Standard Deviation	34.12834694	Standard Deviation	34.3312857	Standard Deviation	33.90712848	Standard Deviation	34.14404231	Standard Deviation	6819363.09
Sample Variance	1164.744065	Sample Variance	1178.63718	Sample Variance	1149.693362	Sample Variance	1165.815625	Sample Variance	4.65037E+13
Kurtosis	4.067521412	Kurtosis	4.06903268	Kurtosis	4.060590725	Kurtosis	4.058174834	Kurtosis	11.34628838
Skewness	1.987968105	Skewness	1.98689545	Skewness	1.990557764	Skewness	1.986118342	Skewness	2.433704344
Range	196.98	Range	197.355	Range	194.46	Range	196.98	Range	94536952
Minimum	10.25	Minimum	10.25	Minimum	10.25	Minimum	10.25	Minimum	48
Maximum	207.23	Maximum	207.605	Maximum	204.71	Maximum	207.23	Maximum	94537000
Sum	464291.0749	Sum	469370.118	Sum	459149.2635	Sum	464343.1696	Sum	51472781821
Count	9256	Count	9256	Count	9256	Count	9256	Count	9256

Figure 2 Yearly Average Open, Close Stock Price Barchart

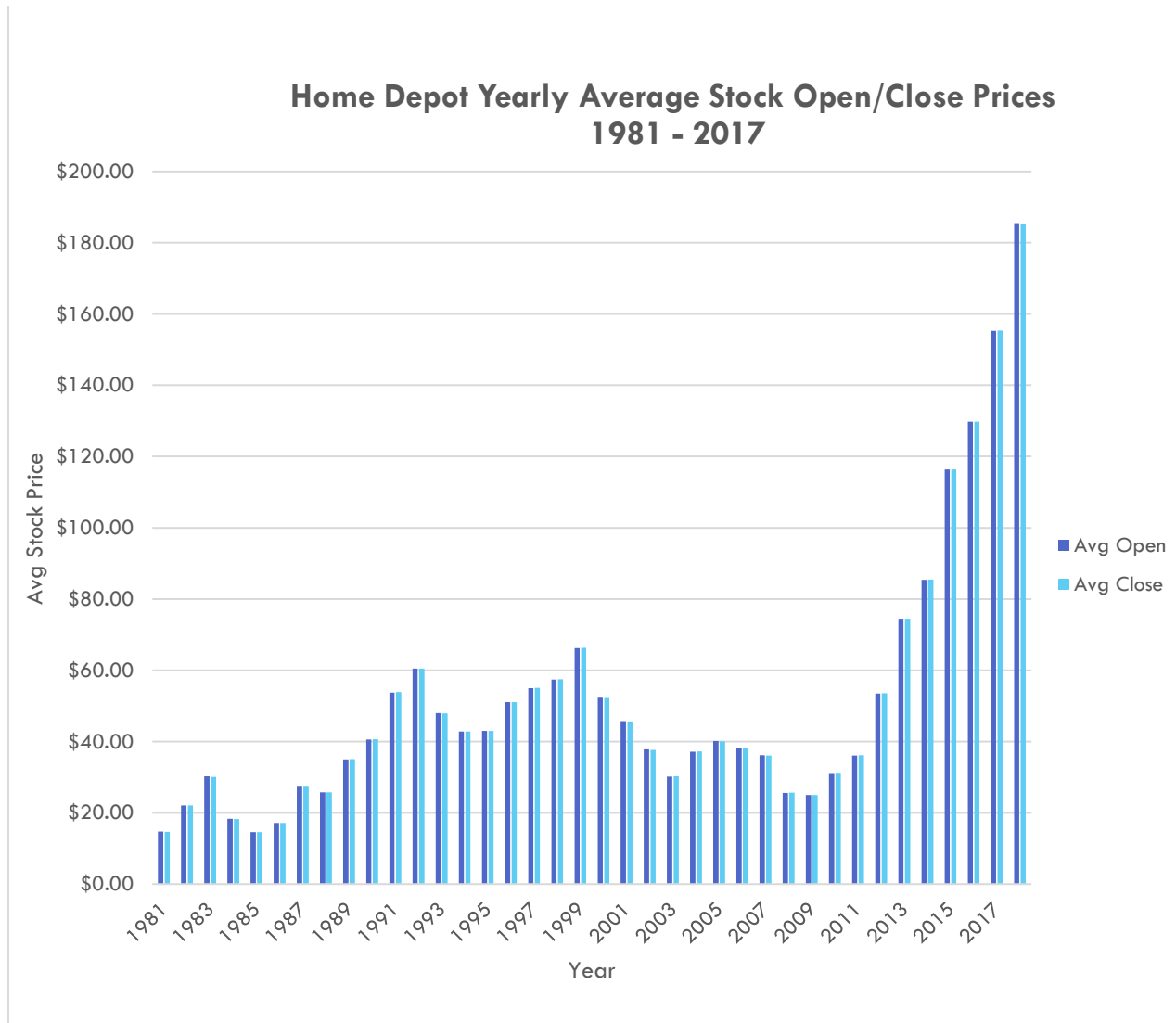


Figure 3 Open, High, Low, Close Stock Price Box and Whisker Chart

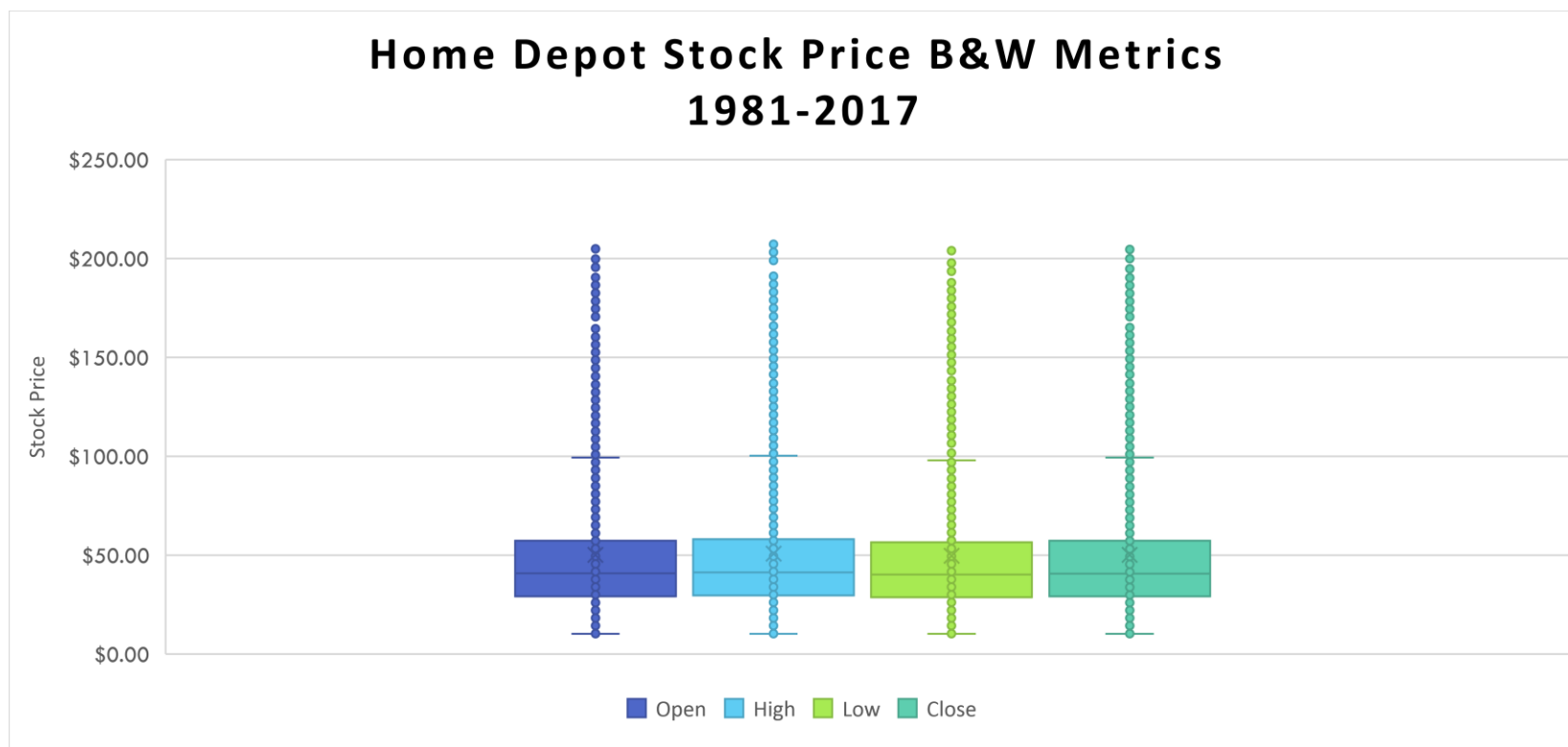


Figure 4 Yearly Average High/Low Line/Scatterplot Chart

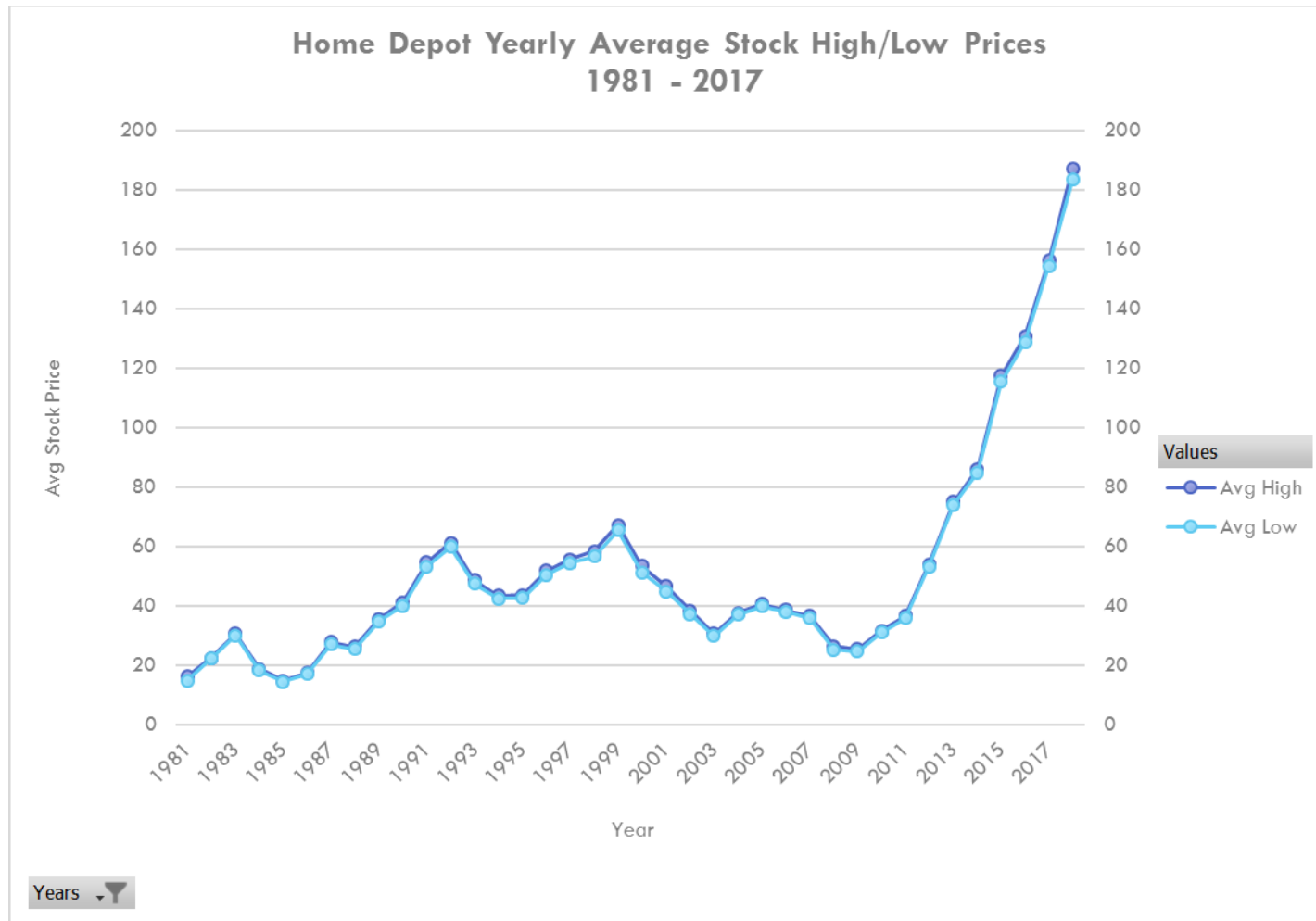


Figure 5 Yearly Volume Histogram

