

Data are aggregated between Initial date: **2011/01/01** and Last date: **2021-01-13**

# Finance

©Frederic Kerdraon

April 10, 2016

## Contents

### 1 Introduction

### 2 Management summary

#### 2.1 PnL Projections

##### 2.1.1 Latex Graph of the scenarios

Initial parameters for the simulations.

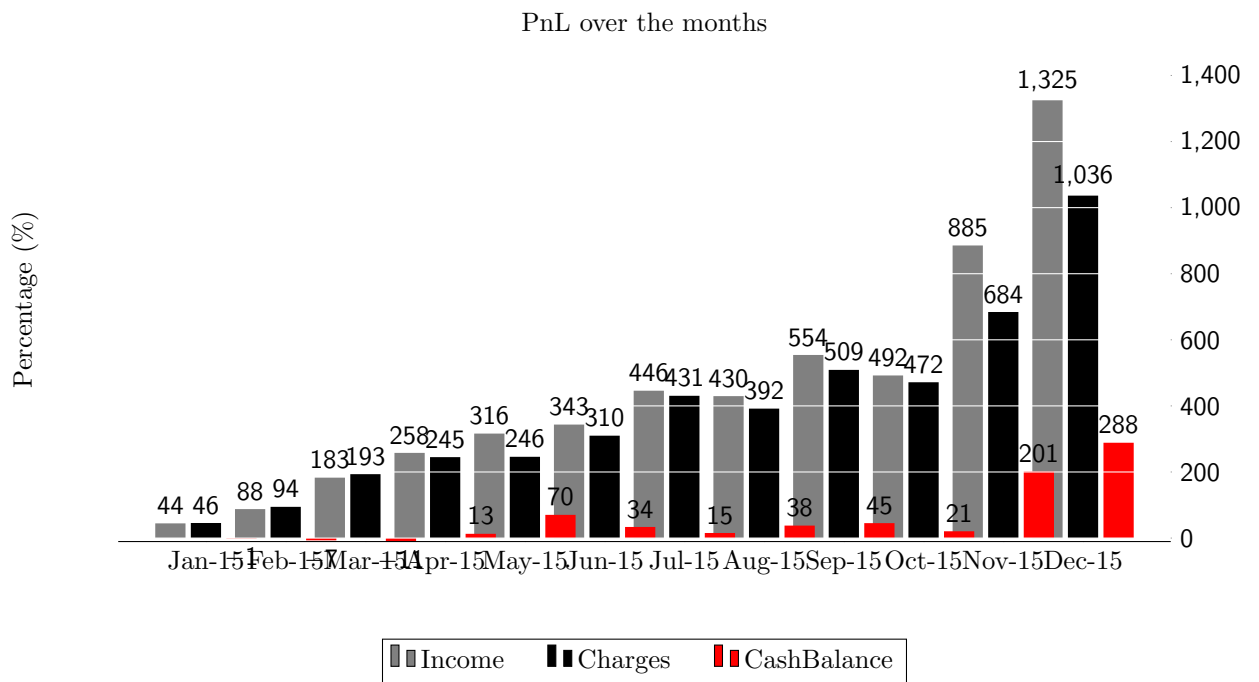
ù

We apply the scenarios below to see what we get after a few iterations

```
my @Scen = (231,529*.4,755*.5,231+529*.4,1000,700,800,950,750);
```

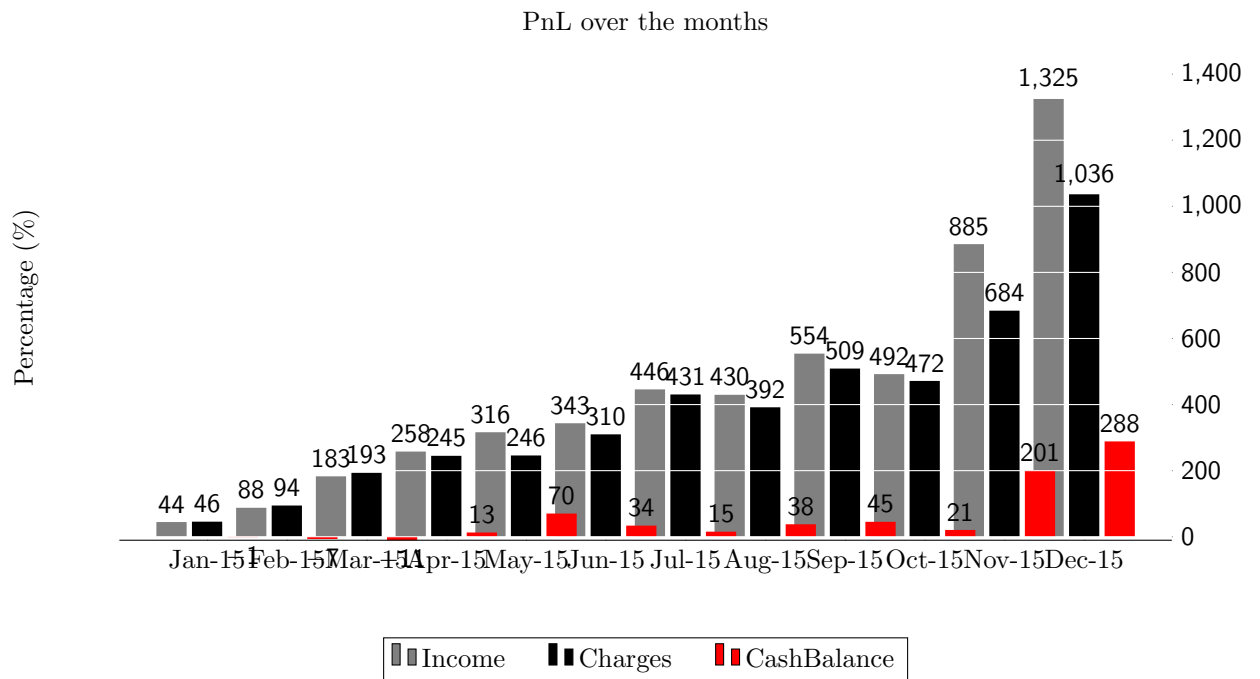
- The first simulation apply a reduction of the Toxics by 231 euros each month
- The second scenario apply a reduction of the debt by 40 percent of the 529
- The third one divide the amount of cash spent by 50 percent
- The fourth one cumulate the reduction of the toxics by 231 euros with the amount of cash spent reduced by 50 percent
- The fifth one is a reduction of 1000 euros each month
- The fifth one is a reduction of 700 euros each month
- The fifth one is a reduction of 800 euros each month
- The fifth one is a reduction of 950 euros each month
- The fifth one is a reduction of 750 euros each month

On the graph we can notice that all the scenarios are positive, as they were built to show how to maximize profit just by managing the charge, and especially useless charges.

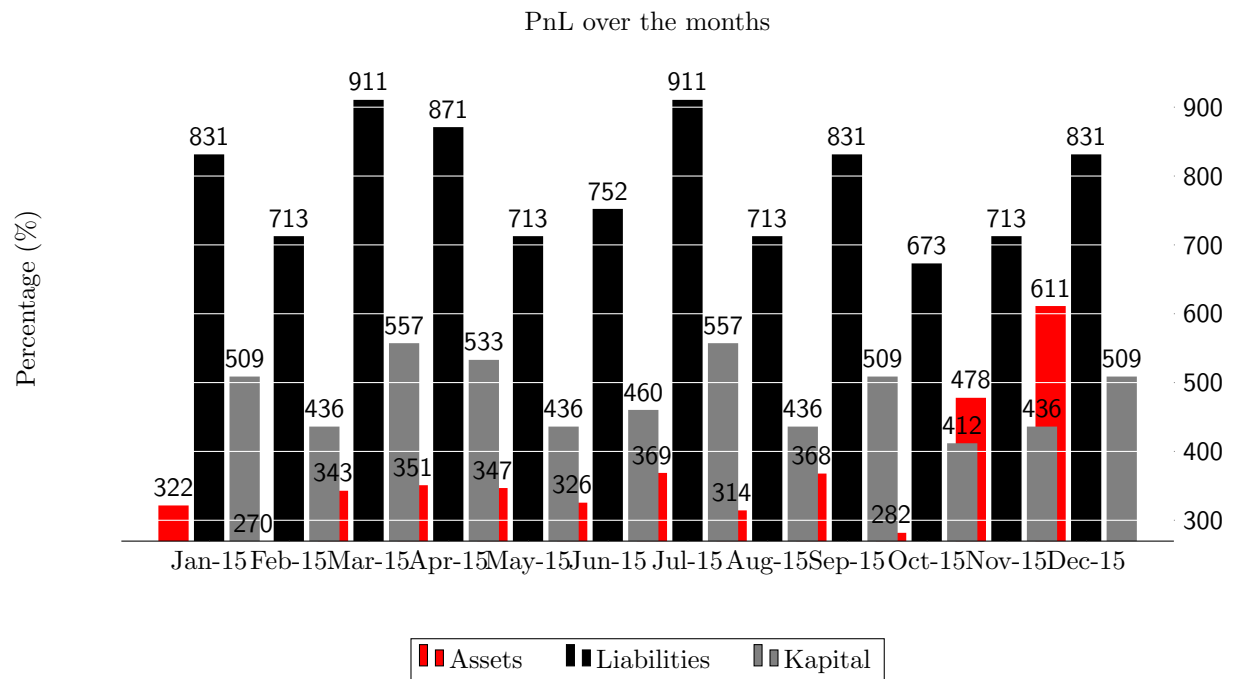


BarPlotPnl

## 2.1.2 PnL

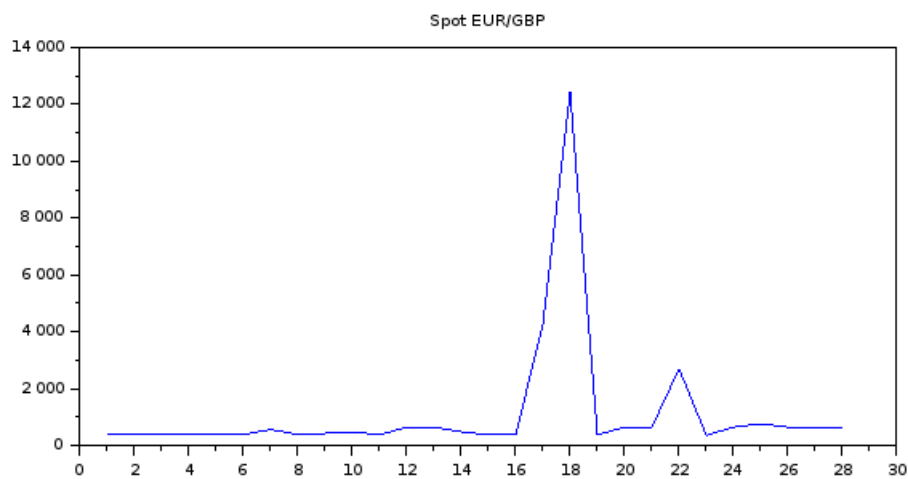


### 2.1.3 Kapital



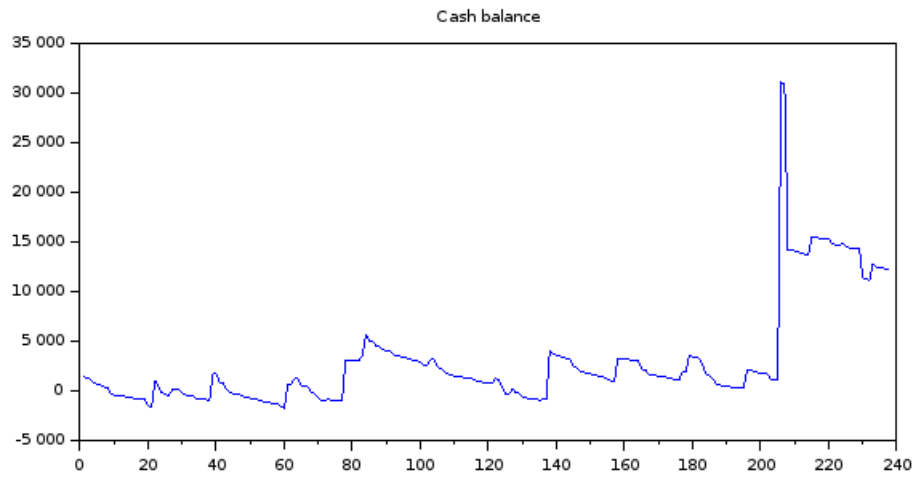
### 2.1.4 Plot of an example

### 2.1.5 Graph



This where science enter the game as here can call scilab and there is no limit at what we could calculate... fascinating! How do we populate Scilab with Negative numbers where there are Debits and Positive numbers for the Credit

### 2.1.6 Graph



### 2.1.7 Surface

### 2.1.8 Gaussian Curve

General form for the  $F$  distribution with  $\nu_1$  and  $\nu_2$  degrees of freedom:

$$f(F; \nu_1, \nu_2) = \frac{\Gamma\left(\frac{\nu_1 + \nu_2}{2}\right)}{\Gamma\left(\frac{\nu_1}{2}\right) \Gamma\left(\frac{\nu_2}{2}\right)} \left(\frac{\nu_1}{\nu_2}\right)^{\frac{\nu_1}{2}} \frac{F^{\frac{\nu_1 - 2}{2}}}{\left[1 + \left(\frac{\nu_1}{\nu_2}\right) F\right]^{\frac{\nu_1 + \nu_2}{2}}}$$

Critical region for an  $F$  test for various degrees of freedom:

Statistical power in hypothesis testing:

### 2.1.9 Table

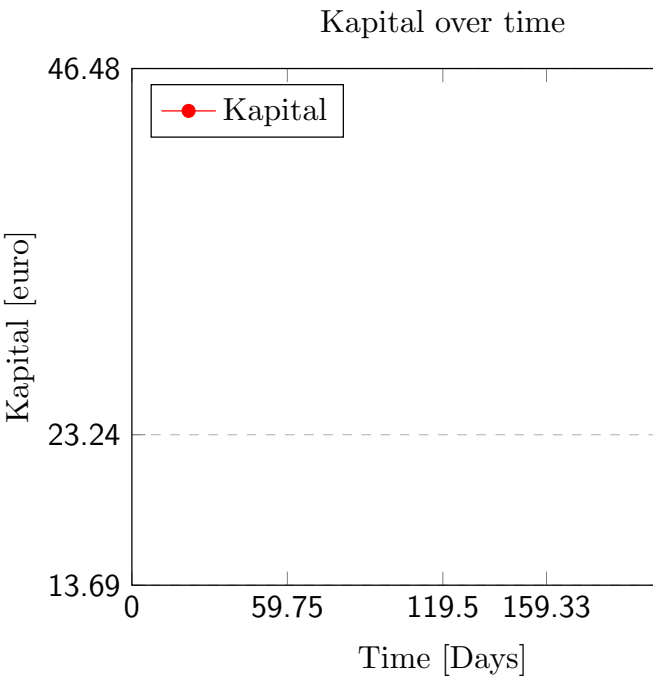
The scenarios given in the table are only examples, the real scenarios are provided in the graph below

Scenarios					
PnL; CumPnL; Tox; Debt(40PnL	CumPnL	Tox	Debt(40%)	Cash(50%)	Tox-Debt(40%)
140;140;371;351;517;582 140	140	371	351	517	582
136;276;738;699;1031;1161 136	276	738	699	1031	1161
122;398;1091;1033;1530;1726 122	398	1091	1033	1530	1726
82;480;1404;1326;1990;2250 82	480	1404	1326	1990	2250
70;550;1705;1608;2438;2763 70	550	1705	1608	2438	2763
63;614;2000;1884;2879;3270 63	614	2000	1884	2879	3270
43;657;2274;2138;3300;3755 43	657	2274	2138	3300	3755
37;694;2542;2387;3714;4235 37	694	2542	2387	3714	4235
-18;676;2755;2580;4073;4659 -18	676	2755	2580	4073	4659
-46;629;2939;2745;4404;5055 -46	629	2939	2745	4404	5055

All the figures need to be checked carefully by someone who knows what it's doing.

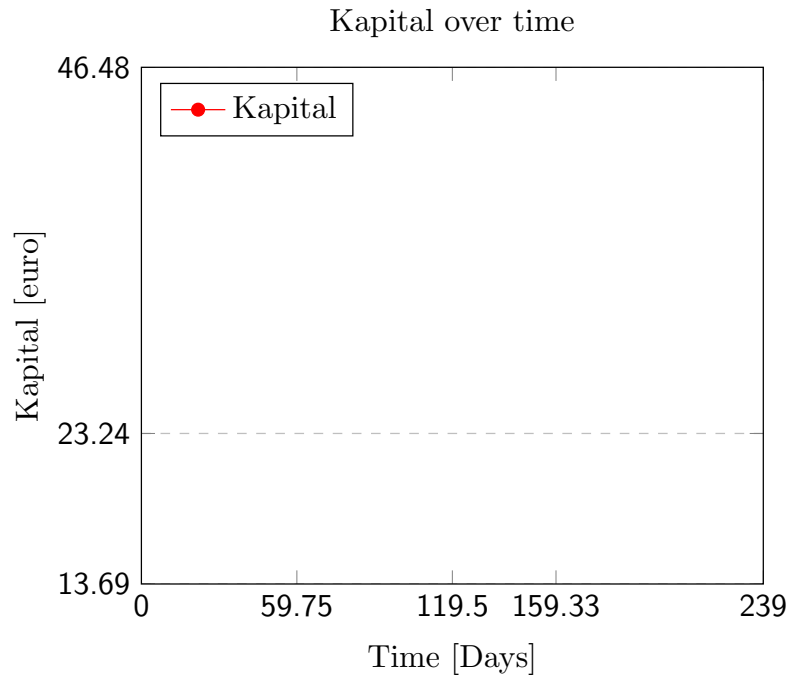
2.2 History and extrapolations

2.2.1 Kapital curve



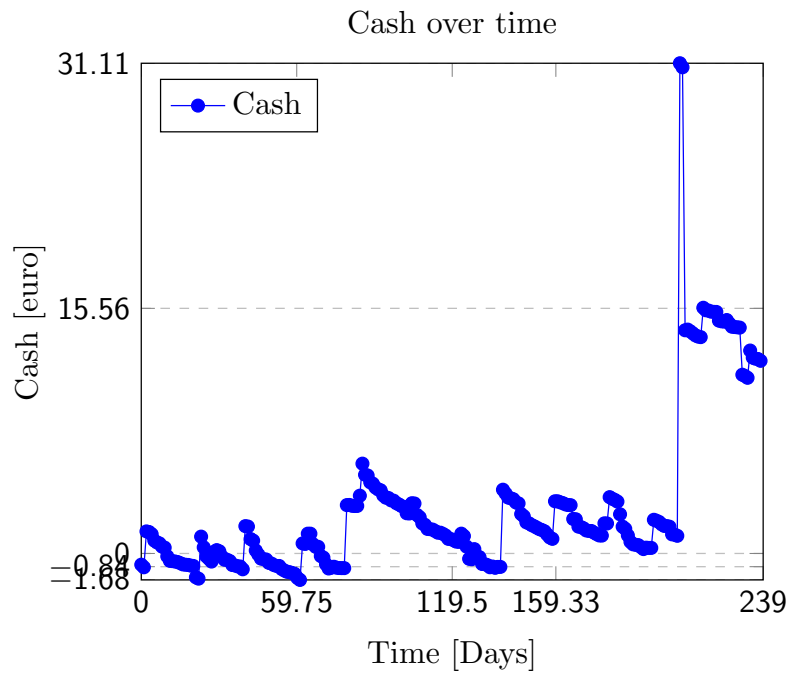
Kapital trend,Assets trend,Liabilities trend,Leverage trend“

### 2.2.2 PnL curve



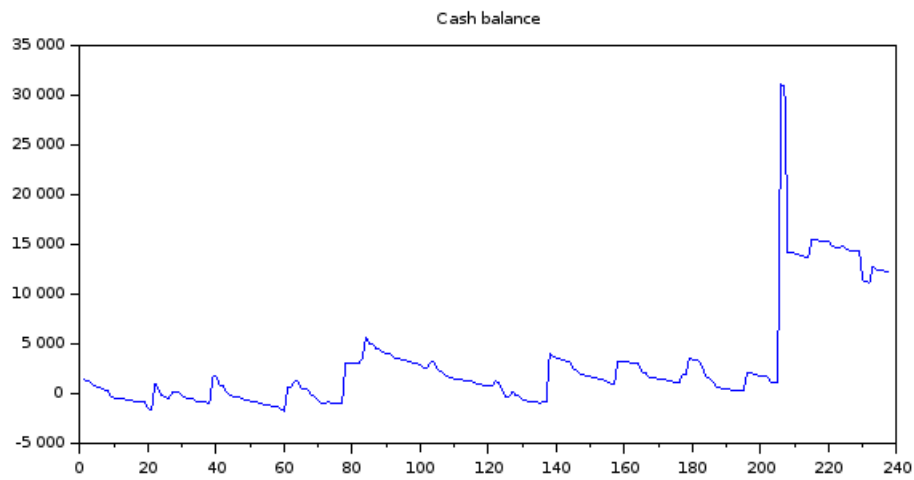
### 2.2.3 Cash curve

Funny cashflow/kapital superior to percent“





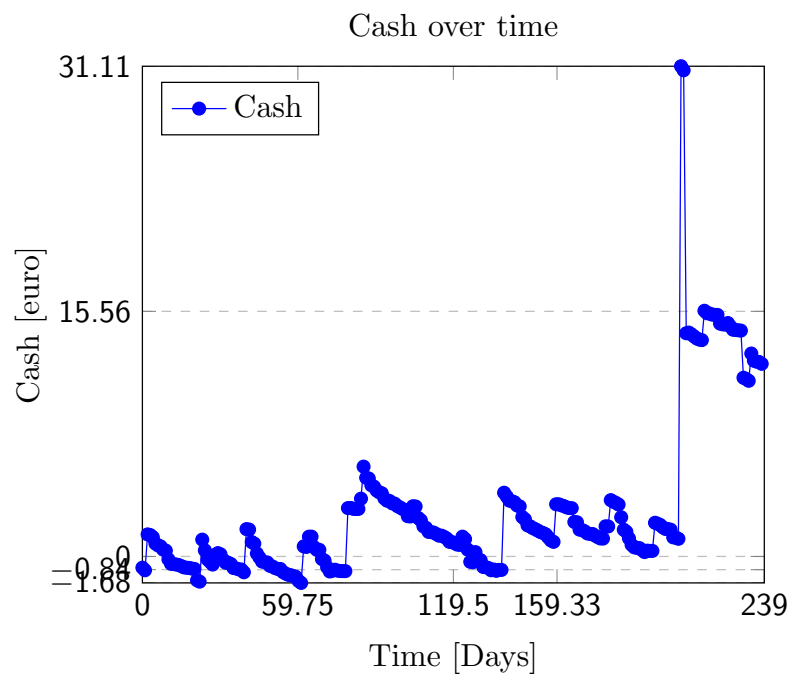
### 2.2.4 Cash curve from Scilab man!



## 3 Cash Balance Management

### 3.1 Monthly drift

#### 3.1.1 Table

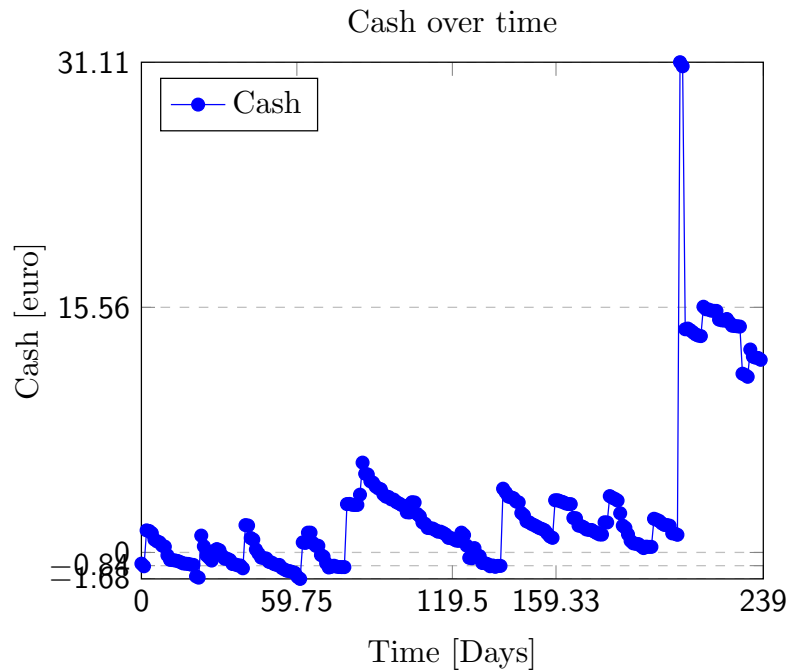


#### 3.1.2 Table

Cashflows					
MinDate	MaxDate	Income	Charges	PnL	NumDays
2011-01-01	2021-01-13	64462	52236	12226	3665
2011-01-01	2015-12-31	64462	52236	12226	1825
2011-01-01	2015-12-30	64462	52120	12342	1824
2011-01-01	2015-12-29	64462	52100	12362	1823
2011-01-01	2015-12-28	64462	52034	12428	1822
2011-01-01	2015-12-24	64462	51584	12878	1818
2011-01-01	2015-12-23	62704	51556	11148	1817
2011-01-01	2015-12-22	62704	51439	11265	1816
2011-01-01	2015-12-21	62704	51361	11343	1815
2011-01-01	2015-12-18	62704	48370	14334	1812
2011-01-01	2015-12-16	62704	48351	14353	1810
2011-01-01	2015-12-15	62704	48334	14370	1809
2011-01-01	2015-12-14	62704	48314	14390	1808
2011-01-01	2015-12-11	62704	48110	14594	1805
2011-01-01	2015-12-10	62704	47890	14814	1804
...	...	...	...	...	...
Total					

To be able to have data for the drift, you need to build a C++ insert like for the kapital go through the dates in the cashflows, and calculate a drift based on this (modulo the salary)

### 3.1.3 Graph

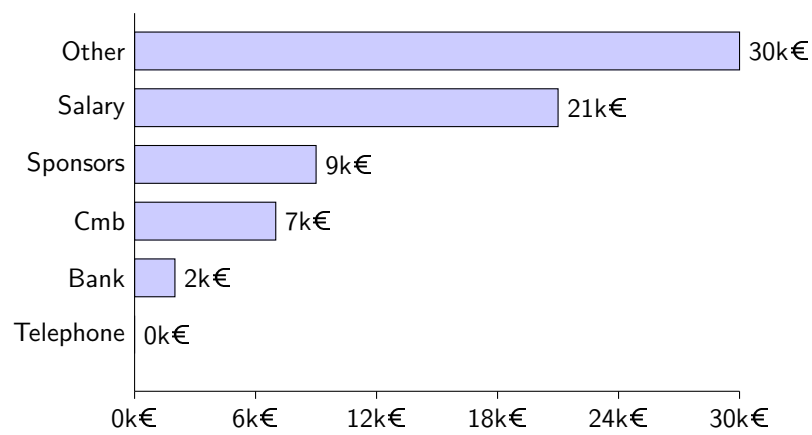


## 3.2 Incomes

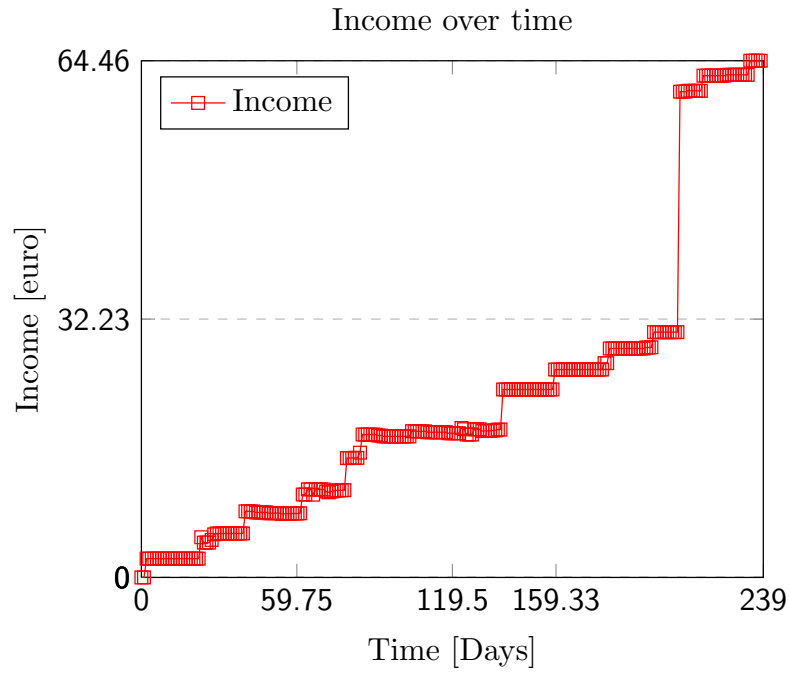
### 3.2.1 Table

Cashflows			
Category	Debit	Credit	PnL
Other	0	30313	30313
Salary	0	21221	21221
Sponsors	0	9000	9000
Cmb	0	7287	7287
Bank	0	2046	2046
Telephone	0	128	128
...	...	...	
Total	52236	64462	12226

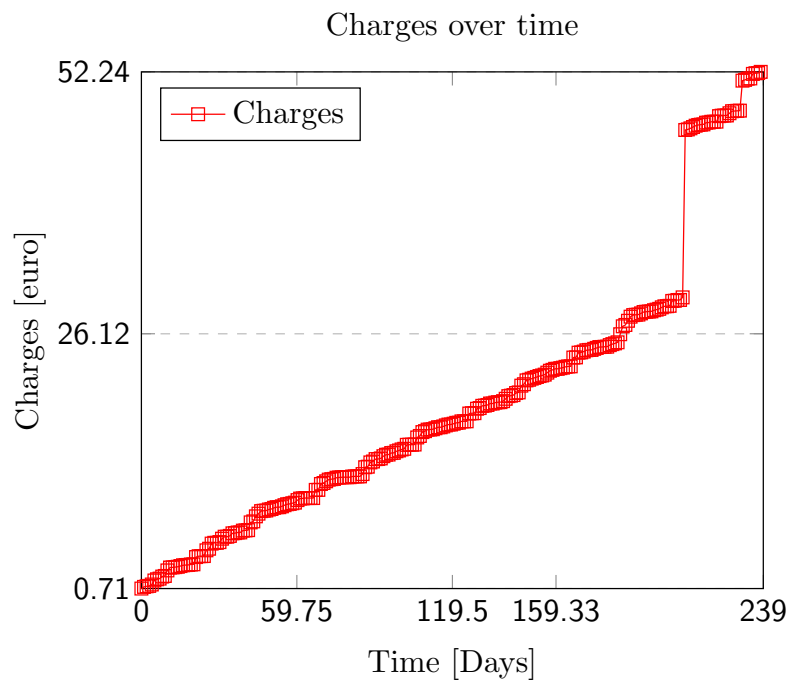
### 3.2.2 Graph



### 3.2.3 Chart



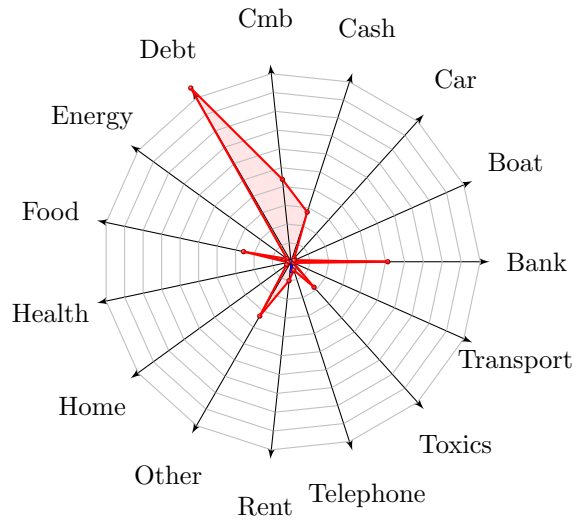
### 3.3 Charges



### 3.3.1 Charges plot

Removed to preserve my eyes from the colors....!!!!“

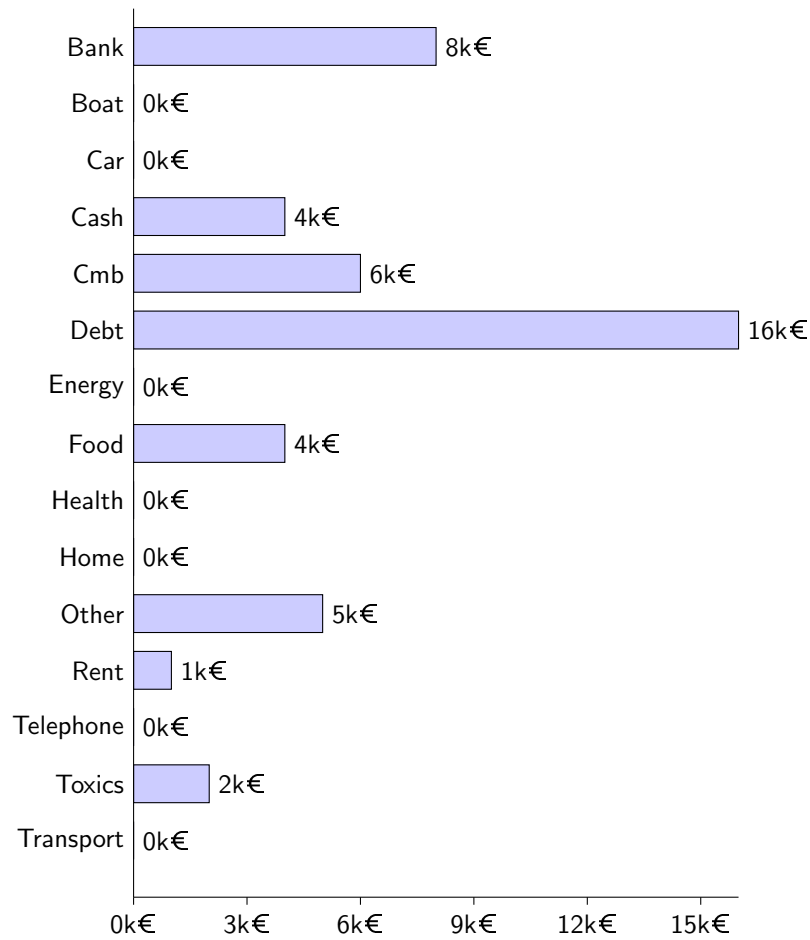
### 3.3.2 Charges kiviät



### 3.3.3 Table

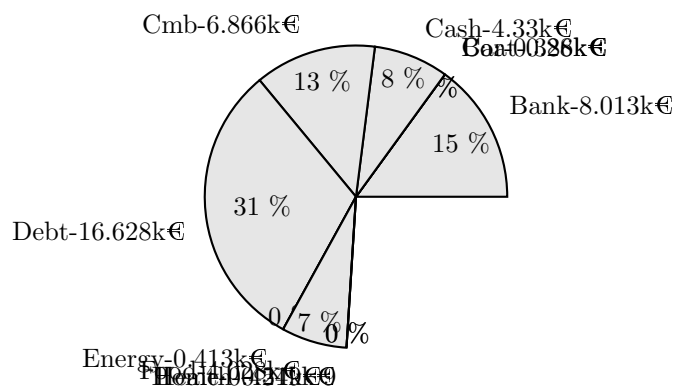
Cashflows			
Category	Debit	Credit	PnL
Bank	8013	0	-8013
Boat	280	0	-280
Car	386	0	-386
Cash	4330	0	-4330
Cmb	6866	-963	-7829
Debt	16628	0	-16628
Energy	413	0	-413
Food	4028	0	-4028
Health	249	0	-249
Home	451	0	-451
Other	5198	0	-5198
Rent	1582	0	-1582
Telephone	728	0	-728
Toxics	2845	0	-2845
Transport	239	0	-239
...	...	...	...
Total	52236	64462	12226

### 3.3.4 Graph



### 3.3.5 Chart

### 3.3.6 Cheese



## 4 Asset Liability Management

### 4.1 Kapital

#### 4.1.1 Table

History of the Kapital is available in the database (select \* from kapital)

#### 4.1.2 Graph

A graph of the kapital and not income and charges cumulated should be easy to build. Say a readKapital which would select the cash balance + all the other stuff like assets - liabilities  
Better do it with Latex than with the C++

#### 4.1.3 History

Historical graph of the kapital, liab and assets, yearly ALM management“

#### 4.1.4 Definitions

Vp: value weight (basically the value of the asset against the total value - to be replaced by InitPrice)“ Rp: return weight (the return compared to the total returns)“ Cp: cost weight (the maintenance cost compared to the total maintenance)“ Vd: historical deprecation of value (the Value compared to the InitPrice)“ R/V: monthly rentability (the return minus the maintenance)“

#### 4.1.5 Ratios

Vp = value/Totalvalue“ Rp = return/Totalreturn“ Cp = cost/Totalmaintenance“ Vd = value/Initprice“ R/V = return/Value“

#### 4.1.6 Formulas

$\lim_{x \rightarrow \infty} \exp(-x) = 0$ “

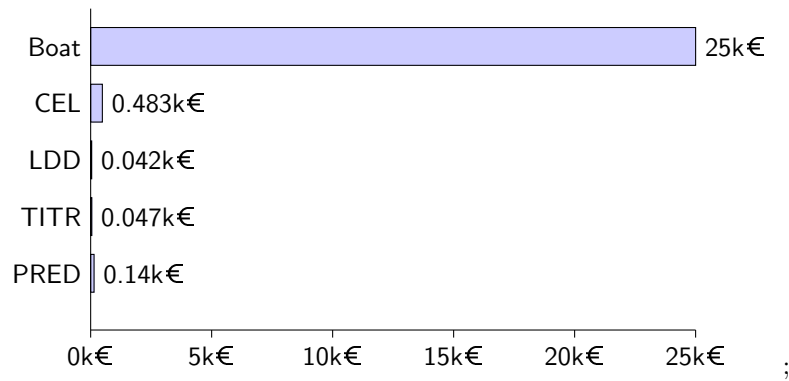
### 4.2 Assets

#### 4.2.1 Data

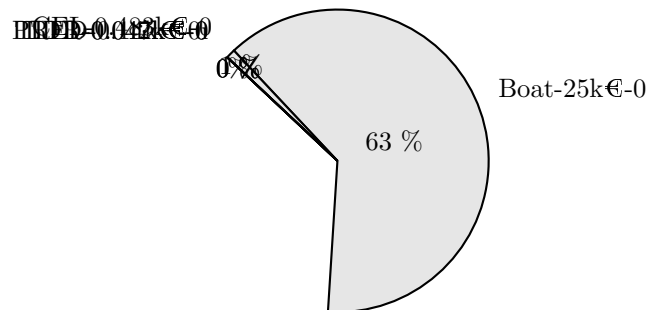
The top 5 assets are listed sorted by value, but the totals are given for all the assets as of today“

Assets											
Type	Name	Maturity	Value	Return	Cost	InitPrice	vp	rp	mp	dv	PnL(R/V)
Boat	Acquisition	2013-01-07	25000	50	400	30000	63	0	3	83	0
CEL	Acquisition	2013-01-07	483	50	400	30000	1	0	3	1	0
LDD	Acquisition	2013-01-07	42	50	400	30000	0	0	3	0	0
TITR	Acquisition	2013-01-07	47	50	400	30000	0	0	3	0	0
PRED	Acquisition	2013-01-07	140	50	400	30000	0	0	3	0	0
...	...	...	...	...	...	...	...	...	...	...	...
	Total assets	272834	39593	7991	10267						-2276

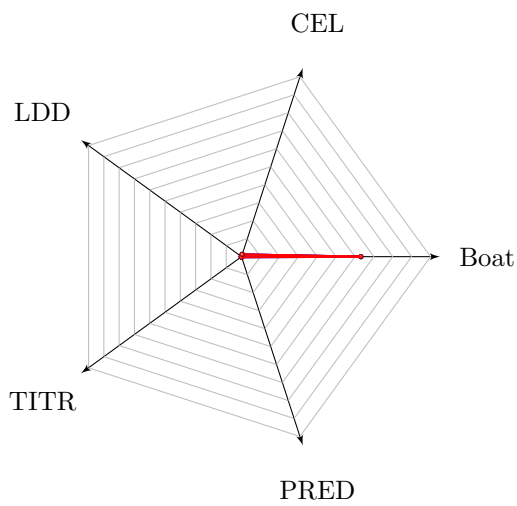
#### 4.2.2 Graph



#### 4.2.3 Cheese



#### 4.2.4 Kiviat



Seems like the assets Cheese

#### 4.3 Liabilities

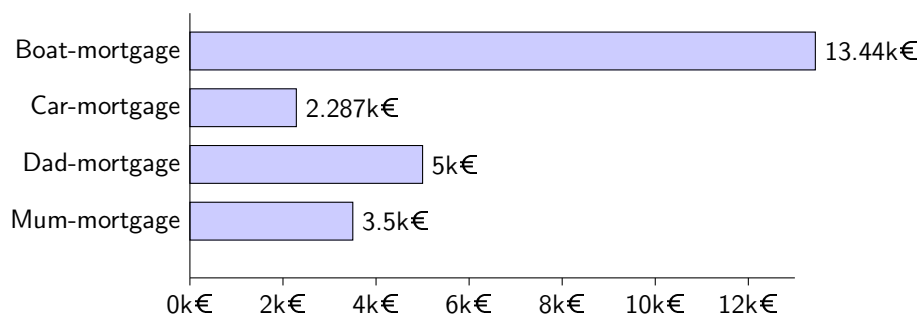
The top 4 liabilities are listed but the totals are given for all the liabilities“



#### 4.3.1 Table

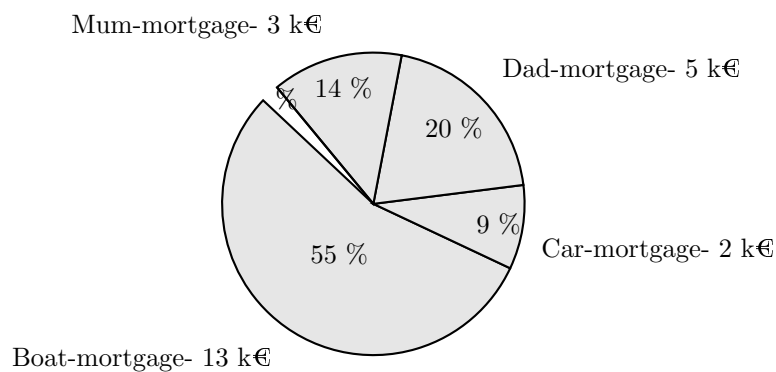
Liabilities											
Type	Name	InitPrice	Value	Return	Cost	Maturity	vp	rp	mp	dv	PnL
Boat-mortgage	mortgage	30000	13440	0	1	2013-01-07	55	0	25	44	0
Car-mortgage	mortgage	7000	2287	0	1	2013-01-07	9	0	25	32	0
Dad-mortgage	mortgage	5000	5000	0	1	2013-01-07	20	0	25	100	0
Mum-mortgage	mortgage	3500	3500	0	1	2013-01-07	14	0	25	100	0
...	...	...	...	...	...	...	...	...	...	...	...
	Total	45500	24227	0	4						-4

#### 4.3.2 Graph



#### 4.3.3 Chart

#### 4.3.4 Cheese



## 5 Cashflows

All cashflows from history are being used here“

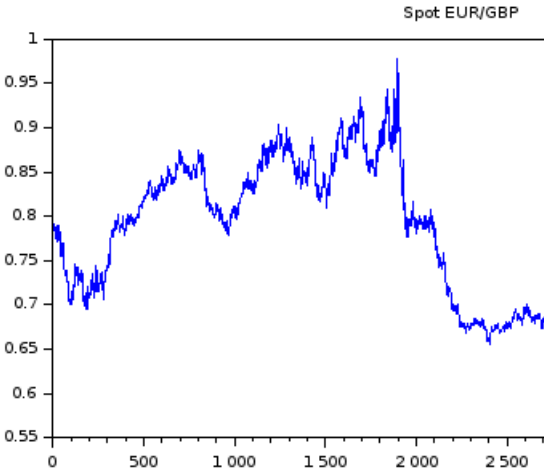
#### 5.0.5 Table

Cashflows
-----------

Category	Debit	Credit	PnL
Debt	16628	0	-16628
Bank	8013	0	-8013
Cmb	6866	-963	-7829
Other	5198	0	-5198
Cash	4330	0	-4330
Food	4028	0	-4028
Toxics	2845	0	-2845
Rent	1582	0	-1582
Telephone	728	0	-728
Home	451	0	-451
...	...	...	...
Total	52236	64462	12226

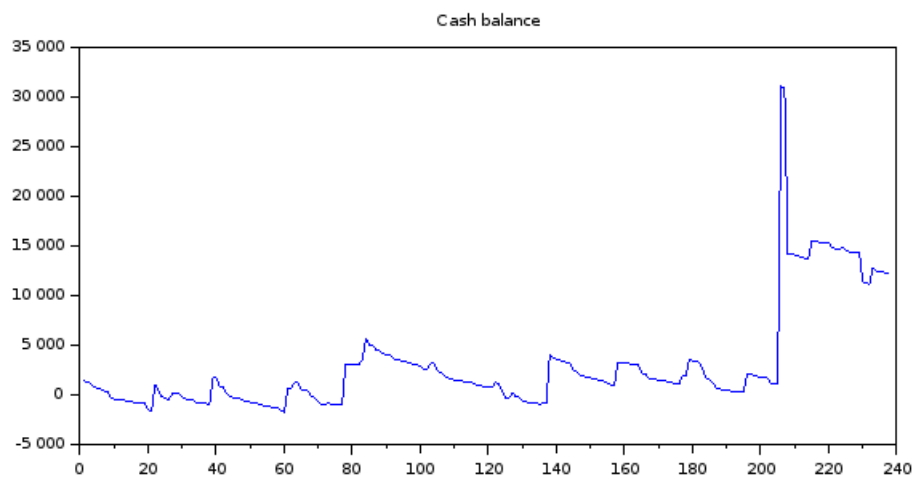
5.0.6 Graph

6 Currencies



All stocks and the evolution of their stock price are shown here“  
This is the graph of the EUR/GBP

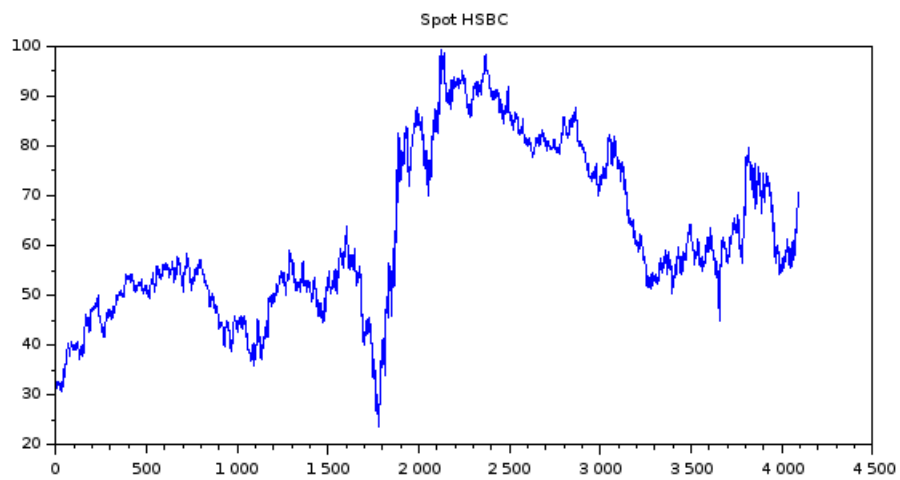
## 7 Cash balance



is the graph of my EUR cashbalance

This

## 8 Stocks



is the graph of HSBC stock

This

### 8.0.7 Table

Stocks table is available in the database ;-)  
`select * from stocks`

### 8.0.8 Graph

The graph is also available and produced by C++ under "legends"