

BookKeeping Tool

Javier Almeida

1 What is BKTool?

BKTool is a tool designed to keep a clear and helpful bookkeeping of all your investment operations. The input to BKTool is a ledger in which each line represents an operation of buy or sell of an active. The output is a report displaying a number of tables that reflect in a concise, accurate and complete way the main indicators of the investment ledger. Among these indicators BKTool reports the total balance, volume and gain of each one of the symbols in the ledger. Moreover, each table focuses on different views of this information like evolution in time, evolution grouped per symbol or full summary up to latest date.

If you are asking yourself if all this information is not already provided by your different banks and trading portals, the answer is yes. However, BKTool provides all the information combined and, to the author's taste, in a much comprehensive way.

At this point it might result instructive to point out also **what is *not* BKTool**:

BKTool is an offline tool and it is not connected to real time market information. That is, BKTool is not a tool to track the market value of your portfolio. In this regard the power of BKTool is best combined with any of the very many excellent online portfolio managers available.

The decision to keep BKTool detached from the real time market information is explicit: BKTool is designed with an 'Intelligent Investor' approach in mind ¹: BKTool provides you with a complete and accurate view of the situation of your overall investments. This information is a main ingredient to design and adjust your investing strategy. In this sense of strategy the market valuation is just one variable to control among many and it belongs to a lower level category of decision.

¹Please refer to the books of Benjamin Graham, 'The Intelligent Investor' to grasp the essence of this investing style and A. Elder, 'Come into my trading room' to find convincing arguments about the need of a thorough bookkeeping during the investments lifetime

2 Input: ledger file

When invoking BKTool the name of the ledger file must be specified. This file is a collection of lines each of which represents an operation of buy or sell of a certain stock (or any other specific financial product).

The required fields and their description can be found in the table below:

field	name	mandatory	type	description
1	date	yes	string	use format 'yyyy-mm-dd'
2	ticker	yes	string	name is case-sensitive
3	units	yes	float	positive sign means buy, negative means sell
4	price	yes	float	positive number
5	comision	no	float	positive number. Default is 0.0
6	currency	no	string	case-sensitive, default is 'EUR'

Notice, the lines of the ledger will be automatically sorted by BKTool according to their date in order to produce the report. Also, notice that the *hash* character can be used to indicate that everything after it in a line is a comment and it shall not be processed by BKTool.

3 Note about currencies and trading portals

The logical units of BKTool are the symbol names, a.k.a. tickers. However the same tickers can be often bought in different exchanges using different currencies. In these cases the gain associated to a buy-sell operation is determined both by the currency and the stock appreciations.

In order to deal with this double bookkeeping BKTool offers the possibility to specify in the ledger the currency used during each operation. This feature is specially powerful if the currency itself is also added as a separate buy/sell operation in the ledger. This way BKTool can keep accurate track of the two appreciations mentioned above.

Notice, some trading portals operate in a way in which a deposit is transferred to your personal account and the buy and sell operations are done using this deposit. To keep accurate track of the movements in these accounts the same procedure as above can be used: register in the ledger the deposit-withdraw operations under a certain same name. Use that name as currency field for the buy-sell operations performed in the portal.

Examples of the paragraph above can be found in the example report in the last section. Pay attention how the 'ETORO' trading space is handled as a separate currency in **Table II** as an example.

4 Output Report

4.1 Glossary

In order to understand the output report the following definitions must be first assimilated:

- **Investment:** sum of buy values, that is, number of units times price, plus buy and sell comisions.
- **Return:** sum of sell values, that is, number of units times price.
- **Transaction balance:** return minus investment

- **Average:** average buy value per unit. Notice, a sell operation reduces the number of units of a given symbol and this will affect the average after the next buy operation but sell operations do not affect directly the average buy value.
- **Volume:** Average buy value times number of units. That is, the volume is the buy worth of an open position.
- **Return of Investment:** Return minus investment divided by number of units. That is, price at which an open position should be closed such that the return matches the investment.

Notice, all these magnitudes are always referred to an operation date in the output tables. In every case it shall be understood that the magnitude reflects all the operations before and including the reference date.

4.2 Output report example (simulated, not real, only relevant parts shown)

Table I: ledger content with cummulative gain and volume. Shows the full content of the ledger adding total gain and volume up to the dates of each operation (remember, up to date and including the operation itself of each entry).

DATE	NAME	UNITS	PRICE	COMISSIO N	CURR	VOLUME EUR	VOLUME ETORO	GAIN EUR	GAIN ETORO
2018-01-01	BTC	0.043	11627.000	0.000	EUR	499.961		0.000	
2019-01-01	ASML	1.000	189.000	0.000	EUR	688.961		0.000	
2020-02-04	ASML	20.000	255.000	0.000	EUR	5788.961		0.000	
2020-02-05	Bayer	30.000	73.950	0.000	EUR	8007.461		0.000	
2020-02-11	ASML	-21.000	287.500	12.050	EUR	2718.461		736.450	
2020-02-12	TMO	8.000	308.260	26.000	EUR	5184.541		710.450	
2020-02-26	ASML	40.000	272.000	17.380	EUR	16064.541		693.070	
2020-02-29	ASML	10.000	245.000	10.000	EUR	18514.541		683.070	
2020-04-01	Nike	12.000	74.030	0.000	EUR	19402.901		683.070	
2020-04-01	IAG	166.000	2.350	15.000	EUR	19793.001		668.070	
2020-04-01	ISHCDAX	15.000	82.490	15.000	EUR	21030.351		653.070	
2020-05-22	ISHCDAX	11.000	94.630	15.000	EUR	22071.281		638.070	
2020-05-22	TMO	-8.000	304.625	19.000	EUR	19605.201		589.990	
2020-05-22	PG	10.000	104.220	15.000	EUR	20647.401		574.990	
2020-06-03	Bayer	-28.000	65.360	15.000	EUR	18576.801		319.470	
2020-06-08	IAG	150.000	3.490	15.000	EUR	19100.301		304.470	
2020-06-11	ASML	-13.000	306.000	15.000	EUR	15634.501		801.670	
2020-06-16	ETORO	1120.900	0.893	0.000	EUR	16635.353		801.670	
2020-06-16	AMADEUS	10.000	56.400	5.000	ETORO		564.000		-5.000
2020-06-16	AALB.NV	16.000	28.520	5.000	ETORO		1020.320		-10.000
2020-06-23	ETORO	1125.400	0.889	0.000	EUR	17635.721		801.670	
2020-06-23	IVVSP500	2.000	310.880	0.000	ETORO		1642.080		-10.000
2020-06-23	NVIDIA	1.460	369.700	0.000	ETORO		2181.842		-10.000
2020-07-06	ASML	-37.000	339.800	20.000	EUR	7771.521		3490.070	
2020-07-06	ISHCDAX	-26.000	108.840	15.000	EUR	5493.241		4026.630	
2020-07-07	Bayer	-2.000	63.000	5.000	EUR	5345.341		3999.730	
2020-07-09	ETORO	5622.400	0.889	0.000	EUR	10343.092		3999.730	
2020-07-10	TREX	4.000	125.000	0.000	ETORO		2681.842		-10.000
2020-07-10	TMO	2.000	384.300	0.000	ETORO		3450.442		-10.000
2020-07-10	NVIDIA	2.000	419.660	0.000	ETORO		4289.762		-10.000

Table II: Gain-Volume history per symbol. Shows the history of the operations of each of the symbols in the ledger. The symbols are sorted following the latest operation date of each of them (later last operation, later in report).

DATE	TICKER	UNITS	ROI	AVG	VOL	TBAL	CURR	GAIN
2020-06-16	ETORO	1120.900	0.893	0.893	1000.852	-1000.852	EUR	0.000
2020-06-23	ETORO	2246.300	0.891	0.891	2001.220	-2001.220	EUR	0.000
2020-07-09	ETORO	7868.700	0.889	0.889	6998.971	-6998.971	EUR	0.000
2020-06-23	NVIDIA	1.460	369.700	369.700	539.762	-539.762	ETORO	0.000
2020-07-10	NVIDIA	3.460	398.579	398.579	1379.082	-1379.082	ETORO	0.000
2020-09-02	NVIDIA	2.000	268.061	398.579	797.157	-536.122	ETORO	261.036
2020-09-02	NVIDIA	0.000	0.000	398.579	0.000	618.619	ETORO	618.619
2020-07-10	AJG	5.095	98.130	98.130	500.002	-500.002	ETORO	0.000
2020-09-03	AJG	0.000	0.000	98.130	0.000	38.520	ETORO	38.520
2020-04-01	Nike	12.000	74.030	74.030	888.360	-888.360	EUR	0.000
2020-09-25	Nike	0.000	0.000	74.030	0.000	684.720	EUR	684.720
2020-05-22	PG	10.000	105.720	104.220	1042.200	-1057.200	EUR	-15.000
2020-07-15	PG	26.730	126.900	126.900	3391.999	-3391.999	ETORO	0.000
2020-10-29	PG	0.000	0.000	126.900	0.000	305.788	ETORO	305.788
2020-10-29	SNE	17.953	83.550	83.550	1499.998	-1499.998	ETORO	0.000
2020-06-23	IVVSP500	2.000	310.880	310.880	621.760	-621.760	ETORO	0.000
2020-11-04	IVVSP500	0.000	0.000	310.880	0.000	73.040	ETORO	73.040

Table III: status summary per currency. This table shows the status of the portfolio up to latest date in the ledger. It shows as many tables as currencies in the ledger.

DATE	TICKER	UNITS	ROI	AVG	VOL	TBAL	CURR	GAIN
2020-07-10	AMADEUS	0.000	0.000	56.400	0.000	-68.000	ETORO	-68.000
2020-07-30	AALB.NV	0.000	0.000	31.530	0.000	-1.873	ETORO	-1.873
2020-09-02	NVIDIA	0.000	0.000	398.579	0.000	618.619	ETORO	618.619
2020-09-03	AJG	0.000	0.000	98.130	0.000	38.520	ETORO	38.520
2020-10-29	PG	0.000	0.000	126.900	0.000	305.788	ETORO	305.788
2020-10-29	SNE	17.953	83.550	83.550	1499.998	-1499.998	ETORO	0.000
2020-11-04	IVVSP500	0.000	0.000	310.880	0.000	73.040	ETORO	73.040
2020-11-04	TREX	0.000	0.000	125.000	0.000	98.960	ETORO	98.960
2020-11-04	ASML	0.000	0.000	355.491	0.000	-12.180	ETORO	-12.180
2020-11-17	Intel	18.000	47.896	45.780	824.040	-862.129	ETORO	-38.089
2020-11-23	VTI	4.320	185.130	185.130	799.762	-799.762	ETORO	0.000
2020-11-23	VTV	10.000	115.140	115.140	1151.400	-1151.400	ETORO	0.000
2020-11-23	IWF	3.000	226.940	226.940	680.820	-680.820	ETORO	0.000
2020-11-23	IVV	3.000	359.090	359.090	1077.270	-1077.270	ETORO	0.000
2020-11-23	JNK	6.000	107.470	107.470	644.820	-644.820	ETORO	0.000
2020-11-23	BRBY.L	0.272	2209.130	2209.130	600.000	-600.000	ETORO	0.000
2020-11-30	TMD	3.000	458.070	463.690	1391.070	-1374.210	ETORO	16.860
TOTAL					8669.180	-7637.534		1031.646

DATE	TICKER	UNITS	ROI	AVG	VOL	TBAL	CURR	GAIN
2018-01-01	BTC	0.043	11627.000	11627.000	499.961	-499.961	EUR	0.000
2020-05-22	TMD	0.000	0.000	308.260	0.000	-74.080	EUR	-74.080
2020-05-22	PG	10.000	105.720	104.220	1042.200	-1057.200	EUR	-15.000
2020-06-08	IAG	316.000	2.986	2.891	913.600	-943.600	EUR	-30.000
2020-07-06	ISHCDAX	0.000	0.000	87.626	0.000	506.560	EUR	506.560
2020-07-07	Bayer	0.000	0.000	73.950	0.000	-282.420	EUR	-282.420
2020-07-09	ETORO	7868.700	0.889	0.889	6998.971	-6998.971	EUR	0.000
2020-07-17	GRN	50.000	13.257	13.100	655.000	-662.830	EUR	-7.830
2020-09-25	Nike	0.000	0.000	74.030	0.000	684.720	EUR	684.720
2020-11-12	ASML	16.000	58.871	325.050	5200.800	-941.930	EUR	4258.870
TOTAL					15310.532	-10269.712		5040.820

4.3 Installation

- BKTool requires python3.7.
- BKTool has one only dependency on a module that is not part of the Python standard library. The module is `texttable` and it is listed in the Python package index. It can be installed with the `pip` installer with the following command:

```
python3.9 -m pip install texttable
```

Notice, `pip` is also part of the python3 standard library and it is available out of the box from the python install.