

# DESIGNING A PORTFOLIO FOR RETIREMENT

## Abstract

Planning retirement finances is harrowing; finding reliable, disinterested information is difficult. This paper studies and constructs a portfolio based on a set of formal requirements and analyses its potential performance by back-testing on 20 years of history.

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# Requirements

## Problem statement

Given a single down-payment, construct a portfolio that will generate a retirement pension.

A stipend will be withdrawn the beginning of each year. The amount will increase by 1.3% p/a to compensate for the <u>average inflation</u> in Switzerland.

The portfolio's life shall exceed 30 years.

## Objectives

- The risk of total loss is minimised.
- The portfolio shall be as resilient as possible to market turmoil.

## Constraints

- Instruments. Given the problem statement, the only viable instrument is shares.
  - Bonds cannot produce the required revenue.
  - Derivatives are subject to default by the writer.
  - Funds have a risk of default by the managing entity and their performance is predicated by fees.
  - Real-estate **companies** (as opposed to funds) that actually possess all their properties **are** acceptable because they are backed with physical property.
- Currency. CHF only; forex risks are unacceptable because **every** currency has lost value against the Swiss Franc in the last 20 years.
- Geography. The shares shall be in Swiss companies domiciled in Switzerland.
- Debtor Diversity: No single company shall represent more than 5% of the portfolio.
- Industry Diversity: No single industry shall represent more than 5% of the portfolio.

## Deliverables

- A set of objective criteria for stock picking that fulfils the constraints.
- Based on these criteria, a basket of desirable shares in which to invest.
- Buying, re-balancing and selling strategies.
- An estimate of the stipend percentage range.
- An analysis of the basket's performance, by back-testing on historical data 2000-2019, which will determine:
  - The buffer that needs to be kept to maintain yearly payments, so as not to be obliged to sell at an unfavourable moment.
  - The portfolio's probable behaviour in worst-case scenarios (e.g. entering the market just before a stock-market crash).
  - Situations in which the portfolio's life might be compromised and mitigating actions.

## Selection Criteria

An ideal company would have a healthy balance sheet, exhibit constant growth and lose no value during a stock-market crash. Such companies do not exist, however amongst the 40-odd financial ratios available, 3 are particularly useful to filter out desirable candidates.

- 1. The <u>Sortino ratio</u>, a downside variant of the <u>Sharpe ratio</u>, is a strong predictor of companies that have the desired kind of behaviour.
- 2. The <u>Quick Ratio</u>, whilst dependent on the industry, generally demonstrates that a company has had the foresight to keep enough cash on hand to weather difficulties.
- 3. Resistance to turmoil, which can be assessed by observing the stock's behaviour during a stock-market crash. It consists of two associated components:

**Resilience**. The percentage value remaining after a crash.

**Recovery**. The period of time before the stock re-attains its pre-crash value.





Ideal shares will have a resilience close to 100% and a short recovery.

(This graph is in fact the SPI and there were two major crashes. The latter is used as it is more recent. Thus, the SPI has a **resilience** of 47% and a **recovery** of 23 months).

## Stock Selection

An initial selection is performed where companies will be scored using a decision matrix with the four components outlined above:

- 1. The **Sortino ratio**, weight 20%.
- 2. The **Resilience**, weight 30%.
- 3. The **Recovery**, weight 30%.
- 4. The **Return** (growth plus dividend), weight 20%.

Note: The gold standard for expressing portfolio returns is the <u>CAGR</u> (Compound Average Growth Rate) but as it is calculated using solely a start and ending value, it is sensitive to the end-points:



This extreme case has a CAGR of -0.1% (the blue line) but over the entire period its global trend is positive (the green line, a least-squares linear fit).

Shares' growths will be measured using the slope of the green line, expressed as a percentage of the average value, in this example 12%. The CAGR will also be calculated and used as a cross-check for cases like this.

From this subset a manual review will determine the companies finally chosen (judgement is required for the Quick Ratio, which has different meanings for each industry).

## Universe

The initial instrument universe is the <u>SPI</u> and Swiss Real-Estate companies. Of the 215 SPI shares, 205 are quoted in CHF and totally domiciled in Switzerland. Of these, 82 and have been quoted continuously since 2000 and show positive returns.

Duplicate shares (e.g. Lindt N and Lindt PS) are be eliminated by the lowest score.

To meet the diversity constraint, a single stock with the best score of each industry segment is retained.

# Selected shares

After applying the criteria and manual selection 21 shares remain:

Name	Segment	Growth %	CAGR %	Dividend 5Y %	Return %	Crash Loss %	Recovery months	Volatility %	QuickRatio	Sortino %	Resilience %	Rebound %	Return %	Score %
LEM N	Electrical engineering	14.7	18.6	3.5	18.3	67	16	1.3	1.3	88	33	88	100	80
IVF HARTMANN N	Health care	12.7	10.3	1.4	14.1	22	5	1.2	3.9	79	78	98	56	75
SIKA N	Construction materials	14.0	16.4	1.8	15.8	74	53	1.7	1.7	77	26	56	74	62
SCHINDLER PS	Lifts	11.0	12.5	2.1	13.0	49	16	0.6	1.2	62	51	88	44	60
TEMENOS N	Industry	15.9	11.0	0.7	16.6	78	21	2.6	0.0	41	22	84	82	58
INTERROLL N	Material handling	14.1	14.0	1.4	15.5	71	73	2.2	1.6	67	29	37	70	54
GEBERIT N	Sanitary equipment	11.0	12.3	2.5	13.6	58	47	0.7	0.9	59	42	60	50	53
BVZ HOL N	Railways	7.0	6.7	2.2	9.1	12	3	1.6	1.8	46	88	100	2	52
KUEHNE+NAGEL INT N	Transport	8.2	12.3	3.7	12.0	59	21	0.6	1.0	56	41	84	33	52
EMS-CHEMIE N	Chemicals	10.6	7.7	3.0	13.5	53	23	1.4	2.9	36	47	82	49	51
DAETWYLER I	Elastomers	10.6	11.2	1.8	12.3	62	46	0.8	1.4	51	38	61	37	46
SGS N	Inspection	7.8	9.2	3.3	11.1	44	22	0.5	1.5	35	56	83	24	45
GIVAUDAN N	Fragrances	8.3	9.5	2.8	11.1	53	49	0.8	1.5	55	47	59	24	45
BARRY CALLEBAUT N	Chocolate	10.3	11.8	1.4	11.7	56	61	0.8	0.9	57	44	48	30	44
SCHWEITER I	Composite panels	7.0	6.5	4.2	11.1	38	20	1.5	2.0	21	63	85	24	43
NESTLE N	Food	6.0	6.8	3.0	9.0	36	20	0.4	0.7	36	64	85	1	41
SONOVA N	Hearing	8.3	11.2	1.6	9.9	65	14	0.8	1.0	41	35	90	11	41
INFICON N	Instrumentation	9.7	6.8	4.1	13.8	72	46	1.3	2.4	21	28	61	53	40
VETROPACK I	Packaging	7.0	15.5	2.4	9.4	56	115	1.0	1.5	78	44	0	6	34
STRAUMANN N	Dentistry	7.9	16.2	1.0	8.9	58	89	1.8	2.1	69	42	23	0	33
TECAN GROUP AG N	Laboratory instruments	8.5	3.0	1.1	9.6	69	53	1.4	2.6	0	31	55	8	20

These will constitute the proposed portfolio. The benchmark is the SPI.

## Rejects

The remaining shares were eliminated because:

- Railways. Despite their high scores, TITL BN BERG and JUNGFRAUBAHN HLD both have their entire infrastructure in one location. They were dropped in favour of BVZ HOLDING, which is significantly more diversified.
- Foods. NESTLE scored lower but was preferred over BELL AG, which is not entirely Swiss and focussed on a single product line, meat. GROUP MINOTERIES has poor returns.
- Chocolates. BARRY CALLEBAUT has a slight edge over LINDT and VILLARS.
- The remainder due to insufficient resilience and/or recovery.

## Weighting

The SPI index components are weighted by companies' market value, as the aim is to assess the performance of the total CHF amount invested in the market.

On the other hand, an investor's components are chosen to diversify risk; it is thus undesirable to give more weight to any particular company as this would proportionally increase risk for that component. Consequently, the portfolio will be built with equal CHF amounts of each stock.

# Performance Analysis

The baseline comparison consists of comparing the portfolio against the SPI and SMI, normalised to 100 on the 1<sup>st</sup> of January 2000:



Despite the impression due to the scale, all three lost ~55% in the 2007-2008 crash.

The portfolio recovers much faster (20 months), than the SPI (50 months) or the SMI (73 months).

Note: The SPI's CAGR over the last 30 years is 9.89%.

## Buffering

Selling shares to obtain cash for stipends is undesirable after a stock market crash, as their value will be down by some 55%. There is thus a requirement for a cash buffer to avoid such sales.

The portfolio recovers from a crash in some 20 months. Assuming that a stock-market crash occurs about once a decade, there will be two or three stock market crashes during the portfolio's lifetime.

As the first crash can occur at inception, the minimum buffer is 2 year's stipends. Assuming that the stipend is low enough to allow the portfolio to grow during the first half of its life, it may not be necessary to buffer for subsequent crashes.

Buffering with cash is costly with the current -0.7% negative interest. An attractive alternative is to use Real-Estate, which offers more modest growth but suffers much less in troubled markets. Of the 31 Real-Estate companies quoted on SWX, only 5 meet the criteria:

Name	Segment	Valatility	Growth	CACE	Dividend	Poturn	Crash	Crash	Recover	Paciliance	Pehound	Poturn	Seare
	Segment	volatility	Growth	CAGR	5Y	Return	Loss	Months	months	Resilience	Rebound	Netum	Score
LA FONCIERE	RealEstate	0.2	5.1	5.5	2.7	7.8	19%	19	13	81%	16%	100%	76%
FIR	RealEstate	0.3	4.7	4.8	2.1	6.8	13%	18	11	87%	30%	60%	65%
BONHOTE IMMOBILIER	RealEstate	0.2	2.7	2.5	3.9	6.6	12%	11	14	88%	0%	52%	56%
IMMOFONDS	RealEstate	0.2	2.2	2.4	3.1	5.3	14%	19	4	86%	100%	0%	54%
SWISSINVEST REAL	RealEstate	0.3	3.8	2.8	2.5	6.3	19%	21	13	81%	12%	40%	51%

Their worst-case behaviour is a loss of ~15% and a recovery of 11 months, which is an acceptable level of risk given their average growth of 6.6%. (A 15% loss is covered by growth if the first crash occurs no earlier than 27 months after inception.)

This buffering strategy will be tested in the simulation.

## Buying, Re-balancing and Selling strategies

## Buying

Of the 116'213 price changes of the members of the portfolio in the past 20 years, the average change was +0.0056 CHF. It follows that given the choice of buying today or waiting until tomorrow in the hope that the price will go down, it is logical to buy today (with an appropriate limit to avoid getting executed 'high' in the day).

This can be improved by observing a stock's historical random walk to determine the chances of buying at a lower price over some period. For a given stock, for each day in the history, determine how often a price fall of at least X% occurred in the N following days (here, N=60):

	Percentage												
Stock	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5			
BARRY CALLEBAUT N	0.92	0.87	0.82	0.77	0.72	0.68	0.63	0.59	0.54	0.50	2.50		
BVZ HOL N	0.88	0.84	0.78	0.73	0.70	0.65	0.61	0.57	0.51	0.45	2.50		
DAETWYLER I	0.92	0.88	0.84	0.80	0.76	0.72	0.69	0.66	0.62	0.59	3.00		
EMS-CHEMIE N	0.90	0.85	0.80	0.75	0.71	0.66	0.62	0.57	0.53	0.49	2.50		
GEBERIT N	0.90	0.85	0.80	0.77	0.73	0.69	0.65	0.61	0.58	0.53	2.50		
GIVAUDAN N	0.90	0.84	0.78	0.73	0.68	0.63	0.58	0.54	0.49		2.00		
INFICON N	0.92	0.89	0.85	0.81	0.77	0.74	0.71	0.67	0.65	0.62	3.50		
INTERROLL N	0.91	0.88	0.84	0.80	0.75	0.71	0.68	0.64	0.61	0.56	3.00		
IVF HARTMANN N	0.91	0.87	0.81	0.75	0.69	0.63	0.55	0.50	0.46		2.00		
KUEHNE+NAGEL INT N	0.92	0.88	0.83	0.80	0.77	0.73	0.69	0.66	0.61	0.57	3.00		
LEM N	0.91	0.87	0.84	0.80	0.75	0.72	0.69	0.66	0.63	0.59	3.00		
NESTLE N	0.91	0.84	0.78	0.73	0.66	0.59	0.53	0.48			2.00		
SCHINDLER PS	0.91	0.87	0.82	0.77	0.73	0.68	0.64	0.60	0.55	0.51	2.50		
SCHWEITER I	0.93	0.89	0.84	0.80	0.76	0.71	0.66	0.61	0.56	0.51	3.00		
SGS N	0.91	0.86	0.82	0.78	0.73	0.69	0.65	0.60	0.57	0.52	2.50		
SIKA N	0.90	0.85	0.80	0.75	0.71	0.66	0.62	0.58	0.54	0.51	2.50		
SONOVA N	0.92	0.88	0.83	0.79	0.76	0.73	0.69	0.65	0.61	0.58	3.00		
STRAUMANN N	0.92	0.88	0.84	0.80	0.77	0.74	0.71	0.67	0.64	0.61	3.50		
TECAN GROUP AG N	0.93	0.90	0.86	0.82	0.79	0.75	0.71	0.67	0.63	0.60	3.50		
VETROPACK N	0.93	0.90	0.86	0.83	0.78	0.74	0.69	0.65	0.62	0.57	3.00		

Thus, if I want to buy Barry Callebaut, there is a 72% chance that it will fall by 2.5% in the next 60 days. Intuitively, sought-after shares (Givaudin, IVF Hartmann and Nestlé) are less likely to fall, so the limited order will need to be closer to the current price. Conversely, more volatile shares (Straumann and Tecan) are more likely to be had at a larger discount.

The buying strategy is thus to place limited orders at a discount of the percentage which meets the chosen chance of success. I implemented this strategy on the 2<sup>nd</sup> of October 2020. On the 20<sup>th</sup> of November, I had acquired 19 out of the 20 stocks at an average discount of 2.3% below the October 2<sup>nd</sup> prices, so this strategy works (except for Kühne & Nagel, which never fell 3% during the period).

## Re-Balancing

The average cost of a transaction is about 0.85%, so the re-balancing cost is 1.7% of the position. This churning must be weighed against the hypothetical gain obtained by improved diversification.

It makes more sense to sell smaller fractions of multiple positions rather than entire positions, as the difference in transaction fees is negligible (0.825% for transactions over 50'000 versus 0.9% for those below 50'000).

## Selling

The stipend pay-out will be made each year, using the dividends and sales as necessary. The simulations determined that the optimal rules for selling are:

- 1. When the market has fallen over the preceding year, prefer to sell real-estate otherwise sell shares (avoid selling shares at a poor price).
- 2. Select the 5 shares that have the highest growth in the last 12 months (5 was determined empirically).
- 3. Choose the two largest CHF positions.
- 4. Sell half the necessary amount of each of the two positions (to minimise unbalancing).
- 5. If a sale would represent more than 90% of the position, sell the entire position (to avoid subsequent odd-lot trades).

## Simulation

A simulator was built to perform the back-testing. It operates as follows:

The simulation is initiated by:

- Setting the clock to the start date.
- Depositing CHF 1'000'000 in the account.
- Immediately paying the stipend, proportional to the time remaining in the current year.
- Use the remaining cash to populate the portfolio with shares and real-estate.

Then, repeatedly:

- Advance the clock to 31<sup>st</sup> of December.
- Calculate the dividends from the current positions and remove 35% withholding tax (which is written off). Credit the portfolio cash with the remaining 65%.
- Pay-out custodian fees of 0.35% of the portfolio's current market value.
- Advance to 1<sup>st</sup> of January.
- Increase the stipend by the rate of inflation.
- Sell a sufficient amount of positions to make the cash greater than the current stipend.
- Pay-out the stipend (or declare failure if there is insufficient cash).

Finally, calculate the P&L and various statistics.

Transaction fees are applied at the rates for UBS Online Banking. The rate varies by transaction size, about 0.85%. Other brokers / custodians charge significantly less.

SWX fees and Stamp Duty are also deducted.

#### Results

A typical simulation produces the following:



#### Discussion

This is a worst-case, the 2000 stock-market crash commenced on the 25<sup>th</sup> of September 2000. The other worst case, starting on the 15<sup>th</sup> of October 2007, produces almost identical results.

The stipend is 7.2%, CHF 72'000 on the first year, increasing to 92'026 after 20 years.

There are practically no sales at a loss.

The portfolio's costs are  $95'606 \div 20$  years = 4'780 per year = ~0.5%. This could be significantly reduced by using a less expensive broker / custodian, e.g. <u>SwissQuote</u>.

The total stipends amount to 1'632'512 for an initial investment of 1'000'000.

The portfolio's final value is just over double the initial deposit.

The portfolio has a CAGR of 3.8%, despite the stipend withdrawals.

The asset allocation remains moderately well balanced at the end of the simulation, the 21 initial companies all remain.

### Determining the ideal buffer

Simulations were performed for varying buffer sizes from 0 to 6 years. Whilst increasing the buffer has a positive effect on the portfolio's lowest value, the final portfolio value and the CAGR are affected negatively. It transpires that a buffer of ~30 months is optimal:



#### Maximum stipend

The portfolio fails (again, starting on worst-case 25/9/2000) at a stipend of 9.1%:



#### Ideal stipend

The chosen stipend is a function of the investor's appetite for risk. With a stipend of 7.2% (the typical simulation above), the portfolio final value was 2'056'468 with a CAGR of 3.8%.

Decreasing the stipend to a more conservative 6% increases the final value to well over 3'000'000 with a CAGR of 6.2%:

🖳 Simulator													<u></u>	
Basket PortfolioV2	•	Seed	100000	) Infla	tion % 1.3		Start	Monday	. Septe	mber 25, 2000	-			
, Rei	nvest 🗆	Stipend 1	6	Buffer m	onths 30		Finish	Thursday	, Janu	Jary 2, 2020	•	Run		
Name	Value	3.50	0.000											
Seed	1,000,000		54-54015	- Portfolio	12									
Final	3,215,586			, crucilo	-									
Real-estate	0	3,000	0,000											1.
Shares	3,213,582												1	MM NV
BARRY CALLEBAUT N	151,798	2 500	000										1	N' M
BVZ HOL N	160,800	2,500	5,000										provide the second seco	V
DAETWYLER I	234,305													
EMS-CHEMIE N	98,021	2,000	0,000										NV V	
GEBERIT N	279,205											- MA	W	
GIVAUDAN N	124,271	4 50						Mr.				1. Aunumber	NI .	
INFICON N	118,349	1,500	J.000				1	N WL		Ant	1	M.		
INTERROLL N	200,100						1			and the second s	Mar and			
IVF HARTMANN N	53,040	1.00	0.000			N	w.		1 1		a.,			
KUEHNE+NAGEL INT N	163,526		~	n		and -			V					
LEM N	192,240			m.	m									
NESTLE N	102.370	50	0,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					-					
SCHINDLER PS	165.693													
SCHWEITER I	40,458		0											
SGS N	60.973		200	1 2002 2003	2004 2	005 2006	6 200	07 2008	2009 2	2010 2011	2012 201	3 2014 2015	2016 2017 201	18 2019
SIKA N	366.610			10 m		1.44	1			10			1.0	D (1)
SONOVA N	93.030		Date	Securities	Cash	Name	Hold	ding		Quantity	Price	Commission	Gross	Profit
STRAUMANN N	201 485		3 Jan 2001	888,492	17,659	Sell	LAF	ONCIERE	0.5009	-501	43	225	21,/93	45
TECAN GROUP AG N	60.928		3 Jan 2001	866,924	39,227	Sell	SWI	ISSINVEST F	REAL	-174	124	226	21,828	20
TEMENOS N	151 821		3 Jan 2001	845,322	60,829	Stipend				-60,780	1	0	60,780	0
VETROPACK	194 560	1	28 Dec 2001	689,890	49	Dividend				8,895	1	0	8,895	0
Cash	2.004	1	28 Dec 2001	689,890	8,944	Custodian				-2,415	1	0	2,415	0
Commissions	18.994		2 Jan 2002	685,835	6,529	Sell	FIR			-359	83	284	30,146	494
Dividends	315,185		2 Jan 2002	655,810	36,392	Sell	IMM	OFONDS		-87	290	242	25,472	266
Custodian	93,950		2 Jan 2002	630,580	61.622	Stipend				-61.570	1	0	61,570	0
Stipends	1.360.425		30 Dec 2002	576 949	52	Dividend				7 789	1	0	7 789	0
Final stipend	76,689		20 Dec 2002	570,040	7 940	Custodian				-2.019	1	0	2,019	0
Lowest	520,233		0 Les 2002	570,343	7,040	Call	1.4.5	ONCIEDE		-2,013		105	2,013	1 400
CAGR	6.2		2 Jan 2003	5/6,949	5,821	Sell	LAF	ONCIERE		-183	51	105	9,347	1,403
Winners	40		2 Jan 2003	567,616	15,062	Sell	IMM	OFONDS		-15	322	62	4,892	546
Gains	654,497		2 Jan 2003	562,741	19,892	Sell	BON	HOTE IMMO	BILIER	-267	109	276	29,245	-404
Losers	1		2 Jan 2003	533,771	48,862	Sell	SWI	ISSINVEST F	REAL	-63	124	91	7,913	17
Losses	404	•	2 Jan 2003	525,950	56,683	Sell	GIV/	AUDAN N		-10	617	75	6,245	1,526
	-04		2.lan 2003	519 750	62,853	Stinend				-62 371	1	0	62 371	0

Observe the transactions after the 2000 stock-market crash, where real-estate buffer is sold rather than stocks, until 2003 with the Givaudan sale.

## Unfavourable situations

It is well-known that past performance is not a predictor for the future and a simultaneous stockmarket and real-estate crash remains possible. Unforeseeable black-swan events will certainly happen in the incoming 30 years.

That said, most of the selected companies are manufacturers that have an established niche, producing tangible goods. All have a healthy balance sheet and have been well-managed for decades; the risk of total loss is thus extremely small.

## Conclusion

The designed portfolio, implemented with a buffer of 30 months and a stipend of 6% meets the requirements with minimal risk.

## Post-Scriptum

The same portfolio, run with neither stipends nor buffering and re-investing the dividends, starting on the pre-crash worst-case in September 2000, has the following behaviour (a CAGR of 12.5%):

Basket PortfolioV2	•	Seed	100000	0 Infla	tion % 1.3	}	Start	Monday .	Septen	mber 25, 2000 💌		- 1		
Rei	nvest 🔽	Stipend	% 0	Buffer m	onths 0		Finish	Thursday ,	, Janua	ary 2, 2020	•	Run		
Name	Value	10,0	000,000											
Seed	1,000,000			Portfol	ioV2									
Final	9,650,565													
Real-estate	0												, i i i i i i i i i i i i i i i i i i i	inter M
Shares	9,648,962	8,0	/00.000											WT I
BARRY CALLEBAUT N	395,530													Υ.
BVZ HOL N	202,800												r r	1
DAETWYLER I	374,105	60												
EMS-CHEMIE N	196,042		00,000										JV I	
GEBERIT N	513,867													
GIVAUDAN N	300,069												w "	
INFICON N	149,089	4.0	00,000									- A Amarka		
INTERROLL N	715,575									-		men		
IVF HARTMANN N	413,244							man		Now 1	and the second			
KUEHNE+NAGEL INT N	394,781						. /	w www		~				
LEM N	1,199,008	2,0	100,000			1	M		My					
NESTLE N	160,733				~									
SCHINDLER PS	491,169													
SCHWEITER I	116,470		0						_					
SGS N	206,778		20	001 2002 200	3 2004	2005 200	06 200	07 2008 2	2009	2010 2011	2012 201	13 2014 2015	2016 2017 201	8 2019
SIKA N	1,023,270		Date	Securities	Cash	Name	Hold	lina		Quantity	Price	Commission	Gross	Profit
SONOVA N	286,400	•	25 Sep 200	0 0	00011	Deposit	11010			1.000.000	1	0	1.000.000	0
STRAUMANN N	1,036,886		25 Sep 200	0 0	1 000 000	Buy	BAR		UTN	185	252	435	47.055	0
TECAN GROUP AG N	76,976		25 Sep 200	0 46 620	952 945	Duy	P\/7			100	275	422	46 909	0
TEMENOS N	569,291	·	25 Sep 200	0 40,020	332,343	Duy	DVZ			0.007	2/5	433	40,500	- 0
VETROPACK I	826,880		25 Sep 200	0 93,095	906,037	Buy	DAE	IWYLERI		2,007	23	436	47,167	0
Cash	1,603		25 Sep 200	0 139,335	858,870	Buy	EMS	-CHEMIE N		308	151	435	47,066	0
Commissions	13,819		25 Sep 200	0 185,412	811,804	Buy	GEB	ERIT N		946	49	436	47,168	0
Dividends	689,520		25 Sep 200	0 231,766	764,636	Buy	GIVA	UDAN N		99	468	432	46,714	0
Custodian	205,732		25 Sep 200	0 277,603	717,922	Buy	INFIC	CON N		194	240	434	46,994	0
Stipends	0		25 Sep 200	0 320,283	670,928	Buy	INTE	RROLL N		286	163	435	47,053	0
Final stipend	0		25 Sep 200	0 366,901	623,875	Buy	IVF H	ARTMANN I	N	1,869	25	436	47,161	0
Lowest	680,823		25 Sep 200	0 413.626	576,715	Buy	KUE	HNE+NAGEL	INT N	2,419	19	436	47.171	0
CAGR	12.5		25 Sep 200	0 460 361	529 544	Buy	LEM	N		712	33	435	47 143	0
Winners	0		25 Sep 200	0 506 641	492 402	Buy	NEST			1 225	00	400	47,143	0
Gains	0		25 Sep 200	0 500,041	402,402	Duy	INE 3			1,230	30	430	47,100	
Losers	0		25 Sep 200	0 553,324	435,234	BUY	SCHI	INDLER PS		1,995	23	436	4/,1/3	0
Losses	0		25 Sep 200	0 598,664	388,061	Buy	SCH	WEITERT		42	1,100	431	46,631	0