



# Assessment cover sheet

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**MARKER'S COMMENTS**

**GRADE**

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## Starting Portfolio

On the 2<sup>nd</sup> of May, I ordered 200 META (\$439.19 per stock) 8.8%, 40000 BLDP (\$2.66 per stock) 10.6%, 1100 TSLA (\$179.99 per stock) 19.8%, 90 MSFT (\$394.94 per stock) 3.6%, 1000 JPM (\$191.86 per stock) 19.2%, 126 LMT (\$461.73 per stock) 5.8%. My Green Stocks were BLDP (Ballard Power Systems Inc.) and TSLA (Tesla Inc.).

## Company Overview and Investment Rationale

Justifying BLDP and TSLA's position as green stocks is mainly based on the core business model which is the sustainable energy. BLDP manufactures and sells hydrogen fuel cell engines. Their business model is to make profit from selling zero emission fuel cell vehicles. Their ESG score and environmental risk score is not listed in Yahoo Finance, but they only produce zero emission fuel cell vehicles. Therefore, this is a good justification to consider them green. TSLA has a low environmental risk score of 3.3. They are one of the representative green stocks of today. Their business model is to make a profit from selling electric vehicles and they only produce and sell electric vehicles. On top of this, currently all the manufacturing for Tesla is done in the U.S. and they comply to the Environmental Protection Agency standards. Considering these, TSLA is another green stock. Their position in my portfolio is roughly 30.4%, which is well above the 20% threshold.

NVDA has the market cap of \$2.328 trillion. It belongs to the computer hardware, semiconductors, AI, GPUs industry. NVDA is the hero stock for A.I. investors. A.I. is one of the most famous topics among investors in the market. The recent tsunami in Taiwan was a concern because the production of semiconductors might be affected or slowed down for a long time, following the news that TSMC did suffer some direct impact on their production lines.

NVDA was not part of the buying on the 02/05/2024, but the cash of \$322295.3 was rather reserved. This was because there is a short-term uncertainty in NVDA price because of the tsunami in Taiwan. I wanted to wait for 2 weeks to check the market sentiment first. If the market shows steady price movement for NVDA, then the cash will be used to buy the stock.

META has the market capitalisation of \$1.187 trillion dollars. It belongs to the social media social network advertising industry. Its competitors are Alphabet, TikTok, and X, etc. One major news that was considered relevant to META was the escalations regarding TikTok in U.S. It is increasingly clear that TikTok will be out of U.S. soon.

The rationale behind selecting META is the increasing market attention on TikTok, and there is a possibility that the META stock price will significantly rise in the short term, as TikTok users migrate to Instagram or Facebook.

BLDP is comparatively small in market capitalisation of \$958.038 million dollars. It belongs to the specialty industrial machinery industry. There is a significant risk in this sector because there is not enough demand for hydrogen cars in the market, it is expensive to build such products, and there are no economies of scale as the industry is still growing. The opportunity is the increasing awareness of environmental sustainability. There is a news that the government is providing Inflation Reduction Act funding up to \$94 million dollars and BLDP is building a fuel cell Gigafactory in Texas based on the funding.

This stock was selected because the global interest in environmental sustainability is growing rapidly and there is ever more leverage on government funding in sustainability industry. Therefore, it seems to be reasonable to anticipate a continuous funding from the government, which means continuous R&D and Gigafactory constructions that lead to economies of scale. There is no promise that the hydrogen cars will be our next Tesla, but the government commitment and the small market capitalisation makes it an attractive risky investment choice.

TSLA has the market capitalisation of \$566.242 billion. Tesla belongs to the automotive and energy sector. There is a recent news that China is selling extremely cheap electric vehicles, and the demand from the market is slowing down, which is decelerating Tesla's sales performance. Another news is that Tesla is mass firing the Supercharger team. Another major news was that

TSLA must resist the 'Chasm' effect. The early adapters are almost done purchasing electric cars, but the general population is not buying electric cars yet. This could be one of the biggest hurdles TSLA must overcome first. The last positive news is that Biden has put up a 100% tax hurdle to cheap Chinese electric cars. Although China exports below 5% electric cars to U.S., this shows the U.S.' commitment to preserve their electric car manufacturing industry and this is a positive news for TSLA.

Overall, these are bad news for the short-term holding, but I chose to hold TSLA at a significant 20% of the total portfolio because many other competitors are entering electric vehicles market, and this scales up the EV market, and there was a recent news that Biden is increasing taxes on Chinese EV imports up to 100%. This could be followed by some positive short-term reaction from the stock market. On top of this, the governments around the world are committed to phase out emission vehicles and to fund sustainable automotives, so the EV market is bound to continue expanding. Although there might be some short-term loss due to the lack of demand from the 'chasm' effect, TSLA is one of the most competitive green stocks to hold along with BLDP at least 20% of the portfolio.

MSFT has a market cap of \$3.096 trillion (Technology industry). Its competitors are other AI technology companies like Alphabet and Nvidia. The recent news is talking about Microsoft investing billions in A.I. technology.

The rationale behind the small 3.6% position in MSFT stocks rather than Alphabet stocks is to gain some exposure to OpenAI. There are significant shortage considerations like the recent tsunami impacting TSMC production capacity and TSMC being the sole foundry for most of the U.S. Big Tech buyers. Many fab-less companies are now investing to produce chips themselves. There is a significant uncertainty regarding the outcome of these efforts because acquiring production capacities for high-end chips is extremely expensive and time consuming. Considering these risks, it seemed to be reasonable not to invest heavily in A.I. and chips in the short term.

JPM has a market cap of \$578.67 billion and belongs to the financial services sector. There is a recent news that insiders are selling JPM stocks. Another news is that the JPM shareholders have earned more than the market return over the last 5 years.

The reason JPM was included in the portfolio with 19.2% exposure was the volatility regarding the inflation, interest rate and the U.S. election. The inflation in U.S. did not seem to stabilise as anticipated. This should mean the interest rate might not go down in the short term. This increases tensions between the Fed and politicians as Fed wants to stabilise the economy while politicians want to boost the economy by lowering interest rates. I thought this would elevate the uncertainty in the market and I hedged the risk of rising inflation and interest rates by buying a

significant amount of a bank stock. If the market goes down due to another interest rate hike, the bank stocks would likely go up in price and their profit will also be higher, resulting in higher dividends. This would help diversify the portfolio amid the market rate uncertainty.

LMT has a market cap of \$112.905 billion. It belongs to the aerospace, military support, security, and technologies industry. My exposure to this stock was roughly 6%. The recent news is the Israel and Hamas war situation.

The reason why this stock was selected was to gain exposure to the possibility that Israel and Hamas will continue their situation for a prolonged period. If the war situation worsens and involves other countries as well, this might provide opportunities to Lockheed Martin who is an arms seller. This was another diversification effort to hedge for a worsening war situation that might impact energy prices and inflation, which might negatively affect stock prices. LMT would likely increase in price, and this would help hedge against the adverse scenario.

I reserved \$322295.3 cash. The rationale behind this is this represents my position in U.S. government bonds. One month is a very short period and the earnings from the interest rate is negligibly small, because I will liquidate the position to make cash to buy stocks at the second week. Therefore, I didn't buy anything, but it still represents my position in the bond. This was because the March CPI index showed a higher increase than the expected value. Therefore, this seemed to be a considerable scenario that the stock market could lose its confidence and start to believe the inflation will not stabilise in the short term. This might result in a short-term market crash. I reserved the cash to buy stocks at the crashed prices if this does happen. The cash reserve will be spent on 14/05/2024 for buying NVDA stocks and another cash reserve will be made on 17/05/2024 by selling inflation hedge stocks. Depending on the market situation there will be no more cash reserve from 17/05/2024 as the short-term inflation uncertainty will be resolved after the April CPI announcement.

## Trading Strategy and Execution

NVDA was not bought on 02/05/2024 and the reason is already discussed in the previous section. NVDA is my hero stock. The plan is to execute two consecutive buys, one before the CPI index announcement, and one after. This strategy is to monitor the market reaction to the tsunami event in Taiwan from 02/05/2024 up to 13/05/2024 first, then if the reaction is good, I will secure a good exposure to the CPI announcement (this was executed on 14/05/2024 6PM, 356 stocks @ \$896.32) to capture the price jump if the CPI index is a good number. Otherwise, this position

will be sold at \$870 stop loss. After the CPI announcement, if the CPI index is stable, there will be cash to buy more NVDA stocks to capture the general market exposure after 15/05/2024.

JPM is a bank stock. Its main function is to hedge against the possibility of a very bad CPI announcement and the following market crash. On 15/05/2024, the April CPI index will be announced. If the inflation is below the expectation, this would help stabilise the market. In this case, I will sell JPM stocks and buy a growth stock to absorb the positive market movement. This was ordered on 16/05/2024 6PM (Australian time), 1000 stocks @ \$202.11.

LMT will be sold on 17/05/2024. The recent news about Iran firing missiles seem to have resolved well. Iran gave out a warning before firing the missiles and did not respond aggressively to Israel's drone attacks. If they were willing to escalate, Iran had good reasons to join the war. Seeing their withdrawn stance, the war situation in Israel does not seem to escalate a lot in the short term. The proceedings will be invested in a growth stock until the end of the trading period. This was ordered on 16/05/2024 6PM (Australia time), 126 stocks @ \$464.08.

TSLA is slowing down its performance and the threat of cheap EV cars from China might play a crucial role to affect the stock price significantly. The green stocks will almost certainly stay over the 20% threshold because TSLA stocks must hit \$85.11 for the green stock combo to reach below 20%. This is extremely unlikely. TSLA has a market cap of \$586.242 billion. Considering the huge scale, about a 25% drop would be considered a catastrophic crash. However, I will hold the stock until the end of the investment period to maintain the 20% green stock exposure. I will keep monitoring the stock price and liquidate JPM (least correlated stock) to buy 5% TSLA, if the green stocks fall below 23%.

BLDP is using the Inflation Reduction Act funding to cover the loss and expenses. The business is not making any profit. Therefore, it is a risky stock, so TSLA takes up most of the 20% green stock requirement, 19.8%. In this way, this stock must reach \$0.051 (currently \$2.66) to hit the 20% threshold. This stock will not be sold until the end of the 4 weeks holding period.

META is recently investing heavily in A.I. along with other big tech companies. This makes META, MSFT, and NVDA correlated. They might crash together if the CPI index shows some extreme numbers on 15/05/2024 or if there is a serious war situation. My strategy is to counter big tech companies by holding JPM and LMT which should go up in price under the extreme circumstances. JPM should go up in extreme situations like the next global crisis, due to an

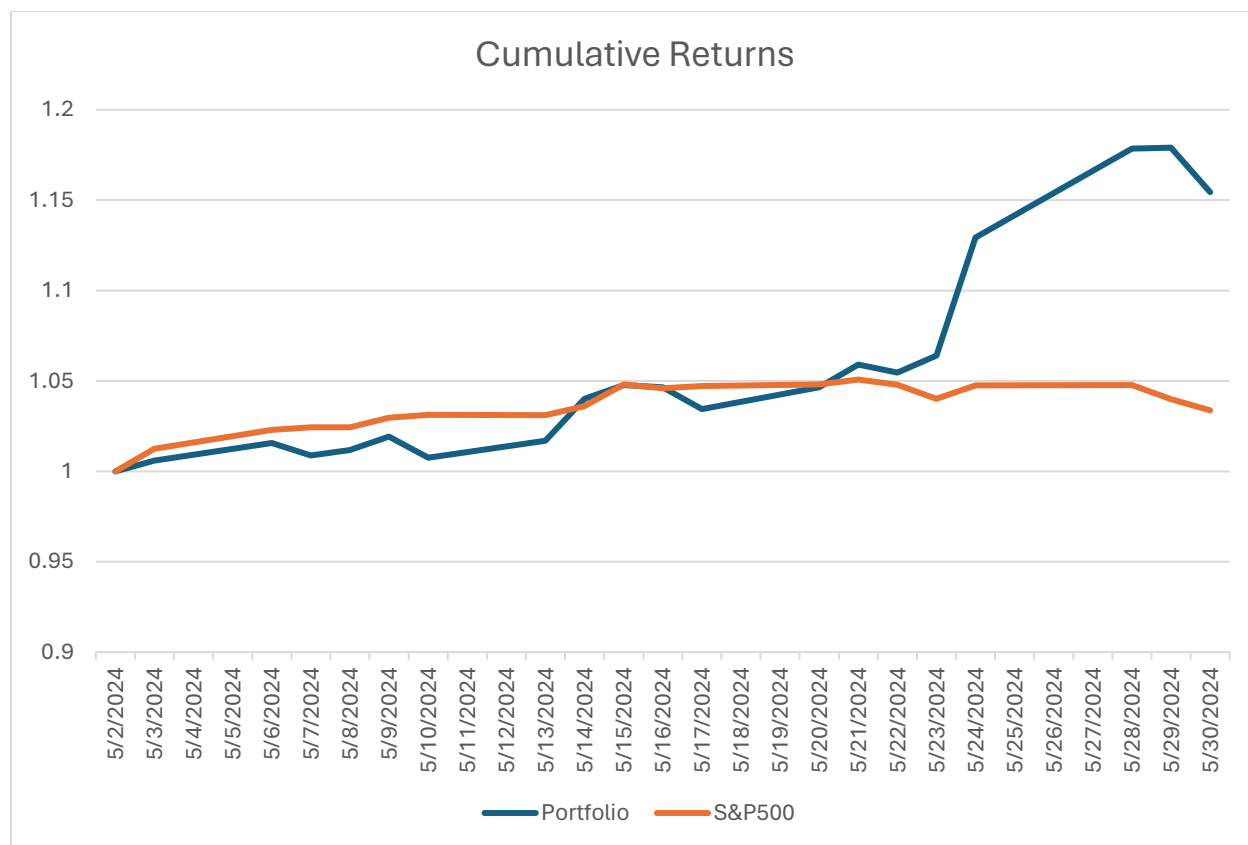
extended period of rate freeze or even a rate increase. LMT would increase in price if there is an extreme war situation like a significant escalation in Ukraine, Israel, or ultimately, Taiwan.

There are several layers of strategies regarding the big techs. Firstly, regardless of the situation, any stock that suffers 7% loss will be sold (stop loss at 93%). Secondly, if one major financial institution or bank in U.S. goes bankrupt, they will all be sold at the market price. Thirdly, I will monitor the CPI announcement on 15/05/2024 and if the inflation is above the expectation, all three big techs will be sold at the market price.

The personal goal was to retain a 12% annual income. For this, a monthly return must exceed 0.95%. By 18/05/2024, the total return is 3.83%. The month of May has been an abnormally good month, most likely because of Biden's bond buyback action, which technically has no meaning on the economy. This is because now is the time they should focus on stabilising the inflation, but the bond buyback is a stimulus action. Personally, this bond buyback is Biden trying to increase his chance to win the election. I believe Biden will keep doing something like this until the election. Therefore, none of the positions from 18/05/2024 (entirely growth position to capture this 'artificial' upward stock market sentiment) will be sold until the end of the 4 weeks holding period. However, if the portfolio returns drops near 0.95%, all positions will be liquidated, and I will stop the loss somewhere above 0.95%.

## Performance Analysis

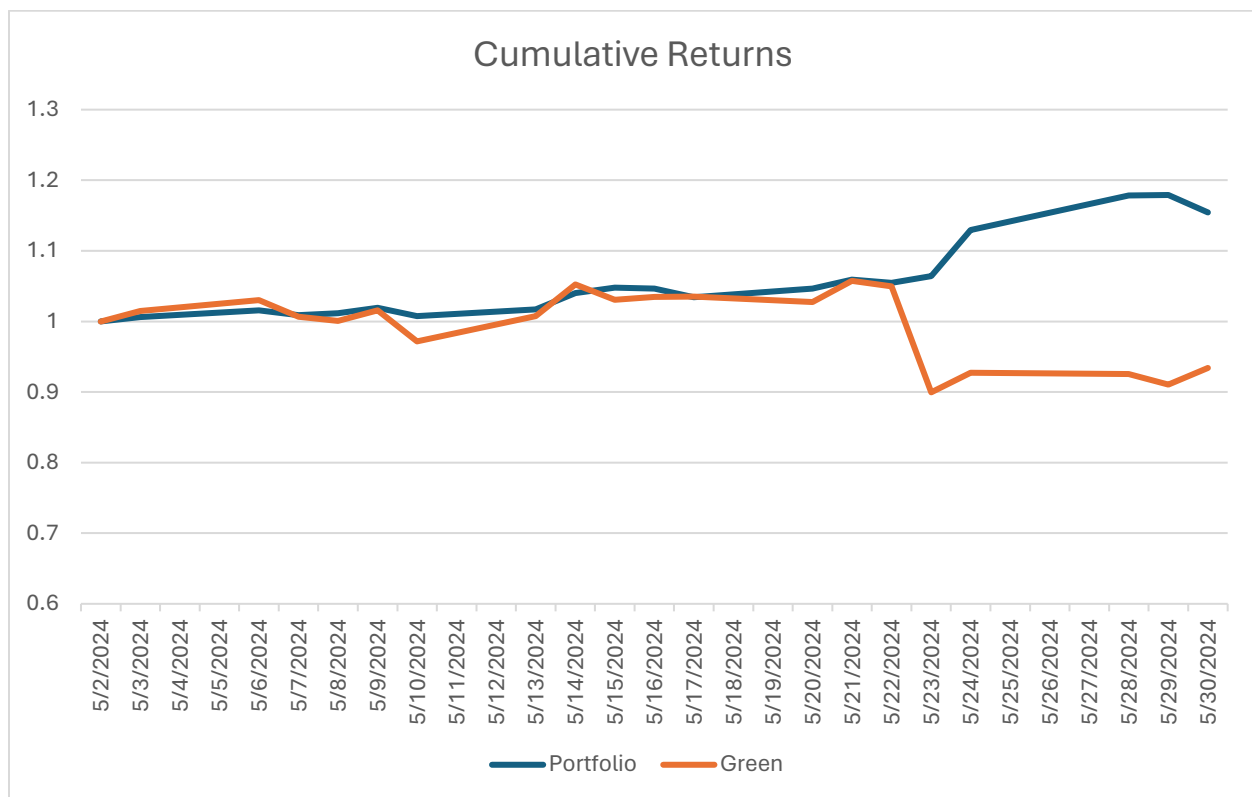
	Portfolio			S%P 500		
	Total Return	Std. D	Sharpe Ratio	Total Return	Std. D	Sharpe Ratio
Week 1	0.019230542	0.005702688	3.372189011	0.029595988	0.004902874	6.036456711
Week 2	0.046459143	0.011434608	4.063029072	0.045989495	0.004844469	9.493196773
Week 3	0.06399679	0.009457742	6.766603541	0.040211682	0.003583189	11.22231695
Week 4	0.154582888	0.032844714	4.706476869	0.033821729	0.005695853	5.937956441



The above is the comparison between the portfolio and an imaginary market portfolio if the same amount of money was invested in S&P 500. Almost all stocks in the portfolio are part of the S&P 500, therefore the portfolio is a subset of the S&P 500. In this way, the two are highly correlated. The portfolio has 5 ~ 6 stocks only. In this way, it is much less diversified than the S&P 500. This should be why my portfolio is more volatile than the market returns. S&P 500 suffers almost no recognisable negative returns during the holding period, while my portfolio drops on 06/05/2024, 09/05/2024, and 15/05/2024. Also, a clear pattern is that the market returns almost always outperform my portfolio until 14/05/2024. This must be because the entering portfolio on 02/05/2024 had only 42.98% exposure in growth stocks. The rest were positioned in bank and hedging purposes. On 14/05/2024, I liquidated all bank and hedging positions and bought NVDA stocks. The growth stock exposure jumped to 77.75% on the 14<sup>th</sup>. This seems to have exceeded the market portfolio's exposure on risk stocks, because my portfolio outperformed the market portfolio very briefly on the 14<sup>th</sup>. This should be a sign that my portfolio is now riskier than the market portfolio. This would result in a greater loss during the bear market. If week 3 is a bear week, the market portfolio would beat my portfolio, but in a bull market, the other way around. The 4<sup>th</sup> week of my holding period coincided with NVDA's stock price surge following their performance announcement on May 22<sup>nd</sup>. I sold my inflation hedge stocks on 16<sup>th</sup> and bought 279 NVDA stocks on the 17<sup>th</sup>. I bought 35 extra NVDA stocks on 24/05/2024 following the price surge. Before the announcement, I stocked up 56.6% of the total portfolio on NVDA. This was a very risky action and I had to be more thoughtful on diversification. My only justification was

the news about Biden's stimulus movements would open a short-term bull market and the best bet was to maximise my position on the growth stocks, and AI was the most potential choice.

	Portfolio			Green Stocks		
	Total Return	Std. D	Sharpe Ratio	Total Return	Std. D	Sharpe Ratio
Week 1	0.019230542	0.005702688	3.372189011	0.015481216	0.015315835	1.010798092
Week 2	0.046459143	0.011434608	4.063029072	0.034871798	0.033340653	1.04592428
Week 3	0.06399679	0.009457742	6.766603541	-0.10040331	0.060245859	-1.66655946
Week 4	0.154582888	0.032844714	4.706476869	-0.06607836	0.019342676	-3.41619543



The green stocks are part of my portfolio, which is a subset again. In this way, these two are also highly correlated. The green stocks look much more volatile, which should be because of the same reason discussed in the previous part. My portfolio is a mixture of different sectors that are not meant to be correlated by design. There are growth stocks and bank and military stocks that are expected to benefit from high interest rate economic situations which is most relevant to the current war tensions and inflation. As evident from the above graph, green stocks show a poorer diversification than the portfolio. Green stocks are more volatile and move up and down further than the magnitude of the movement of the portfolio. Green stock portfolio, being more volatile, tends to end up with a higher magnitude of returns in both good and bad markets. This could mean that the green stocks are riskier than the portfolio. This should be because the BLDP stock has a very small market capitalisation compared to other mature companies. Due to the small

scale, the return rates are much higher to compensate for the higher risk of holding the stock. Also, TSLA is another stock that has been highly volatile. In this way, the green stock portfolio should generate a higher magnitude of returns than the more diversified portfolio in the bear markets.

## Economic and Innovation Impact Analysis

The U.S. Quarter 1 2024 GDP was lower than the expected 2.3%. The actual Q1 GDP was 1.6%. The April CPI index was 3.4%, and the March index was 3.1%. The U.S. interest rate has been fixed at 5.5% since July 2023.

The slowing U.S. GDP could be due to a few factors like the raw material prices soaring from the Russian embargo and the tension in Israel. The U.S. relationship with Saudi Arabia should also account for the oil price that has been difficult to stabilise. The Chinese trade war also pushes up prices as many parts of industries are now reshoring to U.S. and many industries cannot utilise China's cheap labour anymore. Due to inflation, the interest rates have been increased and banks are approving less lending. There is uncertainty in the market as the Fed has been tapering as well. These are major signs that there is a downward force on the stock market. One exception is that Biden has recently shown some stimulus actions by buying back bonds, but this is most likely to do with the coming election and this is most likely a temporary action. Personally, now is one of the riskiest times, but the U.S stock market closed on 15th May record high. My portfolio performed very well in the first two holding weeks. It generated a 3.8% return in just two weeks. As discussed, the general economic trend clearly seems to resemble a recession, but the market looks very confident. The 3.8% return in two weeks was before the April CPI announcement, and the March CPI was clearly a bad number. Investors seem to think we are phasing out of the economic downturn, where there is a very good chance to capture a huge positive stock price movement. I believe this is why my growth stocks rose a lot during the last two weeks.

As at the end of the third week 23/05/2024, there were two additional news that Biden is issuing historically largest amount of short-term bills. On top of this, the Treasury General Account was \$930 billion on 24<sup>th</sup> April, but it reduced to \$738.40 billion by 22<sup>nd</sup> May. This means about \$200 billion has gone out to the market in just one month. This means a huge inflow of liquidity in the market. From 29<sup>th</sup> May, there will be a buyback of \$15 billion long-term U.S. treasury bonds for two months by issuing short-term bonds. This is a small amount, but at the same time, it is a promise to buy the long-term bonds at a higher price, which does make a significant impact as this artificially lowers the rates of the long-term bonds for a while. Lastly, from the 1<sup>st</sup> of June, the Fed will reduce the quantitative tightening from \$60 billion cap to \$25 billion cap per month. This means the Fed is siding with Biden in their stimulus stance. Personally, this seems to be the last resort of Biden for his re-election. At least in the short-term, this is a very strong bull market

signal. Therefore, the remaining one week will reduce the green stock exposure down to 23% and maximise the positions in growth stocks.

## Technological and Financial Innovations

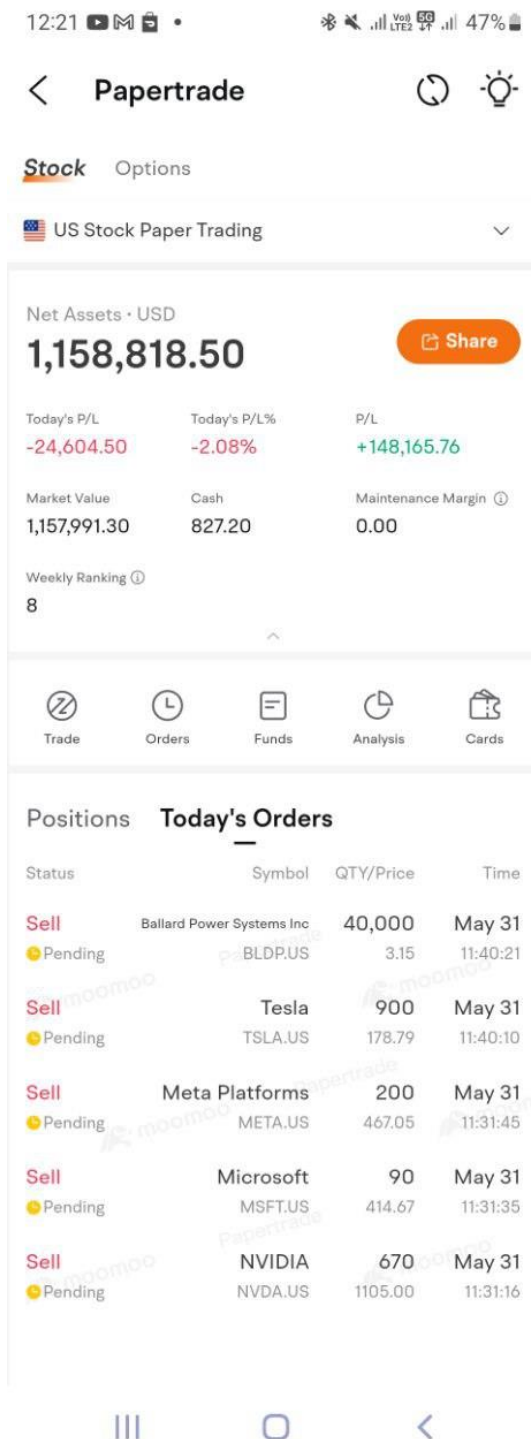
AI is at the centre of investor attention. TSMC and Samsung are investing most of their profit on the next semiconductor technology, and the U.S. Big Tech companies are investing to produce chips on their own. These are one of the biggest capital movements in the global stock market. This has absorbed a lot of capital in the stock market, and Nvidia has grown from a small tech company to the world's 3<sup>rd</sup> biggest. All big tech companies have invested in AI, which makes them correlated. The AI innovation influenced my stock selection because big techs were correlated due to their AI investment, other major non-AI stocks were banking, green stocks, and food merchandise. In this way, I could categorise the stocks into AI stocks, inflation hedge stocks, and the green stocks, and I bought 5 to 6 stocks according to this set up.

## Influence of Economic and Technological Factors on Strategy

In the realm of green stocks, Biden has brought in Inflation Reduction Act and the Green New Deal. Along with the Paris Agreement, these are providing incentives and mandating global firms and countries to abide in the movement to reduce the greenhouse gas emission. Much of the recent fundings go to sustainable technologies like TSLA and BLDP. In this way, the green stocks are attractive choices because it is foreseeable that many governments will keep providing funding. There is many news real time regarding these stocks. These influenced my stock selection. I maintained the exposure on green stocks to 30% not just 20% because there were short-term opportunities regarding the recent news that Biden is setting up a 100% tax barrier on Chinese EVs. The world economy is now subject to the inflation situation. The reserve banks are maintaining high interest rates, and many banks are not approving loans. Many analysts are concerned a recession might start. These add to the volatility of the stock market, which again, influenced the initial stance of my investment. I only invested 43% on growth stocks, and the rest in the inflation hedge position. As the weeks progressed, I saw the reducing holding period as the reduction in risk exposure, and the exposure on the growth stocks gradually increased and reached 77.75% at the end of the 2<sup>nd</sup> week. I saw the last two weeks as the reduced risk because there were no CPI index announcements or any other important economic schedules, and the ever-decreasing length of time meant the less exposure on global economic events.



# Screenshots – Moomoo App





## US Stock Paper Trading Positions

Symbol	Cost/Current	P/L
<b>NVIDIA</b> NVDA.US	923.214 1105.00	+19.69%
<b>Tesla</b> TSLA.US	179.617 178.79	-0.46%
<b>Microsoft</b> MSFT.US	394.19 414.67	+5.20%
<b>Ballard Power Systems</b> BLDP.US	2.66 3.15	+18.42%
<b>Meta Platforms</b> META.US	438.70 467.05	+6.46%

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May 31, 2024