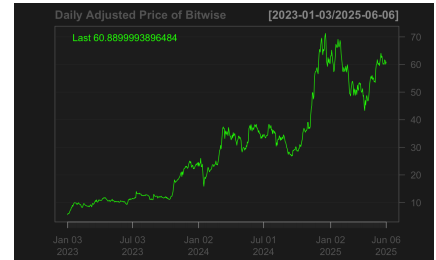


# Cryptocurrency Investment Recommendation

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Cryptocurrency has become a very popular and exciting asset to invest in, in the past 15 years. Its novelty and extreme unpredictability make it extremely volatile and speculative to make money from it. However, there must be a way to safely invest in cryptocurrency as it does not seem to be going away anytime soon. Bitcoin has never been more valued and it remains to be seen if it will ever lose momentum. My manager has decided that they are interested in investing money in cryptocurrency but would like to know if investing in a cryptocurrency index would be better or if just investing in Bitcoin or some other specific cryptocurrency would be safer as the legitimacy of the smaller coins seems dubious at best compared to assets in the S&P 500. The index I found is Bitwise, which is an investment index containing weighted investments of 10 of the top cryptocurrencies. Based on my findings, it would probably be better just to add Bitcoin to our investment portfolios instead of the index "Bitwise" as the volatility doesn't seem worth the return compared to Bitcoin. I did this by doing some descriptive and inferential statistics and then constructing a Security Market Line to investigate value versus volatility. I used the top cryptocurrencies in the Bitwise index: Bitcoin, Ethereum, XRP, Solana, and Cardano and measured them against the Bitwise index. I figured this would be better than constructing a global minimum variance portfolio as Bitcoin had the least variance by a large margin and would clearly dominate everything else.

Here are the graphs of the daily adjusted prices of our assets:

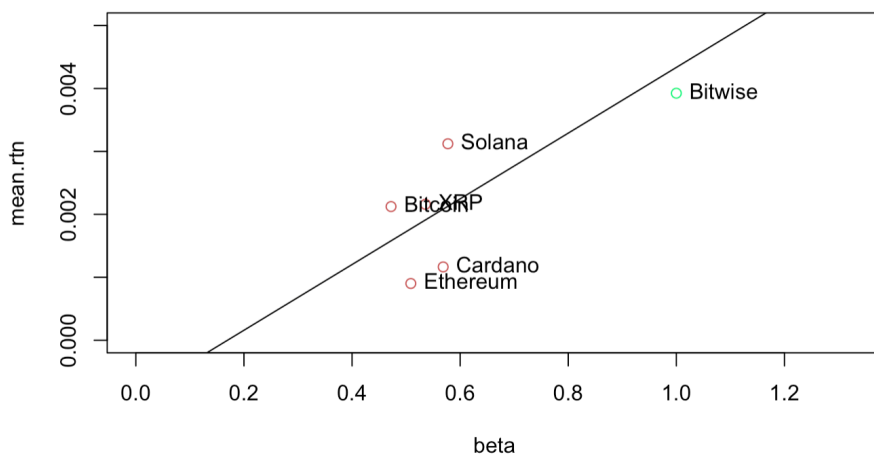
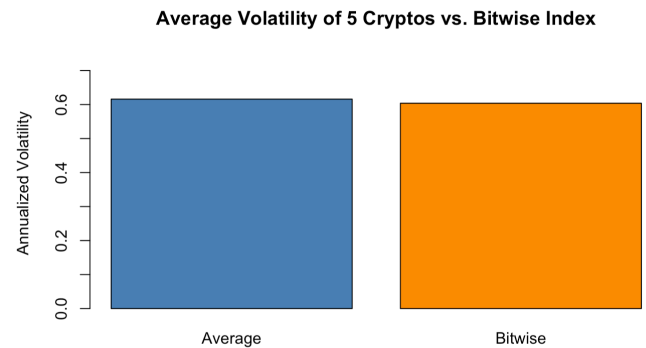
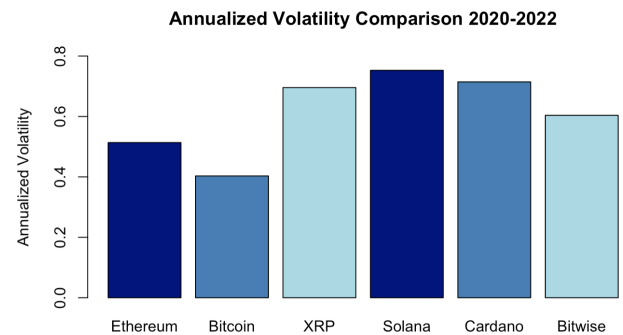


Just from first glance it is clear to see that cryptocurrency prices have shot up in the past few years which means investing in cryptocurrency is certainly a good idea if done correctly.

	Ethereum.summary	Bitcoin.summary	XRP.summary	Solana.summary	Cardano.summary	Bitwise.summary
mean	0.000902	0.002124	0.002160	0.003121	0.001165	0.003924
standard deviation	0.032362	0.025398	0.043825	0.047418	0.045005	0.038038
skewness	0.364712	0.392176	2.886222	0.541940	1.904837	0.109304
kurtosis	4.726422	2.215811	32.061642	3.172484	25.536922	2.875086
minimum	-0.160731	-0.090823	-0.207859	-0.228588	-0.278123	-0.195428
maximum	0.197200	0.114616	0.548555	0.282125	0.538407	0.178894

In our initial statistical investigation of the returns of our daily log adjusted assets we can easily see the Bitcoin is much safer investment than anything else. The standard deviation (i.e risk) for Bitcoin is much lower than everything else which is already telling me that to reduce risk in investing in cryptocurrency we should just invest in Bitcoin. However, we can also see the mean return is much higher for Bitwise than anything else displayed so we will investigate further.

After plotting the annualized volatilities we can see it confirms what we thought earlier. Bitcoin just has much less volatility associated with it than anything else. I also wanted to investigate how well Bitwise volatility does against the average of all the individual investments and you can see from the bottom chart that it does slightly better. My takeaway from this is that if we were to diversify our cryptocurrency investments and not just use Bitcoin it would indeed be better just to use Bitwise.



I now constructed a security market line based on the five individual assets to compare with Bitwise. Based on this SML we can clearly see that Bitwise is overvalued relative to the security market line while Bitcoin is still undervalued! This again

confirms my suspicions that our firm should just invest in Bitcoin instead of Bitwise or a larger portfolio of cryptocurrency. I will say that our security market line came with a p-value of 0.6785 so this data may not be the most reliable. However our conclusions are consistent with the rest of our data and I'm sure fine tuning this security market line will show the same thing about Bitwise and Bitcoin. My recommendation for the firm is invest in Bitcoin.