**Explanations**

*Economics recession vs financial crises*

Limitation: Slight difference in dates for economic recessions as defined by the NBER and periods of greatest volatility in financial markets

Future perspectives: Comparison between different dates, same dataset but using breakpoint analysis.

*A dash for cash*

In times of financial turmoil, cash is king. As markets lose value, investors rush to obtain cash by selling any available assets, such as gold, which is one of the most liquid assets after cash. This is evident in both the financial crisis in 2008 and the COVID-19 pandemic, where the price of an oz. of gold appears to drop with the stock index, as investors sell off their gold holdings in exchange for increased liquidity.

The regression model for gold returns on S&P returns during both the COVID-19 pandemic and financial crisis initial positive relationship of gold and stock during financial crises.

During the 2008 financial crisis gold was found to be negatively correlated to stock market returns initial, there is clearly a downward trend in the price of gold during the first month of my sample (**Figure 2A**)

Limitations:

Future perspectives:

*Gold as a store of value*

Here, I provide some intuition for the negative relationship of gold and stock during financial crises.

Intuition for negative relationship between gold and stock indices: As markets lose value, asset are moved to safer investment that will hold value, e.g. gold. After an initial sell-out, it is expected for gold to grow and obtain upward momentum as the market shifts into a risk-off attitude.

Limitations:

Future perspectives:

*Duration of market volatility*

Intuition for positive relationship during COVID-19 pandemic: Unlike the change in correlation observed during the 2008 financial crisis, gold appears to have remained positively correlated with markets throughout 6-month sample period, i.e. the current duration of the ongoing pandemic. This may be partly due to the nature of the market response to the COVID-19 pandemic – a sharp fall in the stock index was followed by an equally a sharp rise.

Limitations:

Future perspectives:

*Different types of flight to gold*

Investing directly in the yellow metal is not the only strategy. Depending on the severity of the financial crisis, investors can also chose to flee from stocks into gold mining shares. This paper uses a large sample of gold mining companies traded on four stock markets to identify different types of flight to gold. After extreme financial shocks, we observe that investors flee from stocks including gold mining shares to gold bullion. However, if the financial shock is less extreme, investors only flee from stocks excluding gold mining shares. This highlights that the study of gold mining companies provides important additional information in the context of flight to quality and safe haven effects.

Limitations:

Future perspectives:

**Reliability of regression model**

Weak overall, but does appears to give some insights into how the relationship between investment into stocks and into gold changes over time and during different periods of financial instability.

Although gold is widely believed to be negatively correlated with stock market indices in times of market turmoil, my analysis suggests that this relationship does not hold in the US stock market during the 2008 financial crisis or the current COVID-19 pandemic. In fact, gold was found to behave counterintuitively to its status of a safe haven, either becoming positively correlated with an ailing US stock market or remaining positively correlated before and after a sustained run of negative returns in a major US stock index.

Due to the ongoing nature of the COVID-19 pandemic, my analysis of the COVID-19 pandemic has been restricted to the beginning of this crisis. It will be worth monitoring the changes in the prices of gold and S&P 500 index in the coming months to see how the relationship between these two variables changes as this crisis develops further.

This analysis focused solely on the short-run relationship between the price of gold and the S&P index in times of ailing stock markets using samples comprising 6 months of data. More insights could be gained by using larger sample sizes and more variables, including analysing periods of stable markets and using volatility as a measure of correlation.

*Limitations*

* explanatory power of the model
* correlation does not imply causation: just because gold and stock are correlated at times does not mean that the fall in stocks caused gold to change.

*Future perspectives*

Wider implementation

“BLM applied to vertebrates are identical (De Schamphelaere et al., 2004; De Schamphelaere et al., 2005). Therefore, the final BLM-based ACR for zinc can be proposed, and if a reliable acute SSD for indigenous species is built, the BLM-based risk assessment for zinc can be applied to freshwater in Korea. Consequently, the BLM-based ACR determined from the ecotoxicity data of various standard toxicity test species will contribute to the application of BLM-based risk assessment for Ni, Cu, and Zn to a wider ecoregion.”