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1. Background

Over the past few years, the global economy has been experiencing an unprecedented hard time. Worldwide lockdown restrictions to fight against the spread of Covid-19 have slowed down the global economy and the central banks have eased monetary policy to boost the economy. The policy has caused the hike in inflation rate and, recently, the U.S Fed started to raise interest rate to stabilize the inflation. However, this is causing a turbulence in the global financial markets and the recent outbreak of the Russia-Ukrainian War has aggravated the market uncertainties. As a result, many investors are greatly affected during this time. This study focuses on exploring different global economic indicators using historical data to find insights on optimizing the future investment portfolio for retail investors, especially for those investing in the Korean stock market.

2. Findings & Insights

2-1. KOSPI vs. Currency Exchange Rate (USD-KRW)

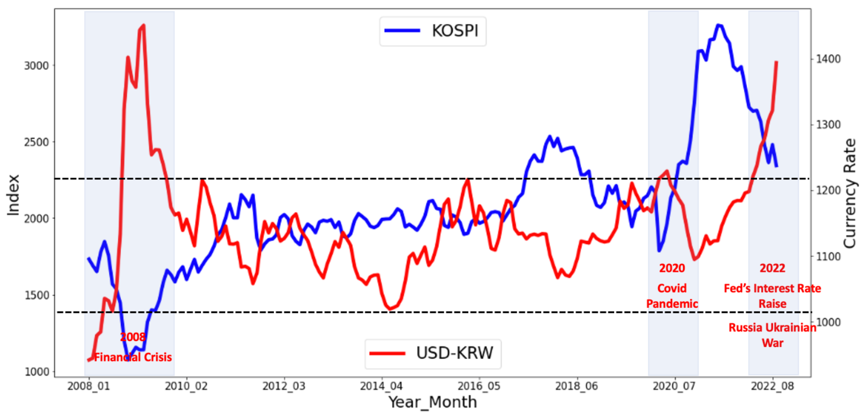

Figure 1: The correlation between KOSPI and Currency exchange rate (USD-KRW)

Figure 1 illustrates the correlation of the KOSPI (Korea Composite Stock Price Index) and the currency exchange rate (USD-KRW) over the past 14 years. As seen in the chart, these two indicators tend to move in the opposite directions, especially during the time of global economic shocks. This can be clearly seen during the Great Recession (2008), Covid pandemic (2020), and the Russia Ukrainian War (2022).

From 2010 to early 2022, the currency exchange rate (USD-KRW) had been moving between ₩1,000 and ₩1,200, on average. Considering the fact that KOSPI and the currency exchange rate move in opposite directions, the exchange rate can be referenced as a market predictor to decide when to invest more in the Korean stock market. When the currency exchange rate converges to ₩1,000, the investors can consider reducing the proportion of Korean stocks in the portfolio and increasing U.S Dollar and other related assets. Reversely, when the currency exchange rate converges to ₩1,200, the investors can take advantage of the high currency exchange rate and consider increasing the proportion of Korean stocks in the portfolio.

During the economic recession in 2008, when the Korean stock market collapsed the currency exchange rate skyrocketed over ₩1,400 per dollar. For those investors, who had U.S dollars in their portfolio could have taken advantage of the high exchange rate and invested in Korean stocks at very low prices. On the other hand, in 2020, when the market collapsed due to the outbreak of Covid pandemic and many central banks worldwide decided to ease monetary policy and inject liquidity to support financial markets, KOSPI skyrocketed over 3,000pt and the currency exchange rate plummeted down to ₩1,080 per dollar. During this time, the investors could have reduced the proportion of Korean stocks and invested in U.S dollars or other related investment products to maximize their profits.

2-2. KOSPI vs. NASDAQ / S&P500

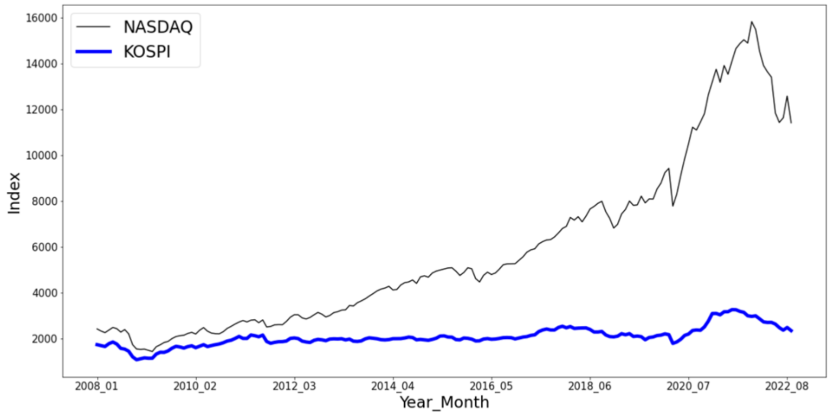

Figure 2: The correlation between KOSPI and NASDAQ

As can be seen from the Figure 2, NASDAQ had been exponentially growing in an upright direction nearly 8 times from 2,000pt to 16,000pt until the recent market crash. On the other hand, KOSPI has been moving up and down between 1,000pt and 3,300pt, known as BOXPI (Boxed-in KOSPI). Therefore, long-term investors in U.S stock market were successful in making huge profits, however, not for those who invested in the Korean stock market.

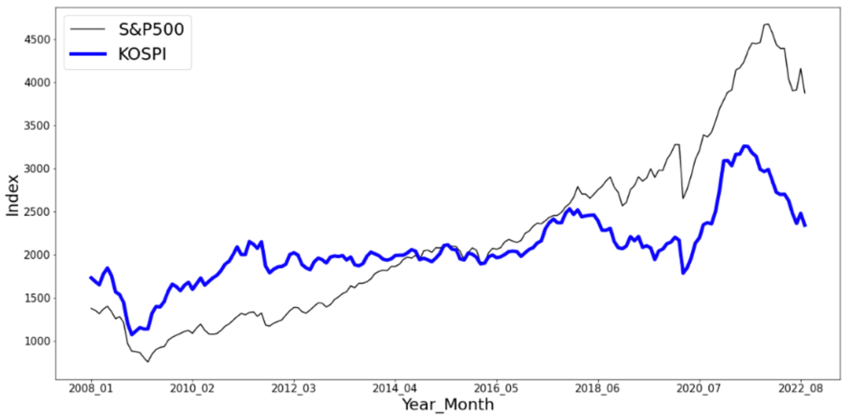

Figure 3: The correlation between KOSPI and S&P500

As seen in Figure 3, it is hard to say that the Korean and U.S stock markets are highly correlated to each other, on average. However, when there were global economic shocks and the central banks decided to ease monetary policy to supply money into the market, the two indices moved in the same direction.

It is hard to guarantee that the U.S stock market will continue to grow at the same rate in the future. However, considering the fact that the U.S and the Korean stock markets are not moving in the same direction, especially during the market growth phases, by investing in both markets investors can expect higher profits. Additionally, Korea has a lot of great world-leading companies, which are significantly under-valued. Therefore, the values of these companies are expected to be re-rated at some point of time in the near future and this will lead KOSPI to move upright direction in the long-run.

2-3. KOSPI and U.S Treasury Bond

When investing in bonds, investors can gain profits in two ways: Capital gain and interest payments. Long-term bonds tend to have higher interest payouts and short-term bonds have lower interest payouts. However, this study will mainly focus on the capital gain aspect of the investment. Bonds can be broadly divided into three different types: Short-term, Mid-term, and Long-term based on their maturities. In this study, the bond's maturity between 1 to 3 years is considered short-term (ETF: SHY), between 7 to 10 years as mid-term (ETF: IEF), and more than 10 years (ETF: SPTL) as long-term.

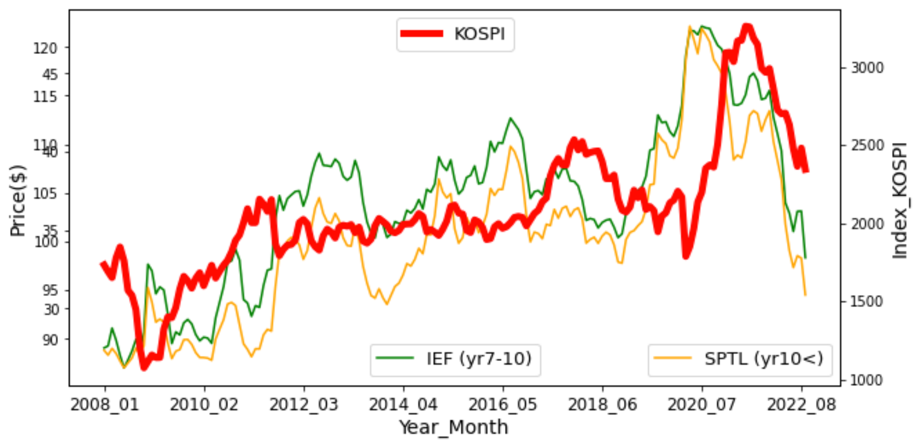

Figure 4: KOSPI and U.S Treasury Bond ETFs

Figure 4 illustrates how the prices of U.S treasury bond ETFs changed over time against KOSPI. It seems the prices of U.S treasury bonds serve as a leading indicator of KOSPI. It is hard to say, whenever the prices of the ETFs rise the KOSPI rises accordingly. However, whenever there was a hike in the KOSPI there was a hike in the prices of ETFs 6 months to 1 year before its occurrence.

The interest rate in the market and the prices of the U.S treasury bonds move in the opposite directions. When the interest rate rises, the investors tend to move their assets to the new bonds with higher interest payouts. As a result, the prices of the existing bonds tend to drop, and vice versa. During the economic recessions, the U.S Fed and the central banks around the world try to boost the economy by lowering interest rates. Consequently, the prices of the U.S treasury bonds go up. Therefore, the investors with U.S treasury bonds in their portfolio can reduce its proportion and start to invest in Korean stocks.

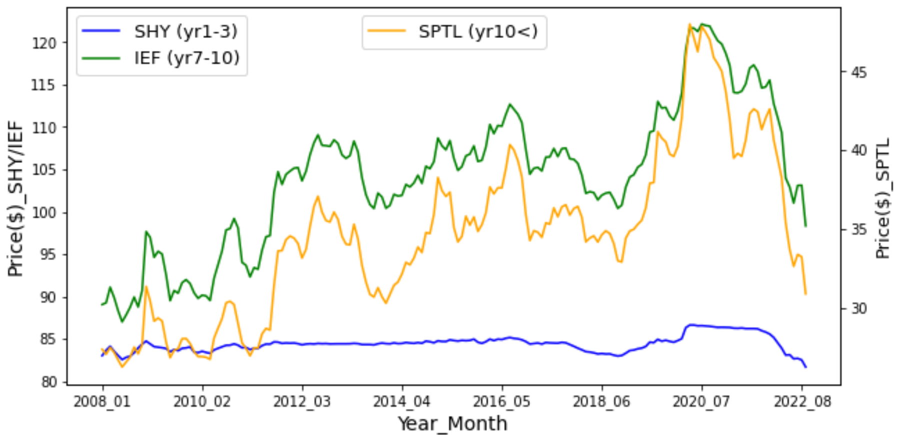

Figure 5: U.S Treasury bond ETFs with different maturities

Figure 5 illustrates the price volatility comparison of different U.S treasury bond ETFs based on their maturities. As seen from the chart, IEF (Short-term) has the smallest variation in the price over time, while SPTL (Long-term) has the biggest price variation. From the capital gain perspective, although the long-term ETF has the biggest price volatility, the investor can expect the highest return. Considering the fact that the long-term bonds tend to have higher interest payouts over time and have a higher chance of maximizing capital gain in the long-run, investing in long-term bonds seems to be the best option. However, due to its price volatility over time, if the investors want to temporarily invest in bonds for risk hedging purposes or have plans to invest in other assets in the near future, investing in short-term bonds seems to be a better choice. Therefore, the investors can consider investing in both short-term and long-term bonds, but decide the proportions depending on their future investment plans.