# Approach

* The general approach is as follows:
  + PERMCO accurately follows companies as they have corporate events, spinoffs, and renames, so we use this as the primary ID. We aim to have one PERMCO entry per “company”.
  + **Issues:**
    - Multiple Share Classes: There are some companies with multiple share classes simultaneously existing in the SP500 at the same time. This occurs because each share class is still treated as its own security, so if both shares meet the SP500’s requirements, they can both exist. To resolve two legitimate PERMCO’s existing for one time, we create a shares outstanding weighted composite price. It is weighted on shares outstanding so changes in price in one share class proportionality affect the composite price.
      * Why multiple classes: Different share classes usually have different voting rights. Insiders generally retain majority shares of the class with stronger voting rights and the public trades the class with weaker rights.
      * S&P policy: Until 2013, S&P did not allow multiple share classes to exist in the index at once. In 2013, they allowed multiple share classes with conditions (actively traded on US exchange, meet liquidity/market cap requirements).
      * Note: Some companies have “WI”
    - Multiple Tracking Stocks: Occasionally, companies may introduce multiple “tracking stocks”. These track different parts of the company, but both represent the same company and are both under the same management. For these stocks, we follow the same process as the multiple share classes situation.

# Changes

Below details all the changes/combinations/etc. done to the dataset from a base CUSIP-PERMCO linking.

Dual Share Class Companies (Composite Price Created)

* **Google/Alphabet (PERMCO: 45483)**
  + CUSIP - Name – Dates
    - 38259P508 – Google Class A – 4/3/2006 🡪 10/1/2015
    - 38259P706 – Google Class C – 4/3/2014 🡪 10/1/2015
    - 02079K305 – Alphabet Class A – 10/5/2015 🡪 8/26/2024
    - 02079K107 - Alphabet Class C – 10/5/2015 🡪 8/26/2024
  + Google Class A entered in 4/3/2006. On 4/3/2014, Class C also entered. On 10/5/2015, Both changed CUSIPs and names to Alphabet, but everything else stayed the same.
* **Discovery Inc. (PERMCO: 47011)**
  + CUSIP – Name – Dates
    - 25470F104 – Discovery Class A – 3/1/2010 🡪 4/8/2022
    - 25470F302 – Discovery Class C – 8/7/2014 🡪 4/8/2022
  + On 8/7/2014, Discovery Class C entered, before both were removed on 4/8/2022.
* **21st Century Fox (PERMCO: 21287)**
  + CUSIP – Name – Dates
    - 90130A101 – 21st Century Fox (FOXA) – 7/1/2013 🡪 3/18/2019
    - 90130A200 – 21st Century Fox (FOX) – 9/21/2015 🡪 3/18/2019
    - 90130A309 – 21st Century Fox (TFCFA) – 3/19/2019 🡪 3/19/2019
    - 90130A408 – 21st Century Fox (TFCF) – 3/19/2019 🡪 3/19/2019
  + FOXA entered on 7/1/2013, and its second share class entered on 9/21/2015. [On 3/18/2019, Disney finalized an acquisition of most of 21st Century Fox.](https://thewaltdisneycompany.com/disney-and-21st-century-fox-announce-per-share-value-in-connection-with-71-billion-acquisition/?utm_source=chatgpt.com) The [remainder of 21st Century Fox (which became Fox Corp) was renamed as TFCFA/TFCF](https://www.nasdaq.com/press-release/21st-century-fox-announces-completion-distribution-connection-disney-acquisition-2019?utm_source=chatgpt.com) for one day for trading purposes as the merger went into effect. [Once the merger was finalized, the remainder of Fox (Fox Corp) separated and got a new PERMCO (56662).](https://thewaltdisneycompany.com/disney-and-21st-century-fox-announce-per-share-value-in-connection-with-71-billion-acquisition/?utm_source=chatgpt.com)
* **Fox Corp (PERMCO: 56662)**
  + CUSIP – Name – Dates
    - 35137L105 – Fox Corp Class A – 3/19/2019 🡪 8/26/2024
    - 35137L204 – Fox Corp Class B – 3/19/2019 🡪 8/26/2024
  + Fox Corp ([The remainder of 21st Century Fox after getting mostly acquired by Disney](https://thewaltdisneycompany.com/disney-and-21st-century-fox-announce-per-share-value-in-connection-with-71-billion-acquisition/?utm_source=chatgpt.com)) entered with both share classes on 3/19/2019.
* **News Corporation (PERMCO: 54433)**
  + CUSIP – Name – Dates
    - 65248E104 – News Corp Class A – 1/3/2005 🡪 6/27/2013
      * \*PERMCO 21287
    - 65249B109 – News Corp Class A – 7/1/2013 🡪 8/26/2024
    - 65249B208 – News Corp Class B – 9/21/2015 🡪 8/26/2024
  + [On 6/27/2013, News Corp split into two companies. One part became 21st Century Fox, which retained the original PERMCO 21287. The other part kept the same name News Corp but changed PERMCO as it was a spinoff](https://www.nasdaqtrader.com/TraderNews.aspx?id=dtn2013-26&utm_source=chatgpt.com).
    - Note “Issue Symbol as of July 1, 2013” on the second table.
  + This spinoff entered the SP500 on 7/1/2013, and on 9/21/2015 its Class B shares entered as well.
* **Under Armour (PERMCO: 48779)**
  + CUSIP – Name – Dates
    - 904311107 – Under Armour – 5/1/2014 🡪 6/17/2022
    - 904311206 – Under Armour Class C – 4/8/2016 🡪 6/17/2022
  + Under Armour entered on 5/1/2014, and its Class C stock entered on 4/8/2016, before both were removed 6/17/2022.
* **Comcast Corp. (PERMCO: 43613)**
  + CUSIP – Name – Dates
    - 200300200 – Comcast Corp. Special Cl. A – 1/3/1994 🡪 11/18/2002
      * \*PERMCO: 962
    - 20030N101 – Comcast Corp. (CMCSA) – 11/19/2002 🡪 8/26/2024
    - 20030N200 – Comcast Corp. (CMCSK) – 9/21/2015 🡪 12/10/2015
  + In Nov. 2002, [Comcast finalized an acquisition of AT&T Broadband](https://corporate.comcast.com/news-information/news-feed/att-broadband-to-merge-with-comcast-corporation-in-72-billion-transaction). As a result, the major corporate restructuring led to a changing in CUSIP and PERMCO, as this represented a different company then previously. On 9/21/2015, CMCSK, the special class A stock, was included. This was short lived though, as [shareholders approved a reclassification of each special class A stock (CMCSK) into one share of class A common (CMCSA).](https://corporate.comcast.com/news-information/news-feed/comcast-shareholders-approve-the-reclassification-of-each-share-of-class-a-special-common-stock-into-one-share-of-class-a-common-stock?utm_source=chatgpt.com)

Multiple Tracking Stocks (Composite Price Created)

* **WorldCom Inc**
  + For one day on 6/8/2001, CUSIP 98157D304 (Named WORLDCOM INC – NEW) traded under MCIT instead of the other WorldCom CUSIP 98157D106 and ticker WCOM. [This reflects a creation of two tracking stocks for WorldCom.](https://money.cnn.com/2001/06/07/companies/worldcom/index.htm?utm_source=chatgpt.com) Due to its nature as a tracking stock and only following a portion of WorldCom, it was most likely only ever included for logistical continuity as the tracking stock separation was finalized.
* **US West Comm Group**
  + Between the period 11/1/1995 🡪 6/12/1998, US West Comm Group (ticker USW) and US West Media Group (ticker UMG) both traded under PERMCO 21830. [This represented two separate tracking stocks, not share classes or spinoffs.](https://www.rcrwireless.com/19950424/archived-articles/u-s-west-spawning-two-stocks-as-way-to-attract-new-investors?utm_source=chatgpt.com)
* **Sprint**
  + Between 11/24/1998 🡪 4/22/2004, Sprint Corp. (ticker FON) and Sprint CRP PCS Group (ticker PCS) both traded under PERMCO 21833. This represented two separate tracking stocks, as noted explicitly in the following statement:
    - [“Sprint (FON) had planned an initial public offering for its PCS unit in 1998, but ruled out such a move last fall amid a broad downturn in the stock market. It later decided to create a separate tracking stock instead.”](Sprint%20(FON)%20had%20planned%20an%20initial%20public%20offering%20for%20its%20PCS%20unit%20in%201998,%20but%20ruled%20out%20such%20a%20move%20last%20fall%20amid%20a%20broad%20downturn%20in%20the%20stock%20market.%20It%20later%20decided%20to%20create%20a%20separate%20tracking%20stock%20instead.)

# Appendix

Below show some examples of how PERMCO accurately tracks companies through corporate actions.

* **Aetna Inc.**
  + CUSIP – PERMCO:
    - 008140105 – 20026
    - 008117103 – 20026
    - 00817Y108 – 41072
  + Although 41072 has the same name Aetna, in 2000 the “old” Aetna ceased to exist and was bought by ING Groep N.V. The health care division was spun off to create a new Aetna, but this was a new company and not a continuation of the original Aetna.
  + Sources
    - [1](https://s2.q4cdn.com/447711729/files/doc_downloads/faq/Aetna/health_company_faq.pdf?utm_source=chatgpt.com)
* **Alcoa Inc. / Arconic Corp. / Howmet Aerospace Inc.**
  + CUSIP – PERMCO:
    - 013817101 – 20060 (Alcoa)
    - 013817507 – 20060 (Alcoa)
    - 013872106 – 55718 (Alcoa)
    - 03965L100 – 20060 (Arconic)
    - 03966V107 – 57034 (Arconic)
    - 443201108 – 20060 (Howmet Aerospace)
  + On 11/1/2016, Alcoa Inc. was split into Arconic Corp. and Alcoa Inc. The new Alcoa Inc. was a spinoff of the parent company, then renamed Arconic Corp.
  + On 4/1/2020, Arconic Corp. was split again into Howmet Aerospace Inc. and Arconic Corp. Howmet Aerospace was the parent company and Arconic. Corp. was the new spinoff.
  + Through this whole process, the PERMCO’s are consistent in following the parent company (Alcoa 🡪 Arconic 🡪 Howmet Aerospace) and assigning new PERMCOs to the spinoffs.
  + Sources
    - [1](https://news.alcoa.com/press-releases/press-release-details/2016/Alcoa-Corporation-Launches-as-an-Independent-Industry-Leader-in-Bauxite-Alumina-and-Aluminum-Products/default.aspx?utm_source=chatgpt.com)
    - [2](https://www.howmet.com/press-release/2020-05-05/howmet-aerospace-formerly-arconic-inc-reports-full-first-quarter-2020-financial-results/?utm_source=chatgpt.com)