US Equity Cumulative Adjustment Factors Guide

version 1.3 (Jul 2021)

CONTACT US

We are here to help you do great things with our market and reference data. For questions, feedback, and other concerns, you may reach our team of experts using the following contact information:

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INTRODUCTION

The Cumulative Adjustment Factors dataset provides cumulative adjustments for US equities calculated using two common approaches: forward and backward. The dataset also contains information about corporate event types affecting price and/or volume for historical backtesting.

algoseek uses a unique identifier called Security ID (SecId) for each equity, including stocks, ETFs, ETNs, ADRs, Preferred Stocks, and Stock Warrants, among others. The SecId remains unchanged when a security's ticker name changes.

For each SecId, this dataset provides cumulative adjustment factors and event types for the creation of forward or backward adjusted pricing and/or volume for any trading date from 2007 to the present.

To find the SecId for a combination of exchange ticker and trade date, use the algoseek Lookup File. Please contact your account manager if you do not have the access to Lookup File.

The dataset is event-based. It means that files contain just trade dates that correspond to effective dates when a corporate event has happened. algoseek rebuilds data for each security when it has a new corporate event. Please refer to the "Daily Updates" section to find more details about updates.

DATA ORGANIZATION AND FILE FORMAT

There are two data aggregation options for these datasets:

tradedate: one CSV file with data for all symbols per effective date

SecId: one CSV file with data for all effective dates per Security ID - a unique security identifier used by algoseek that remains unchanged when the ticker changes

Both aggregation options provide the same data fields.

algoseek provides Equity adjustment data in plain-text CSV files. Data files have fixed headers and rows of data corresponding to individual daily bars (see Table 1). For each year, data is aggregated either by trading day or by SecId; for example, all corporate events that occurred on Mar 3, 2020 are stored in a separate CSV file under a tradedate aggregation. In the case of SecId-based aggregation, all adjustment data for the security with an ID 33449 (AAPL) for a single year is stored in a single CSV file. Also, SecId-based aggregation provides the possibility to get all adjustment data from 2007 up to now for a specific security in a single CSV file.

Table 1: Cumulative Adjustment Sample Data

SecId	33449	33449	33449
Ticker	AAPL	AAPL	AAPL
EffectiveDate	20140206	20140508	20140609
CumulativeFactorPriceBackward	0.127903617434669	0.128669221770296	0.128669221770296
CumulativeFactorPriceForward	0.961154487257303	0.955815912032214	0.136545130290316
CumulativeFactorVolumeBackward	0.142857142857143	0.142857142857143	0.142857142857143
CumulativeFactorVolumeForward	1	1	0.142857142857143
AdjustmentReason	CashDiv	CashDiv	BonusSame
EventType	DIV	DIV	BON

Table 2 below summarizes the name, brief description and data type for each data field (column) in an Equity Cumulative Adjustment Factors CSV file.

Table 2: Cumulative Adjustment Factor Fields and Descriptions

Field	Type (Format)	Description
SecId	integer	Unique security identifier
Ticker	string	Ticker on Effective Date
EffectiveDate	string (YYYYMMDD)	Date that the event becomes effective
CumulativeFactorPriceBackward	decimal	Cumulative factor for equity price, calculated with backward methodology
CumulativeFactorPriceForward	decimal	Cumulative factor for equity price, calculated with forward methodology
CumulativeFactorVolumeBackward	decimal	Cumulative factor for equity trading volume, calculated with backward methodology
CumulativeFactorVolumeForward	decimal	Cumulative factor for equity trading volume, calculated with forward methodology
AdjustmentReason	string	The reason for the Corporate Event (e.g. CashDiv=Cash Dividend). See section “Adjustment Reason Table” below for a list of adjustment reasons
EventType	string	Type of event (e.g. DIV=Dividend). See subsection “Adjustment Reason” below for a list of types

Adjustment Reason

Each adjustment event relates to an Event Type, and each Event Type may include different Adjustment Reasons. The table below describes the different adjustment types and reasons and whether it affects Price and/or Volume.

Table 3: Adjustment Reasons

Adjustment Event Type	Adjustment Reason	Description	Affects Price	Affects Volume
BON	BonusSame	Bonus issue in the same class	Yes	Yes
	BonusDiff	Bonus issue in a different class	Yes	No
CAPRD	CapReduct	Capital Reduction	Yes	Yes
CONSD	Cons	Consolidation	Yes	Yes
DIST	Distrib	Distribution	Yes	No
DIV	CashDiv	Cash Dividend	Yes	No
	ScriptDiv	Script dividend in the same class	Yes	Yes
	ScriptDivDiff	Script dividend in a different class	Yes	No
DMRGR	DeMerg	De-merger	Yes	No
ENT	EntSame	Entitlement in the same class	Yes	No
	EntDiff	Entitlement in a different class	Yes	No
RCAP	CapRet	Capital Return	Yes	No
RTS	RightsSame	Rights in the same class	Yes	No
	RightsDiff	Rights in a different class	Yes	No
SCSWP	SecSwap	Security Swap	Yes	Yes
SECRC	Reclass	Reclassification	Yes	Yes
SD	Subdiv	Any subdivision (by any stock split, stock dividend, reclassification, recapitalization or otherwise) or combination (by the reverse stock split, reclassification, recapitalization, or otherwise) of the Class A Common Stock.	Yes	Yes

Note: if a SecId (Ticker) doesn't have any corporate events, EffectiveDate field will show the date when security was listed, all factors will be equal 1 (one), and AdjustmentReason and EventType fields will have the value START (see Table 4).

Table 4: Sample Initial Row in Cumulative Adjustment Data

SecId	4533372
Ticker	MNST
EffectiveDate	20150615
CumulativeFactorPriceBackward	1
CumulativeFactorPriceForward	1
CumulativeFactorVolumeBackward	1
CumulativeFactorVolumeForward	1
AdjustmentReason	START
EventType	START

HOW TO APPLY CUMULATIVE ADJUSTMENT FACTORS

When backtesting the historical "as-is" prices and volumes, they need to be adjusted in order to account for price events like a dividend and volume changes like a split. Use Table 3: Adjustment Reasons to determine if Price and/or Volume (a.k.a. Size) fields need to be adjusted.

The table below shows AAPL cumulative adjustments from 1/1/2012 to 1/1/2015. To make data readable, the table does not include fields CumulativeFactorPriceForward and CumulativeFactorVolumeForward.

Table 5: AAPL Corporate Events in 2012-2014

SecId	Ticker	Effective Date	CumulativeFactor PriceBackward	CumulativeFactor VolumeBackward	Adjustment Reason	EventType
33449	AAPL	20120809	0.123670999876425	0.142857142857143	CashDiv	DIV
33449	AAPL	20121107	0.124201983090684	0.142857142857143	CashDiv	DIV
33449	AAPL	20130207	0.124769262544028	0.142857142857143	CashDiv	DIV
33449	AAPL	20130509	0.125496420111086	0.142857142857143	CashDiv	DIV
33449	AAPL	20130808	0.126327089355946	0.142857142857143	CashDiv	DIV
33449	AAPL	20131106	0.127161193273283	0.142857142857143	CashDiv	DIV

33449	AAPL	20140206	0.127903617434669	0.142857142857143	CashDiv	DIV
33449	AAPL	20140508	0.128669221770296	0.142857142857143	CashDiv	DIV
33449	AAPL	20140609	0.129387885595545	0.142857142857143	BonusSame	BON
33449	AAPL	20140807	0.905715199168812	1	CashDiv	DIV
33449	AAPL	20141106	0.910220291174414	1	CashDiv	DIV

The following steps describe creating backward adjusted (starting from the latest date) time series for AAPL from 1/1/2015 to 1/1/2007:

- We start with the most recent data. The last corporate event happened on 20141106 (see Table 5 for the snapshot of data). All prices after this date (including itself) should be multiplied by the factor AF=1.
- Before 20141106, starting from 20141105 up to 20140807 (including this date) the price should be multiplied by a cumulative factor AF=0.910220291174414.
- From 20140806 up to 20140609 the price should be adjusted by the factor AF=0.905715199168812.
- From 20140608 up to 20140508 the price should be adjusted by the factor AF=0.129387885595545. The Adjustment reason for the event on 20140609 is BonusSame. It means that we need to adjust the volume as well.
- Since in this example, we have just one event that affects volume, we need to adjust all volumes before 20140609, dividing them by the factor AF=0.142857142857143. All volumes from 20140609 should be adjusted by the factor AF=1.
- Repeat the procedure for the rest of the events.
- Finally, all prices before 20120809 should be adjusted by the cumulative factor AF=0.123670999876425.

Note: When we have more than one corporate event for the same SecId and EffectiveDate, one should use the first record for backward adjustments and the last record for forward adjustments.

DAILY UPDATES

The dataset contains both backward and forward cumulative adjustment factors. Whenever a new corporate event (e.g. dividend, split, etc) is published for a SecId, all data for this SecId will be rebuilt. In this case, you need to re-download the data.

If you have access to the full universe of SecIDs, you can update the data using AWS CLI SYNC command. This setup will download only updated files from S3 bucket. To sync your local directory and S3 bucket, please make sure to point the SYNC command to your local copy of the dataset. For more details, please refer to algoseek's AWS Access Guide.

```
aws s3 sync s3://us-equity-cumulative-adjustment-secid-all your/local/folder
--request-payer requester
```

If you have access to a subset of SecIds, you can check files with daily changes and only re-download data for securities from your subscription. For example, if you only subscribed for the following SecIds: 33449 (AAPL), 1914754 (TSLA), 38497 (IBM), and 33127 (AMZN) and would like to know if something has changed for these on Jan 21, 2021, you should download the file with daily changes using the following command:

```
aws s3 cp
s3://us-equity-cumulative-adjustment-secid-all/daily-changes/20210121.csv
20210121_changes.csv --request-payer requester
```

and check if these SecIds are present in the file (see Table 6).

Table 6: Daily Changes File Sample

SecId
33449
300669
550037
6726866
6729160
37111

You can download each individual data file with:

```
aws s3 cp s3://us-equity-cumulative-adjustment-secid-all/NN/NNNNN.csv
local/folder/NN/NNNNN.csv --request-payer requester
```

where NNNNN is a SecId and NN corresponds to the first two digits of the SecId.

Note: The procedure described above works only for buckets aggregated by SecId. For a tradedate-based aggregation, a daily file contains the list of dates updated.

Path to the file with daily changes has the following pattern:

```
s3://bucket_name/daily-changes/yyyymmdd.csv
```

where bucket_name can be one of

1. us-equity-cumulative-adjustment-secid-all;

2. us-equity-cumulative-adjustment-secid-yyyy;
3. us-equity-cumulative-adjustment-tradedate-yyyy;

yyyy - year, mm - month, and dd - day.

Daily Update Time

For data aggregated by SecId, the daily files are created by 2 am T+1 EST.
For data aggregated by tradedate, the daily files are created by 4 am T+1 EST.

Note: A daily changes file is only created when corporate event-related changes happen.

APPENDIX A. FREQUENTLY ASKED QUESTIONS

Why do I see a weird first row with AdjustmentReason = START and EventType = START in the data files?

Every file with the corporate events history for a SecId starts with the initial row that contains information on when the SecId was assigned to the security.

Do forward cumulative adjustment factors take into account adjustment events that happened before 2007?

No, the forward cumulative adjustment factors cover only events since 2007.