

## MRNA versus BNTX prices comparisons

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I am continuing the comparison of MRNA and BNTX stocks. A simple comparison would be to see the price changes in time. While in the US the MRNA has a longer history in the market, the BNTX starts in Nasdaq trading from 2019-10-10. Thus, I have sliced the data up to that time. In addition, I have added two other pharmaceuticals in comparison, Pfizer (PFE) and Astra Zeneca (AZN). While the two first ones (MRNA, Founded on September 2010 and BNTX on 2008) are about 10 years or so companies, the two other pharmaceuticals are older in the market (PFE, Founded on 1849; 171 years ago in New York City and AZN, Founded on 6 April 1999; 21 years ago).

In the changes in time of price data I see that there is a correlation between MRNA stock price and BNTX, which is very high (correlation 0.88) (**Figure 1, a**). The correlation of MRNA stock price with PFE stock price is 0.13, while with AZN stock price is 0.85.

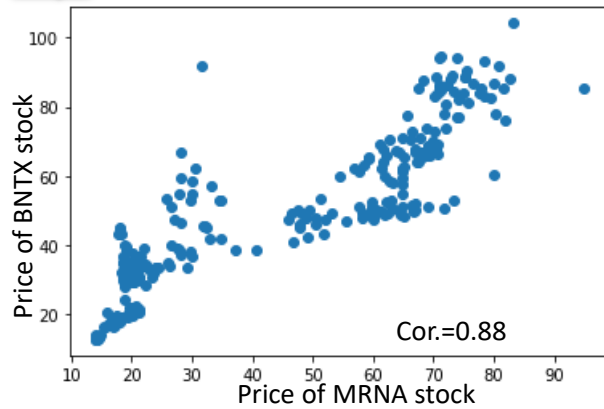
The correlation of BNTX stock price with PFE stock price is 0.07, while with AZN stock price is 0.68. The correlation between PFE and AZN stock prices is 0.5 (**Figure 1, c**).

These tell us that MRNA and BNTX stock prices are more correlated to each other. If we look at their changes in time at **Figure 1, b** it is noticeable that the price of BNTX stock has started to become higher from the time that the team of BNTX started to work on COVID-19 on January 2020, then more in March 2020, higher close to July 2020. In the end of September there is a dip down, because the White House did not agree to provide support to House of Congress on the second stimulus funds for COVID-19 for the US economy. Now the prices are starting again to recover. On Friday, 2020-10-30, the MRNA stock closing price (\$67.47) was almost \$18 lower than the BNTX stock price (\$85.36), while much higher than PFE stock price (\$35.48) and AZN (\$50.16). In general, the differences have been lower between MRNA and BNTX stock closing prices. In 269 price days comparisons the mean difference between MRNA and BNTX has been -\$5.14, with a standard deviation of \$11.12, while the mean of the MRNA has been \$44.58 (std=\$23.39) and of the BNTX \$49.71 (std=\$21.97). The corresponding minimum prices during this time have been \$13.93 and \$21.97, while the maximum prices have been \$94.85 and \$104.17 for the MRNA and BNTX, respectively. This means, that if you have less funds available, then buy a lower price stock with a hope of good future return as the MRNA. Otherwise if you have more funds available, then buy a higher price stock with a hope of good future return as the BNTX.

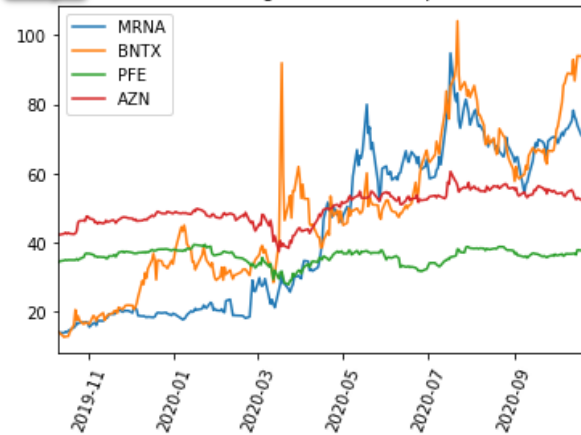
**Disclaimer:** The above material has no intention, in no way to provide any advice for trading of mentioned stocks. The written material it represents facts accumulated from references and my private opinion. For clarity, as of today, I own stocks of **MRNA** and **PFE**. I have traded in the past **BNTX** stock. The stock information was retrieved from Yahoo and analyzed by me in Python 3.8.

**Figure 1.** a) The association between MRNA and BNTX stock prices in time; b) Price changes in time among four company stocks (MRNA, BNTX, PFE and AZN); c) The association between PFE and AZN stock prices in time.

**a)** Period from 2019-10-10 to 2020-10-30



**b)** Price Changes in Time Comparison



**c)** Period from 2019-10-10 to 2020-10-30

