Modèles de Black-Litterman

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Droite de Marché des Capitaux

Figure 1: Droite de Marché des Capitaux
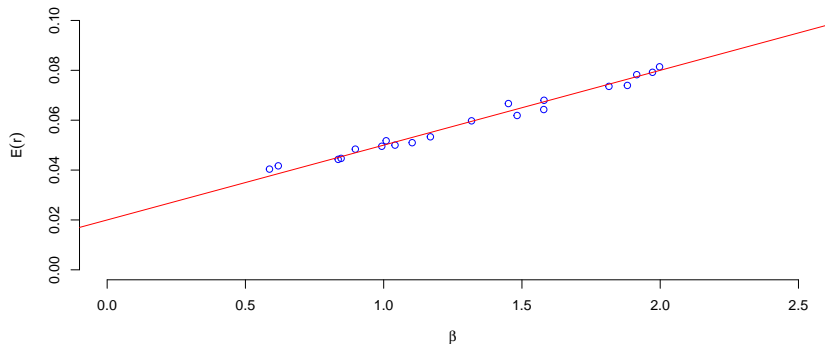
MEDAF: Droite de Marché des Titres

Figure 2: Droite de Marché des Titres

Black-Litterman (1)

- ▶ Par défaut: Accepter les espérances de rendement implicites dans le portefeuille de marché, et investir dans ce portefeuille.
- ▶ Exprimer des "vues" sur l'espérance de rendement de portefeuilles quelconques
- ▶ Utiliser ces "vues" pour modifier les espérances de rendement et la structure de covariance des actifs.

Black-Litterman (2)

View: IBM et Dell surperforme MS.

```
pickMatrix <- matrix(c(1/2, -1, 1/2, rep(0, 3)),
                     nrow = 1, ncol = 6 )
views <- BLViews(P = pickMatrix, q = 0.06,
                 confidences =  100,
                 assetNames = colnames(monthlyReturns))
views
```

```
## 1 : 0.5*IBM+-1*MS+0.5*DELL=0.06  + eps. Confidence: 100
```

Black-Litterman (3)

```
## Prior means:
##  IBM   MS DELL   C JPM BAC
##   0    0    0    0   0   0
## Posterior means:
##           IBM           MS         DELL            C          JPM          BAC
##   0.003422059 -0.013286764  0.011076938 -0.003918265 -0.008505710 -0.003637289
## Posterior covariance:
##             IBM          MS        DELL           C         JPM         BAC
## IBM  0.016395771 0.012285707 0.012784889 0.011643824 0.010264759 0.004372899
## MS   0.012285707 0.022944285 0.015706628 0.013463372 0.017071794 0.007933874
## DELL 0.012784889 0.015706628 0.033548139 0.010005324 0.012422300 0.006595704
## C    0.011643824 0.013463372 0.010005324 0.013712106 0.011474186 0.007576798
## JPM  0.010264759 0.017071794 0.012422300 0.011474186 0.019454381 0.009792112
## BAC  0.004372899 0.007933874 0.006595704 0.007576798 0.009792112 0.010065207
```

Black-Litterman (4)

View: Le rendement moyen du secteur financier sera de 15%

```
finViews <- matrix(ncol = 4, nrow = 1, dimnames = list(NULL, c("C","JPM","BAC","MS")))
finViews[,1:4] <- rep(1/4,4)
views <- addBLViews(finViews, 0.15, 90, views)
views
```

```
## 1 : 0.5*IBM+-1*MS+0.5*DELL=0.06  + eps. Confidence: 100
## 2 : 0.25*MS+0.25*C+0.25*JPM+0.25*BAC=0.15  + eps. Confidence: 90
```

Black-Litterman (5)

```
marketPosterior <- BLPosterior(as.matrix(monthlyReturns), views,
                               tau = 1/2,
                               marketIndex = as.matrix(sp500Returns),
                               riskFree = as.matrix(US13wTB))
marketPosterior
```

```
## Prior means:
##         IBM          MS        DELL           C         JPM         BAC
## 0.020883598 0.059548398 0.017010062 0.014492325 0.027365230 0.002829908
## Posterior means:
##        IBM         MS       DELL          C        JPM        BAC
## 0.06344562 0.07195806 0.07777653 0.04030821 0.06884519 0.02592776
## Posterior covariance:
##             IBM          MS        DELL           C         JPM         BAC
## IBM  0.021334221 0.010575532 0.012465444 0.008518356 0.010605748 0.005281807
## MS   0.010575532 0.031231768 0.017034827 0.012704758 0.014532900 0.008023646
## DELL 0.012465444 0.017034827 0.047250599 0.007386821 0.009352949 0.005086150
## C    0.008518356 0.012704758 0.007386821 0.016267422 0.010968240 0.006365457
## JPM  0.010605748 0.014532900 0.009352949 0.010968240 0.028181136 0.011716834
## BAC  0.005281807 0.008023646 0.005086150 0.006365457 0.011716834 0.011199343
```

Black-Litterman (6)

Portefeuille Tangent:

```
optPorts <- optimalPortfolios.fPort(marketPosterior,
            optimizer = "tangencyPortfolio")
```

Black-Litterman (7)
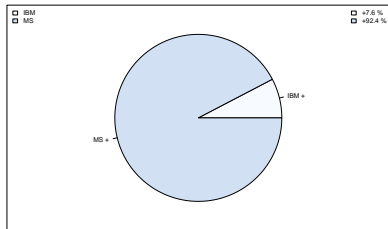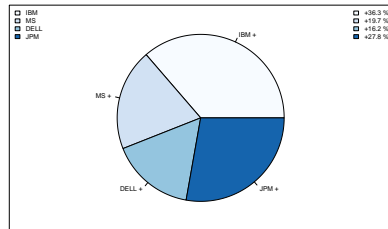

Figure 3: Prior Rdt/Risque

Figure 4: Posterior Rdt/Risque