Second Work-in-Progress

October 23, 2017

1 Gaussian Mixture vs Generalized Hyperbolic

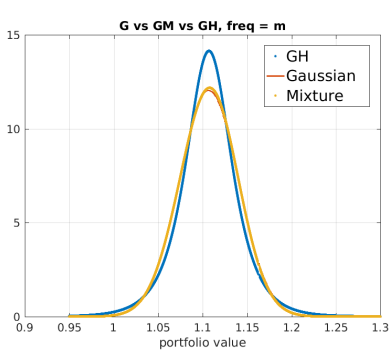
1.1 distributional properties

I dati analizzati consistono in realizzazioni della variabile aleatoria

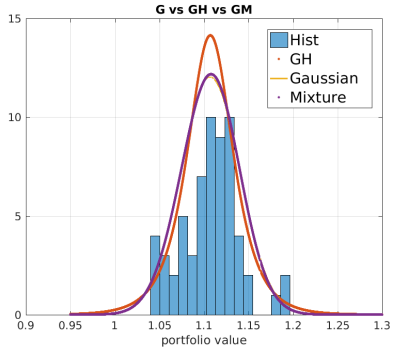
$$f(x, \mathbf{u}_k, \mathbf{w}_{k+1}) = x(1 + \mathbf{u}_k^T \mathbf{w}_{k+1})$$

in cui il vettore aleatorio dei rendimenti del portfolio $\mathbf{w}_{k+1}$ segue una distribuzioni normale, Gaussian Mixture o Generalized Hyperbolic (NIG).

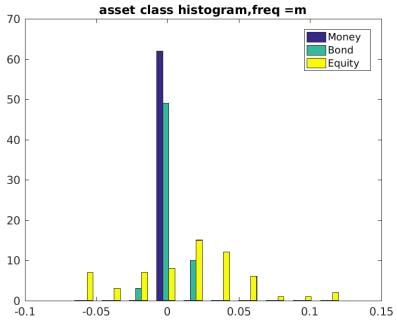
1.1.1 monthly frequency



(a)



(b)

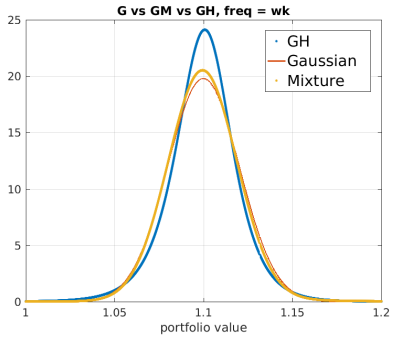


(c)

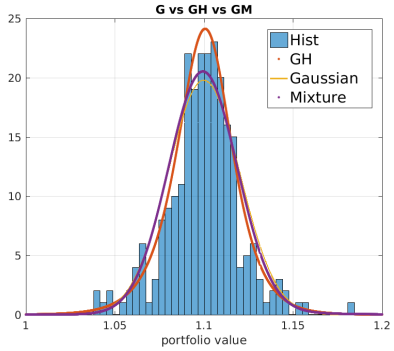
Figure 1

freq = m	G	GM	GH	Estimated
Skewness	0	-0.039858	-0.040361	0.15053
Kurtosis	3	2.7604	5.4111	3.1827
LogL	736.2216	755.507	743.3431	
AIC		-1473.0141	-1460.6862	

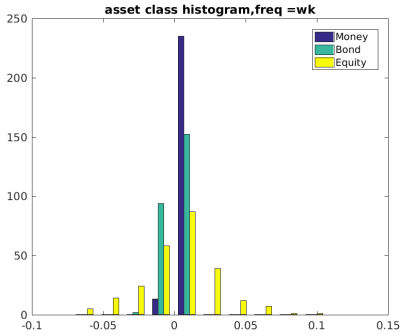
1.1.2 weekly frequency



(a)



(b)

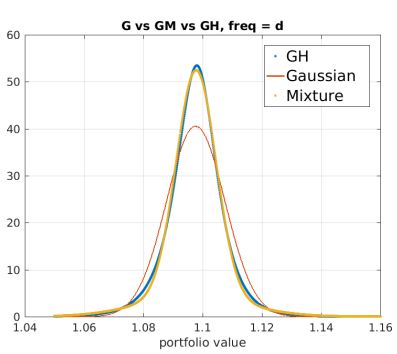


(c)

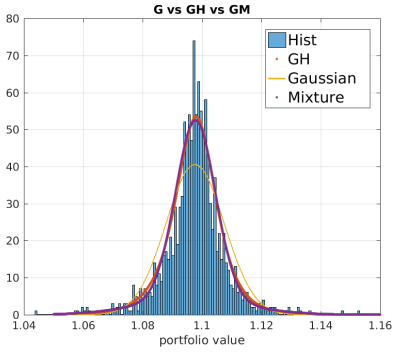
Figure 2

freq = wk	G	GM	GH	Estimated
Skewness	0	0.24234	-0.16078	0.026168
Kurtosis	3	4.1407	4.8293	4.6452
LogL	3295.6076	3346.4078	3335.7617	
AIC		-6654.8156	-6645.5235	

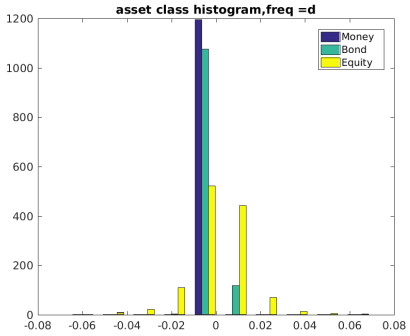
1.1.3 daily frequency



(a)



(b)



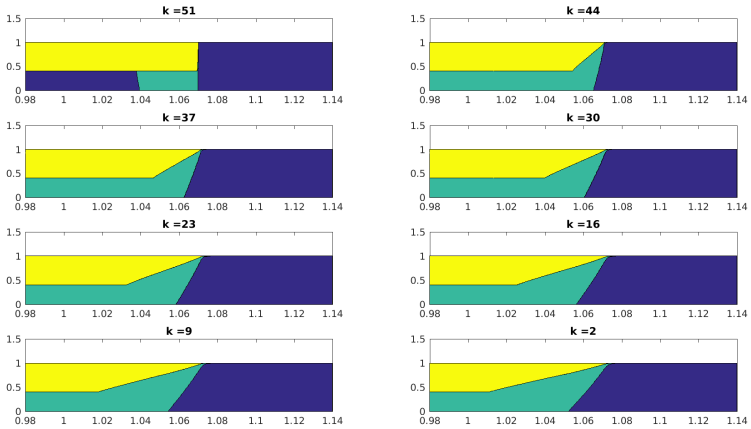
(c)

Figure 3

freq = d	G	GM	GH	Estimated
Skewness	0	-0.16716	-0.21467	-0.1301
Kurtosis	3	6.6815	5.6486	6.9324
LogL	17959.9792	18202.8555	18219.1673	
AIC		-36367.7109	-36412.3345	

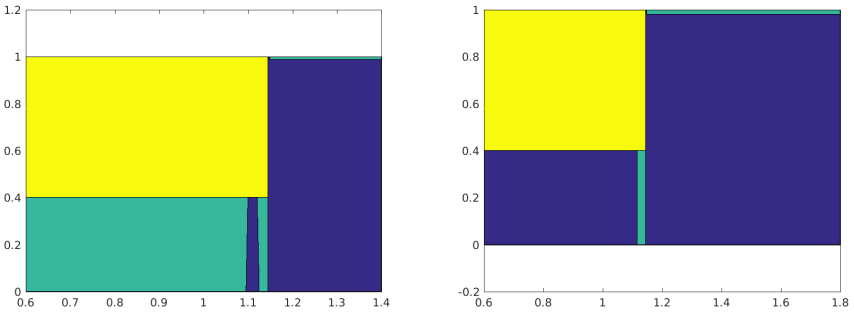
1.2 allocation maps

1.2.1 Gaussian Mixture



1.2.2 Generalized Hyperbolic

2 problems



(a) (b)

Figure 4: k = N