



Submission Number: Group Work Project 2

Group Number: 06

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Statement of integrity: By typing the names of all group members in the text box below, you confirm that the assignment submitted is original work produced by the group (*excluding any non-contributing members identified with an "X" above*).

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Use the box below to explain any attempts to reach out to a non-contributing member. Type (N/A) if all members contributed.

N/A

** Note, you may be required to provide proof of your outreach to non-contributing members upon request.*

9.1 ONE PAGE TECHNICAL REPORT

1. Summary of key results

For gold we can observe that moving average:

1. Climbed off around 6 % from April to May 2020, following the hardest moment related to lockdown around the world
2. Gold started another strong spike in July that lasted until September (increase from 160 to 185) before starting a descending trend

For SPEU we observe more than 30% growth in price during 2020. This growth takes place all along the year with only October and November where price is flat.

BTC moving average shows that price more than tripled during 2020.

Volatility of SPEU ETF is well modeled by the EGARCH model, while GARCH-M, FIGARCH and TGARCH provide not statistically relevant coefficients.

Considering ADF tests negative values for daily returns (-12,-7,-14 respectively for GLD,SPEU and BTC all more than negative than critical values at 1% critical value) we can conclude no unit root is present. According to Engle-Granger test, SPEU and BTC cannot be rejected to have causality on GLD, but Johansen cointegration test tell us that no cointegration is identified (test statistic largely bigger than critical value for at most 1,2 and 3 cointegrating vectors). VEC is not helpful.

VAR analysis is done, but according to AIC, BIC and HQIC lag of 30 needs to be chosen; the numbers of parameters of the models is thus very big.

2. Interpretation of results

Following covid19, BTC, GLD and SPEU equity rose sharply. This is to be attributed to following factors:

1. Investments in GLD made GLD rise since in any crisis GLD is a considered a safe investment
2. Equity rose also: mass liquidity injections by many governments sustained equity growth, in particular for companies operating in hi-tech, ecommerce, pharma or web communication (i.e. zoom etc)
3. Gov grants to households stimulated retail investments to financial products as BTC

3. Recommended course of action

Best action is to keep investing in both GLD and BTC, in a ratio of 30-70 or similar since both GLD and BTC are expected to keep high during 2021:

1. GLD ETF should stabilize around 170
2. BTC is expected to grow even higher.

9. NON- TECHNICAL REPORT

1. RESULTS

From Q1 throughout Q4 BTC and GLD performed greatly. The GLD ETF registered a great 12.5% growth during the year and BTC more than tripled its value.

2. COURSE OF ACTIONS

GLD and BTC are good investments also for 2021. Covid19 is expected to keep impacting world economy also in 2021, thus:

- GLD is a safe asset that protects us in uncertain times and must be kept in a percentage around 30% or 40% in our portfolio.
- BTC will continue its growth: cryptocurrencies are rapidly spreading geographically and in multiple sectors of the economy, from retail shops to big financial institutions.

3. FACTORS IMPACTING PORTFOLIO

We can list following factors:

- Macroeconomic policies and central banks liquidity injections can push the formation of financial bubbles, especially in equity investments
- The explosion of Retail trading activities can influence in a random and sometimes unpredictable ways the markets
- Uncertainty due to Covid19 can keep GLD high , considering that GLD is traditionally a safe haven.

9.3 Distribution:

The work was organized in the following structure:

1. Code part
 - a. Saverio did the code from 0 to 5
 - b. Harshil did the main version of the code from 0 to 7
 - c. Comments were written after discussion in wqu forum and zoom call
2. Writing reports part was made
 - a. Saverio wrote the technical and not technical reports
 - b. Harshil did a first revision of the reports
 - c. Manas did a second revision of the three reports
3. Distribution of the workload part
 - a. Saverio wrote this section about distribution
 - b. Harshil and Manas were in verification
4. Folder for submission preparation and submission
 - a. Saverio prepared and splitted the codes
 - b. Harshil and Manas were in verification after parts were written