p5

Yousuf Farhan

4/25/2022

Introduction

Since fiat currencies first becoming mainstream, consumer confidence in alternative stores of value and currencies has varied greatly. In the twenty-first century, the emergence of Web 3.0 technologies such as blockchain and smart contracts has paved the way for new stores of value to enter the arena. In particular, this paper analyses consumer behavior regarding the alternate stores of value of the future and whether consumer confidence regarding them fluctuates just like with traditional stores of value, such as gold and precious stones. The paper tests the following hypothesis; does the level of cumulative consumer confidence influence the price of gold and cryptocurrencies? It then takes a step further and tries to predict future trends by pre-defining prices for gold, cryptocurrencies and levels of consumer confidence in OECD member states, using multiple linear regression, followed by how different levels of consumer confidence influence the prices of traditional stores of value, in this case represented by the price of gold and technologically savvy ones, measured by the cumulative price of popular cryptocurrencies.

It should be noted that this paper compares the price of several cryptocurrencies and the global price of gold and contrasts it with the levels of consumer confidence among OECD member states to test the aforementioned hypothesis. \

Data

How the data was obtained

This paper uses (R Core Team 2021) for statistical analyses with (Ushey et al. 2020) as the intergrated development environment. Relevant packages include (Wickham 2021), (Wickham, François, et al. 2021) and (Wickham and Miller 2021) for data management, manipulation and analysis.(Wickham, Chang, et al. 2021) is used for the purposes of graphing and data visualization. (Francois 2020) is used to generate a standardized citations that adhere to Bibtex standards. Multiple datasets were used. To analyze price points at various dates for cryptocurrencies a dataset from data.world.com ("Cryptocurrency Price Data," n.d.) was used. The data for consumer confidence among OECD member states was taken from the OECD website ("Consumer Confidence Index (CCI)" 2022). Gold prices were taken from the World Gold Council ("Historical Gold Prices," n.d.).

Cleaning the data

For the dataset for consumer confidence among OECD member states ("Consumer Confidence Index (CCI)" 2022), a three-step cleaning process is applied. First, the Dplyer package (Wickham, François, et al. 2021) is used to select rows which show the cumulative OECD figures. Then the average for each month is calculated. This is followed by removing the figures for the entire OECD to make the dataset specific to OECD member

states using the Tidyverse package (Wickham 2021). The data parsing for this dataset is concluded by converting the string values for each month to the date type (Grolemund and Wickham 2011).

The dataset used for cryptocurrencies ("Cryptocurrency Price Data," n.d.) is subject to only one data cleaning process, which consists of grouping rows by month to compare and contrast data from multiple datasets better. For gold, the dataset from the World Gold Council ("Historical Gold Prices," n.d.) is has two columns selected, one depicting the date and the other the price in United States' dollars. Then only the rows from the end of 2013 upto March 2022 are selected for further analysis.

```
## New names:
## Rows: 3556 Columns: 8
## -- Column specification
## -------------------------------------------------------- Delimiter: "," chr
## (6): LOCATION, INDICATOR, SUBJECT, MEASURE, FREQUENCY, TIME dbl (1): Value lgl
## (1): Flag Codes
## i Use `spec()` to retrieve the full column specification for this data. i
## Specify the column types or set `show_col_types = FALSE` to quiet this message.
## * `US dollar` -> `US dollar...2`
## * `Euro` -> `Euro...3`
## * `Canadian dollar` -> `Canadian dollar...6`
## * `Chinese renmimbi` -> `Chinese renmimbi...9`
## * `US dollar` -> `US dollar...10`
## * `Euro` -> `Euro...19`
## * `US dollar` -> `US dollar...21`
## * `Chinese renmimbi` -> `Chinese renmimbi...23`
## * `Canadian dollar` -> `Canadian dollar...24`
```

```
## # A tibble: 99 x 8
##    LOCATION INDICATOR SUBJECT  MEASURE   FREQUENCY TIME    Value `Flag Codes`
##    <chr>    <chr>     <chr>    <chr>     <chr>     <chr>   <dbl> <lgl>
##  1 OECD     CCI       AMPLITUD LTRENDIDX M         2014-01  99.6 NA
##  2 OECD     CCI       AMPLITUD LTRENDIDX M         2014-02  99.6 NA
##  3 OECD     CCI       AMPLITUD LTRENDIDX M         2014-03  99.7 NA
##  4 OECD     CCI       AMPLITUD LTRENDIDX M         2014-04  99.8 NA
##  5 OECD     CCI       AMPLITUD LTRENDIDX M         2014-05  99.9 NA
##  6 OECD     CCI       AMPLITUD LTRENDIDX M         2014-06  99.9 NA
##  7 OECD     CCI       AMPLITUD LTRENDIDX M         2014-07  99.9 NA
##  8 OECD     CCI       AMPLITUD LTRENDIDX M         2014-08  99.8 NA
##  9 OECD     CCI       AMPLITUD LTRENDIDX M         2014-09  99.9 NA
## 10 OECD     CCI       AMPLITUD LTRENDIDX M         2014-10  99.9 NA
## # ... with 89 more rows
```

```
##  [1] "2014-01-01 UTC" "2014-02-01 UTC" "2014-03-01 UTC" "2014-04-01 UTC"
##  [5] "2014-05-01 UTC" "2014-06-01 UTC" "2014-07-01 UTC" "2014-08-01 UTC"
##  [9] "2014-09-01 UTC" "2014-10-01 UTC" "2014-11-01 UTC" "2014-12-01 UTC"
## [13] "2015-01-01 UTC" "2015-02-01 UTC" "2015-03-01 UTC" "2015-04-01 UTC"
## [17] "2015-05-01 UTC" "2015-06-01 UTC" "2015-07-01 UTC" "2015-08-01 UTC"
## [21] "2015-09-01 UTC" "2015-10-01 UTC" "2015-11-01 UTC" "2015-12-01 UTC"
## [25] "2016-01-01 UTC" "2016-02-01 UTC" "2016-03-01 UTC" "2016-04-01 UTC"
## [29] "2016-05-01 UTC" "2016-06-01 UTC" "2016-07-01 UTC" "2016-08-01 UTC"
## [33] "2016-09-01 UTC" "2016-10-01 UTC" "2016-11-01 UTC" "2016-12-01 UTC"
## [37] "2017-01-01 UTC" "2017-02-01 UTC" "2017-03-01 UTC" "2017-04-01 UTC"
## [41] "2017-05-01 UTC" "2017-06-01 UTC" "2017-07-01 UTC" "2017-08-01 UTC"
## [45] "2017-09-01 UTC" "2017-10-01 UTC" "2017-11-01 UTC" "2017-12-01 UTC"
```

```
## [49] "2018-01-01 UTC" "2018-02-01 UTC" "2018-03-01 UTC" "2018-04-01 UTC"
## [53] "2018-05-01 UTC" "2018-06-01 UTC" "2018-07-01 UTC" "2018-08-01 UTC"
## [57] "2018-09-01 UTC" "2018-10-01 UTC" "2018-11-01 UTC" "2018-12-01 UTC"
## [61] "2019-01-01 UTC" "2019-02-01 UTC" "2019-03-01 UTC" "2019-04-01 UTC"
## [65] "2019-05-01 UTC" "2019-06-01 UTC" "2019-07-01 UTC" "2019-08-01 UTC"
## [69] "2019-09-01 UTC" "2019-10-01 UTC" "2019-11-01 UTC" "2019-12-01 UTC"
## [73] "2020-01-01 UTC" "2020-02-01 UTC" "2020-03-01 UTC" "2020-04-01 UTC"
## [77] "2020-05-01 UTC" "2020-06-01 UTC" "2020-07-01 UTC" "2020-08-01 UTC"
## [81] "2020-09-01 UTC" "2020-10-01 UTC" "2020-11-01 UTC" "2020-12-01 UTC"
## [85] "2021-01-01 UTC" "2021-02-01 UTC" "2021-03-01 UTC" "2021-04-01 UTC"
## [89] "2021-05-01 UTC" "2021-06-01 UTC" "2021-07-01 UTC" "2021-08-01 UTC"
## [93] "2021-09-01 UTC" "2021-10-01 UTC" "2021-11-01 UTC" "2021-12-01 UTC"
## [97] "2022-01-01 UTC" "2022-02-01 UTC" "2022-03-01 UTC"
```

```
## [1] "character"
```

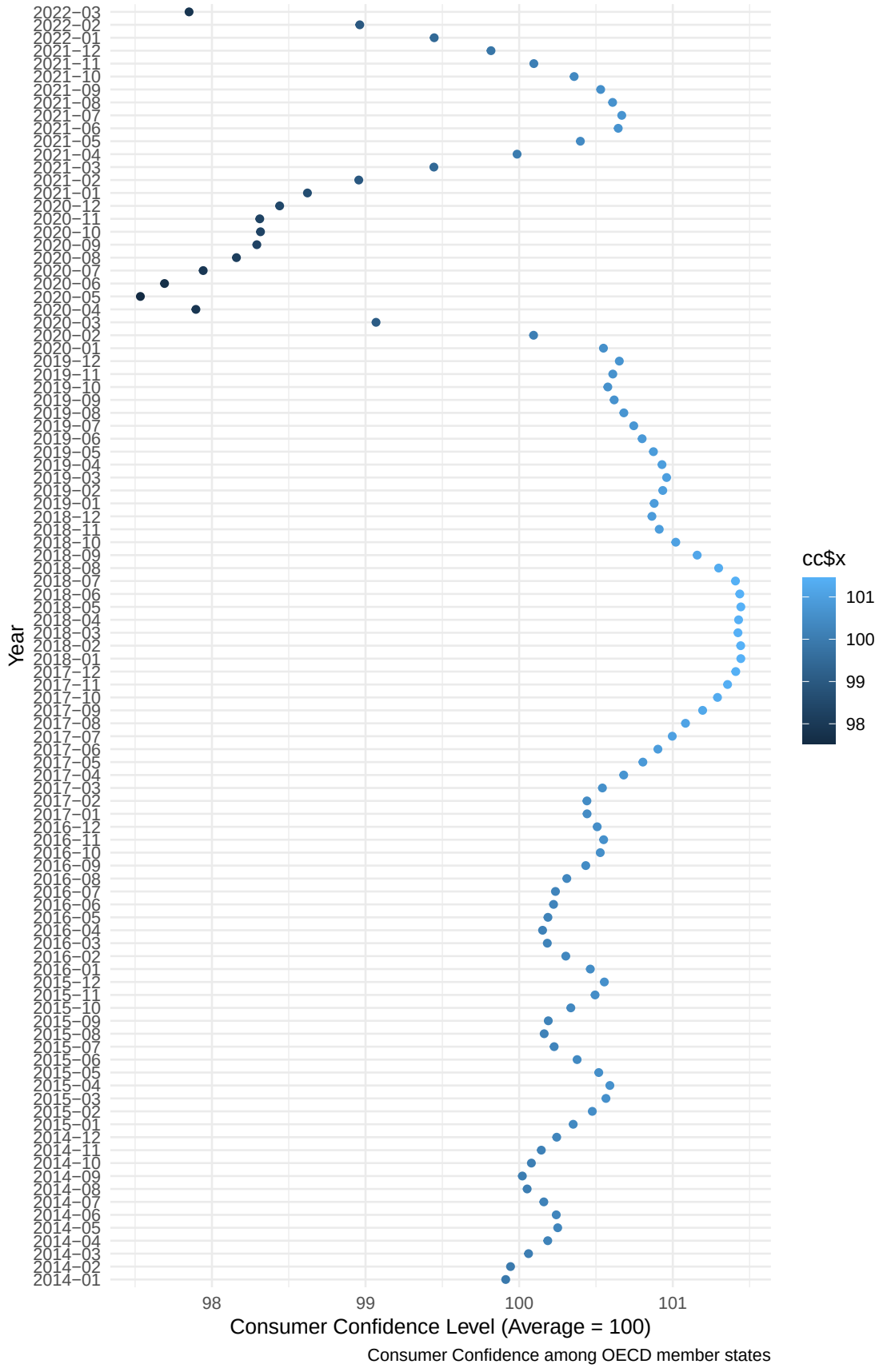
\

Results

Cumulative Results from all three datasets after data cleaning

```
## Warning: Use of ‘cc$Group.1‘ is discouraged. Use ‘Group.1‘ instead.
```

```
## Warning: Use of ‘cc$x‘ is discouraged. Use ‘x‘ instead.
## Use of ‘cc$x‘ is discouraged. Use ‘x‘ instead.
```


Year
2022–03
2022–02
2022–01
2021–12
2021–11
2021–10
2021–09
2021–08
2021–07
2021–06
2021–05
2021–04
2021–03
2021–02
2021–01
2020–12
2020–11
2020–10
2020–09
2020–08
2020–07
2020–06
2020–05
2020–04
2020–03
2020–02
2020–01
2019–12
2019–11
2019–10
2019–09
2019–08
2019–07
2019–06
2019–05
2019–04
2019–03
2019–02
2019–01
2018–12
2018–11
2018–10
2018–09
2018–08
2018–07
2018–06
2018–05
2018–04
2018–03
2018–02
2018–01
2017–12
2017–11
2017–10
2017–09
2017–08
2017–07
2017–06
2017–05
2017–04
2017–03
2017–02
2017–01
2016–12
2016–11
2016–10
2016–09
2016–08
2016–07
2016–06
2016–05
2016–04
2016–03
2016–02
2016–01
2015–12
2015–11
2015–10
2015–09
2015–08
2015–07
2015–06
2015–05
2015–04
2015–03
2015–02
2015–01
2014–12
2014–11
2014–10
2014–09
2014–08
2014–07
2014–06
2014–05
2014–04
2014–03
2014–02
2014–01
98
99
100
101
Consumer Confidence Level (Average = 100)
Consumer Confidence among OECD member states
cc$x
101
100
99
98

Discussion

dsadsa

\

Future Research

Explore government policy reaction to control crypto and tax and regulate it.

You can also embed plots, for example:

\ \

"Consumer Confidence Index (CCI)." 2022. *Leading Indicators*. https://doi.org/10.1787/46434d78-en.

"Cryptocurrency Price Data." n.d. https://data.world/og5136/cryptocurrency-price-data-2013-2018.

Francois, Romain. 2020. *Bibtex: Bibtex Parser*. https://github.com/romainfrancois/bibtex.

Grolemund, Garrett, and Hadley Wickham. 2011. "Dates and Times Made Easy with lubridate." *Journal of Statistical Software*. https://www.jstatsoft.org/v40/i03/.

"Historical Gold Prices." n.d. /home/primus/Downloads/Prices.xlsx.

R Core Team. 2021. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Ushey, Kevin, JJ Allaire, Hadley Wickham, and Gary Ritchie. 2020. *Rstudioapi: Safely Access the RStudio API*. https://github.com/rstudio/rstudioapi.

Wickham, Hadley. 2021. *Tidyverse: Easily Install and Load the Tidyverse*. https://CRAN.R-project.org/package=tidyverse.

Wickham, Hadley, Winston Chang, Lionel Henry, Thomas Lin Pedersen, Kohske Takahashi, Claus Wilke, Kara Woo, Hiroaki Yutani, and Dewey Dunnington. 2021. *Ggplot2: Create Elegant Data Visualisations Using the Grammar of Graphics*. https://CRAN.R-project.org/package=ggplot2.

Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2021. *Dplyr: A Grammar of Data Manipulation*. https://CRAN.R-project.org/package=dplyr.

Wickham, Hadley, and Evan Miller. 2021. *Haven: Import and Export SPSS, Stata and SAS Files*. https://CRAN.R-project.org/package=haven.