Dear Alex,

Hope this letter finds you well. As a valued client of Waite First, your financial well-being is a top priority for us. I've taken the time to carefully analyse the three stocks you're interested in, aiming to identify the best one that matches your requirements.

Examining key metrics such as Investment Beta and R-squared before making an investment is crucial but it's also essential not to rely heavily on them alone when choosing a stock. I made some analysis for you based on these factors, calculated the beta value and the amount of risk involved with each of these stocks.

Let me walk you through some of the concepts involved and some relevant data with numbers to give you a clearer picture.

Table for Statistics:

	S&P 500	Apple	Intel	Kroger
Arithmetic Mean	0.9%	2.7%	0.9%	0.4%
Geometric mean	0.8%	2.3%	0.7%	0.1%
Standard Deviation	4.3%	8.4%	7.1%	7.9%
Beta	1	1.3*	0.8*	0.3***
Coefficient of variance (CV)	4.6	3.1	7.7	17.9
R-squared	100%	42.9%	20.9%	3.3%

****p < 0.001, *** p < 0.01, ** p < 0.05, *p > 0.05

Arithmetic Mean is the "average" return you can expect from an investment. It is appropriate for measuring the mean return across a sample of investments over one period.

The **geometric mean** considers the compounding effect of returns over multiple periods. Geometric mean is more appropriate for long-term investments. It is also appropriate for making statements about past performance.

Standard Deviation measures risk. It is the square root of the variance. A high standard deviation means the investment's returns can vary a lot over a period. A low standard deviation means the returns are more stable and less risky.

Coefficient of Variation measures risk per unit of return. A lower CV means you're getting more return for less risk. A higher CV indicates more risk.

Intuitively, the investment **beta** measures the volatility of the stock or portfolio compared to the overall stock market. It is a measure of systematic risk. A beta less than 1.0, on the other hand, implies that the return of the security will rise (or fall) less on average than the return of the market portfolio.

In an investment context, the higher the value of $\mathbf{R^2}$, the higher the proportion of the stock's risk that is market-specific. Its value varies from 0 to 1. $\mathbf{R^2}$ is very important in measuring the goodness of fit of the regression equation.

After analysing the statistics, it is observed that there is wide dispersion of returns over the period of 72 months. The positive Mean value indicates positive average returns for all the stocks. The geometric mean is always less than the mean as it takes into consideration the compounding effect of returns. The higher standard deviation suggests higher volatility, implying greater risks. Kroger's data points are relatively more dispersed on the scattered diagram and SLR model, indicating more extreme values and a weaker relationship with S&P500 whereas Apple and Intel appear to have a stronger correlation.

Let me provide some intuition behind the relative magnitudes of all the above statistics. Apple has the highest returns as well as the highest risk when compared to Intel and Kroger. Also, Apple's stock has a Beta value that's greater than 1, indicating it is very sensitive to market volatility. Intel is considerably less volatile to the market. The risk per return for Kroger is the highest which is 17.9 and can be attributed to the low average returns. Kroger exhibits minimal market-specific risk at 3% which makes it market resilient as it is a grocery chain.

All in all, I would recommend investing in Intel which has promising returns and is less volatile with a beta of 0.8. It means that if the market portfolio's return exceeds expectations by 1%, then the return of Intel is estimated to exceed expectations by 0.8%. With low beta it performs comparatively well in both up and down markets. It has moderate mean and CV which means moderate returns and moderate risk respectively. Kroger has high risk and Apple has the high SD and market specific risk which deems these 2 stocks unsuitable. Additionally, Intel's market leadership and strong financials would make it an ideal choice for investment.

It is important to note that although these recommendations were considered after thorough analysis, there are certain caveats that cannot be ignored. One such limitation is that the past performance is no guarantee of future performance. Also, we used consecutive months of data, rather than a random sample, to estimate CAPMs. As a result, the conclusions we've reached may not fully capture the actual state of the market.

Having said everything, I wish you good luck on your investment and expect the following year to bring you higher returns. Thank you.

Regards,
Wait First Securities