

Using EDI Adjustment Factors

This document will assist in the understanding of what the EDI adjustment factors are and how to use them.

In the following document we will use **GKN, listed on the LSE, as the example because on the 7th July 2009 it did a rights issue of 6 for 5 @ 50p.**

The intended use of adjustment factors is to dilute share series of data such as historical prices, earnings, dividends, NTA and cash flow per share, so that the historical data is comparable to current data.

When comparing historical values to current values, meaningful conclusions can only be drawn about growth rates, trends, etc when the historical values have been adjusted for any intervening pro-rata issue to existing shareholders.

NOTE: The adjustment factors are not for cost allocation purposes.

GKN Adjustment Record

On the 7th July 2009 GKN did a rights issue of 6 for 5 @ 0.50, and the following adjustment record was disseminated -

Secid	78243
IssuerName	GKN plc
SectyCD	EQS
ISIN	GB0030646508
Sedol	3064650
Status	A
Market	XLON
Symbol	GKN
ExDate	20090707
Reason	01
Factor	0.674931129476584
Detail	Rights of 6.0000000 EQS for 5.0000000 EQS @ GBX0.50000
EventType	RTS
EventID	1040520
ResSedol	3064650
USCode	G39004109
PrimeEx	GBLSE
Closed	GBP123.75
ResISIN	GB0030646508
ResLocal	GKN
Sentiment	0.723232323232323

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Following is a brief overview of the fields in the adjustment record -

Secid, IssuerName, ISIN, USCode, Symbol & Sedol help to identify the security that needs adjusting.

ResISIN & ResLocal simply help to identify the new security (where applicable).

SectyCD identifies the type of security being adjusted, i.e. EQS: equity.

EventID: helps to identify the event from the corporate action.

EventType: identifies the type of event, i.e. RTS: rights.

Closed: price the security previously closed at.

Reason: similar to EventType but numeric, i.e. 01: rights (same class)

Detail: detail description of the event.

ExDate: date the event became effective.

Factor: factor used to multiple all the historical prices by, up to but not including the ex-date.

A factor of 1 can mean any of the following –

- Insufficient information available to calculate a factor.
- Unlikely the issue was taken up, due to poor terms.

Sentiment: this indicates what the market has attributed to this event and is simply `Today's_Open/Yesterdays_Close`. Basically this is for information purposes only and should generally be roughly similar to the factor. However this can differ when the market believes that the issue was not attractive enough to existing shareholders and assumes less than expected shareholders would have taken this up. In this case sentiment will be approximately 1.

The following ignores most of the above and concentrates on the necessary fields.

Which adjustments to apply

Prior to processing adjustment factors, a decision needs to be made on which adjustments to apply and which adjustments to ignore. This is different for different users, however there are some general rules -

1. Cash dividends are never applied, except in the US.
2. Bonus, script dividend, consolidation & subdivision are always applied.
3. Rights & offer are usually applied.
4. All others depend on taste and changes from user to user.

Once the decision has been made on what to apply and what not to apply the reason code, in the adjustment record, can be interrogated to ascertain if a particular adjustment should be applied or not. For example if you are ignoring cash dividends then you would ignore all records with a Reason code of "17". For our example we are processing all rights issues so would process all records with a Reason code of "01". In our example adjustment file of the 7th July 2009 there are three records with a Reason code of "01" and we would process all of them however, for this document, we are only interested in the first record, with a Reason code of "01", which is GKN.

Locating the security

The next thing we need to do is find the historical pricing data that we need to adjust. This can be done using any of the codes in the adjustment record; choices include ISIN, Sedol & Symbol (local code).

Adjusting the data

Once the historical pricing data has been located and read into memory it can be back adjusted which is a simple process of multiplying the open, high, low & close, of all price records, up to BUT NOT INCLUDING the ex-date by the factor (both the ex-date and the factor are contained in the adjustment record).

Often, when adjusting for consolidation & subdivision, the volume is inversely adjusted by the factor up to but not including the ex-date (bonus and script dividends could be included here as well, once again optional).

Going back to our GKN example, below is a table of unadjusted data –

Date	Open	High	Low	Close	Volume
20090609	129	139.25	128.75	132.25	6010858
20090610	133.75	138	131.25	133.5	4088391
20090611	134	134.5	130.5	133	2435264
20090612	134.25	142	134	140.25	3511337
20090615	138.75	140	132	133	3824111
20090616	132.5	134.25	127.25	133	7910892
20090617	133	133	116.5	119	7309715
20090618	117.5	123	100	119.5	17134761
20090619	123	128	119.25	127.5	7537875
20090622	127.5	127.5	120.5	122	3912977
20090623	121.75	122.5	117	119	6376434
20090624	120	127	116.5	126	3588165
20090625	124.75	125.5	122	124	3707587
20090626	125	127	121.25	125.25	4209954
20090629	124	125.5	119.25	123.5	4111393
20090630	124.5	126	119.75	124	2870303
20090701	123.25	125.75	121	124.5	2885139
20090702	124	124	119.25	121.5	3258356
20090703	120.5	123.25	118	122.25	3137668
20090706	121.5	123.75	120	123.75	9217240
20090707	89.5	89.5	77.5	80.75	11659635
20090708	81	81.75	75.25	76.25	11293298
20090709	75.25	78	74.75	75.25	16401329
20090710	75	77.25	74.25	75	22360600
20090713	75	75	71.75	72.5	27938677
20090714	73	76.75	72.75	76	66961867
20090715	75.5	79.5	75.5	78.75	63620601
20090716	79.5	81	78.25	79	36924476
20090717	79	81.75	78	81.5	20824093
20090720	81.75	84.5	80.806	82.5	26413021
20090721	82.5	89.75	82.5	88.5	50703434
20090722	89.5	95	88.25	94.5	35307797
20090723	94	96.5	89.6067	96.25	20620726
20090724	95.5	99.5	93.25	96	18422598
20090727	97	97.5	93.5	96.75	7987672
20090728	94.75	98.5	91.24	92	8897922
20090729	92.25	94.5	90	94	11838741
20090730	95.75	101.5919	93.5	100.75	25155878
20090731	101	104	99.5	102.75	12030741
20090803	102	108	101	105.2	21870239

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Starting at the beginning of the GKN historical data multiply every open, high, low & close by 0.6749311 to get the adjusted open, high, low & close. After adjusting for the rights issue the data would look like –

Date	Open	High	Low	Close	Volume
20090609	87.066	93.984	86.897	89.26	6010858
20090610	90.272	93.14	88.585	90.103	4088391
20090611	90.441	90.778	88.079	89.766	2435264
20090612	90.61	95.84	90.441	94.659	3511337
20090615	93.647	94.49	89.091	89.766	3824111
20090616	89.428	90.61	85.885	89.766	7910892
20090617	89.766	89.766	78.629	80.317	7309715
20090618	79.304	83.017	67.493	80.654	17134761
20090619	83.017	86.391	80.486	86.054	7537875
20090622	86.054	86.054	81.329	82.342	3912977
20090623	82.173	82.679	78.967	80.317	6376434
20090624	80.992	85.716	78.629	85.041	3588165
20090625	84.198	84.704	82.342	83.691	3707587
20090626	84.366	85.716	81.835	84.535	4209954
20090629	83.691	84.704	80.486	83.354	4111393
20090630	84.029	85.041	80.823	83.691	2870303
20090701	83.185	84.873	81.667	84.029	2885139
20090702	83.691	83.691	80.486	82.004	3258356
20090703	81.329	83.185	79.642	82.51	3137668
20090706	82.004	83.523	80.992	83.523	9217240
20090707	89.5	89.5	77.5	80.75	11659635
20090708	81	81.75	75.25	76.25	11293298
20090709	75.25	78	74.75	75.25	16401329
20090710	75	77.25	74.25	75	22360600
20090713	75	75	71.75	72.5	27938677
20090714	73	76.75	72.75	76	66961867
20090715	75.5	79.5	75.5	78.75	63620601
20090716	79.5	81	78.25	79	36924476
20090717	79	81.75	78	81.5	20824093
20090720	81.75	84.5	80.806	82.5	26413021
20090721	82.5	89.75	82.5	88.5	50703434
20090722	89.5	95	88.25	94.5	35307797
20090723	94	96.5	89.6067	96.25	20620726
20090724	95.5	99.5	93.25	96	18422598
20090727	97	97.5	93.5	96.75	7987672
20090728	94.75	98.5	91.24	92	8897922
20090729	92.25	94.5	90	94	11838741
20090730	95.75	101.5919	93.5	100.75	25155878
20090731	101	104	99.5	102.75	12030741
20090803	102	108	101	105.2	21870239

Notice how the prices are adjusted up to but not including the ex-date of 7th July 2009.

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Finally how would all this look on a chart of GKN, below is chart using unadjusted data, note the drop on the 7th July 2009.



Using adjusted data the chart would look like –



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Notice how much smoother the chart looks, also when applying technical analysis indicators they give far more accurate results than when applying to charts built with unadjusted data. This is because the value of GKN, prior to 7th July 2009, can be compared to GKN after the 7th July 2009.