

# R in Modern Portfolio of Hedge Fund Analysis

Dr Drago Indjic

<http://www.londonr.org/>

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“SPLUS in  
Four Investment Funds  
1993 to 2000”

Dr Drago Indjic  
Fauchier Partners

# My SPLUS Track Record

	<b>Fund</b>	<b>Job</b>	<b>SPLUS</b>	<b>Projects</b>
<b>4Q93-4Q97</b>	Econostat	Quantitative macro strategy	V3.1-3.4 /SunOS, 4.0/NT	From Datastream to models to optimisers ...
<b>1Q98-3Q99</b>	Kia.gov.kw	Risk and performance analysis	4.5 / NT	Various ad-hoc projects
<b>4Q99 – 1Q00</b>	Firstquadrant	Quantitative market-neutral strategy	2000 /NT	From Datastream to equity models ...
<b>1Q00 - now</b>	Fauchier	Fund of hedge funds	2000/NT	Fund and portfolio research

- Beta tester V4 & 2000

# History

- Sunningdale Capital LLP (Aug 2009)
  - FSA authorised (Jan 2010), Cayman fund (May 2010), pre-seeding stage
  - Fund of hedge funds ... with OTC brokerage accounts
- Research team: Part-time PhD interns
  - LSE: Y Wang (Oct 2009 – June 2010), X Hao (June 2010 - October 2010, Jan 2011 -), Dr F Garavito (May 2009 – Dec 2010)

# Libraries

- RBloomberg
- Time series
  - Zoo, xts, timeDate, timeSeries, tseries, chron ...
- fBasics, fAssets
- PerformanceAnalytics\_1.0.3.2
- Sample session

# Data

- Importing Bloomberg universe of (mostly) OTC products
  - The only 'on line' session; the rest can be run on non-Bloomberg PC
- `bt2(fileBt = "J:\\input\\SC risk factors.csv", Ndays=2200, howmany=9, fileOut="rf")`
  - Dumps zoo objects

# Merging Time Series

- `date1<-format(Sys.Date(),"%d%m%Y")`
- `b.ind.L1 <- blozoo(date1,bnch=c(6,7,15))$b`
  - Always saving human readable txt file!

# Overlay Portfolio Return

- `aover2.s.monthly(b.L=b.ind.L, b.S=b.ind.S,  
wstart="2004-11-30", wend=end(b.ind.L),  
o.u=c(1,2,3),  
o.wgt.L=rep(1/3,3),o.wgt.S=rep(1/3,3),  
change.point=c("2010-04-30","short","2010-  
06-08", "long", "2010-08-07","short" ... ),  
fee.fixed=0.01)`



# Non-Bloomberg Data

- `bfrm4(fileIn = "J:\\input\\XXX.csv",  
findex=index  
(omb05.13s$pf[-length(omb05.13s$pf)]))`

# Weekly Hedge Fund Data

Value [Date]	Valuation Quality	MTD(%)	YTD(%)	NAV Per Share
10-Sep-10	Weekly	-3.120%	5.215%	190.533
03-Sep-10	Weekly	-2.190%	6.225%	192.3717
<b>31-Aug-10</b>	<b>Monthly Final</b>	<b>6.060%</b>	<b>8.599%</b>	<b>196.6701</b>
20-Aug-10	Weekly	4.030%	6.521%	192.8902
13-Aug-10	Weekly	2.110%	4.555%	189.3418
06-Aug-10	Weekly	0.550%	2.958%	186.45
<b>31-Jul-10</b>	<b>Monthly Final</b>	<b>-1.940%</b>	<b>2.392%</b>	<b>185.4259</b>
23-Jul-10	Weekly	-3.110%	1.171%	183.2187
16-Jul-10	Weekly	-2.770%	1.526%	183.8598

# EoW [Friday] Problem

	Week 1	Week 2	Week 3	Week 4	Week 5
Aug-09	NA	NA	-0.49	0.89	0.68
Sep-09	NA	0.63	1.68	-0.68	-0.45
Oct-09	NA	0.36	0.51	0.91	0.05
Nov-09	-2.79	0.55	2.17	0.44	0.59
Dec-09	NA	-0.33	-2.12	-0.35	0.25
Jan-10	NA	-0.48	2.4	-1.38	-3
Feb-10	-1.46	0.2	0.04	0.16	NA
Mar-10	1.44	1.92	0.12	1	0.26
Apr-10	NA	1.83	1.44	-0.5	0.02
May-10	0.23	-2.03	0.78	-1.71	-0.02

# Backtesting

- Rebalancing rule: Friday close prices
  - Model all performance fee features: calendar resetable high watermarks, layered fees ...
- `rnet.bckt.s(x=m.55s[,c(1,2,3)],  
file.w="BW-selected", fee1.xxx1=c(0.75,5),  
fee1.xxx2=c(0.75,5),fee1.a1= c(0,0),  
fee2=c(1.5,10),  
n.m1=12, n.p1=12, n.p2=12)`

# Monthly Risk Reporting

- `month.r (br = br.risk.stat$all, sun = rnet.test.s$r.sun, wstart = "2004-12-01", wend = end(br.risk.stat$all), o.u=c(1,2,3), fee.fixed=0.0)`
- Demonstration of actual “live” reports
  - Our wrappers for functions: `risk.stat`, `pfm.anal`, `ret.dist`, `corr.anal`, `risk.overtime`

# Future Development

- ‘Professional’ code debugging and cleaning
  - Position and risk limit management, trade blotter
  - Covariance, Optimisation, GARCH ...
  - Tawny, Burns’ PortfolioProbe ...
- RSQL integration with data repository and PMS [www.soft-finance.com](http://www.soft-finance.com)

# Conclusion

- Zero software licensing costs (vs Matlab, SAS etc) and low cost developers
  - Very expensive management 😊
- Saving 100k EUR/pa for portfolio reporting service (a certain Swiss specialist firm)

# Write-up of Q&A

- Q1. Forecasting methods?
- A. At present we don't use any but volatility will be the first
- Q2. Inconsistent time series libraries?
- A. True – we have to use many libraries and even fix small bugs in e.g. `to.weekly()` function