

9 Bibliografia

BERA, A.K.; JARQUE, C.M, **Efficient tests for normality, homoscedasticity and serial independence of regression residuals.** Economic letters, v.6, 1980

CARVALHO, R. R. **Teoria dos Valores Extremos: Valor em Risco para Ativos de Renda Fixa.** Dissertação de Mestrado, Departamento de Engenharia Industrial – PUC-Rio, 2006.

CASTRO, J.G., **Otimização da Performance de um Portfólio de Ativos e Opções Reais, utilizando a Medida Ômega (Ω).** Tese de Doutorado. Departamento de Engenharia Industrial, PUC-Rio, Rio de Janeiro, 2008.

DANIELSSON, J.; VRIES, C. G.(1997), **Value-at-Risk and Extreme Returns.** Mimeo. Tinbergen Institute Rotterdam.

ELTON, E. J.; GRUBER M. J.; PADBERG M. W. (1976), **Simple criteria for optimal portfolio selection.** The Journal of Finance, v. 31, n. 5, p. 1341-1357.

ELTON, E. J.; GRUBER, M. J.; BROWN, S. J.; GOETZMANN, W. N. (2004), **Moderna Teoria de Carteiras e Análise de Investimentos,** 1º edição, 602p, Editora Atlas S.A.

EMBRECHTS, P.; KLUPPELBERG, C.; MIKOSCH, T.(1997), **Modelling Extremal Events for Insurance and Finance,** 645p, Springer-Verlag, Berlin.

FERNANDES, C. PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO DE JANEIRO. Departamento de Engenharia Elétrica. **Modelos GARCH para**

séries de retornos financeiros – aplicação ao cálculo do Valor em Risco (VaR). Rio de Janeiro, 2006.

FERREIRA, F.A.C. (2006), **O valor em risco condicional na otimização de carteiras com derivativos.. Trabalho de Final de Curso de Engenharia de Produção.** Escola Politécnica da Universidade de São Paulo – USP, 2006.

FERREIRA, R. R. **Eventos Extremos nos Mercados Acionários Latino Americanos.** Dissertação de Mestrado. Instituto de Matemática – UFRJ, 1999.

HINES, W.W.; MONTGOMEY, D.C.; GOLDSMAN, D.M.; BORROR, C.M.(2006), **Probabilidade e Estatística na Engenharia.** 4^a edição, 588p., LTC Editora.

HULL, J. C. **Options, futures and other derivatives** (2004), 744p, publicado por Pearson Education Limited.

ICK, m.; NOWAK, E. (2006), **Omega based Portfolio Optimization – a simulation study on Private Equity Investments.** Working Paper University of Lugano, Switzerland.

JOHNSTON, J.; DINARDO, J. **Econometric Methods** (2002), 4^o edição, 531p, McGraw-Hill International Editions.

JORION, P. **Value at Risk: A nova fonte de referência para a gestão do risco financeiro** (2003), tradução Bolsa de Mercadorias e Futuros, 2^o edição, São Paulo: Bolsa de Mercadorias e Futuros, 487p, editora BM&F Brasil. Título original: **Value at Risk: the new benchmark for managing financial risk.**

KAZEMI, H., SCHNEEWEIS, T., GUPTA, R. (2003), **Omega as a Performance Measure.**

KEATING, C.; SHADWICK, W. (2002), **A Universal Performance Measure**. *Journal of Performance Measurement*, Spring 2002, pp.59-84.

KUPIEC, P.(1998), **Techniques for verifying the accuracy of risk measurement models**. *Journal of Derivatives*, 2 (December), pp. 73-84

MARINS, A. **Mercados Derivativos e Análise de Risco (Volumes 1)**. 1º edição, 2004, 495p, MAS Editora.

MARINS, A. **Mercados Derivativos e Análise de Risco (Volumes 2)**. 1º edição, 2004, 576p, MAS Editora.

MARKOWITZ, H. (1952), Portfolio Selection. *The Journal of Finance*, v. 7, n. 1, p. 77-91.

MARTINS, F. C. **A Teoria dos Valores Extremos: Uma Abordagem Condicional para a Estimação de Valor em Risco no Mercado Acionário Brasileiro**. Dissertação de Mestrado, Departamento de Engenharia Elétrica – PUC-Rio, 2000.

MCNEIL, A. (1998), **Calculating Quantile Risk Measures for Financial Return Series using Extreme Value Theory**. Preprint. Departement Mathematik. ETH Zentrum. Zurich.

MENDES, B. (2000), **Computing Risk Measures using Extreme Value Theory: An Application to Latin American Stock Markets**. Emerging Markets Quarterly 4, n. 2, p. 25-42.

METROPOLIS, N.; ULAM, S. (1949), **The Monte Carlo Method**. *Journal of the American Statistical Association*, Vol. 44, N. 247 (Sept, 1949), pp.335-341

MORGAN, J. P. **RiskMetrics: technical document.** 4th ed. New York: Morgan Guaranty Trust Company, 1996, acessível a: <http://hp.idefi.cnrs.fr/bruno/enseignements/master2/RiskMetrics.pdf>.

PIRES, G. L. G., **Teoria dos Valores Extremos: Valor em Risco para Ativos de Renda Variável.** Dissertação de Mestrado, Departamento de Engenharia Industrial – PUC-Rio, Rio de Janeiro, 2008.

RESNICK, S.; STARICA C. Tail index estimation for dependent data. **The Annals of Applied Probability**, v. 8, n. 4, p. 1156-1183, 1998.

SAMANEZ, C.P.(2007); **Gestão de investimentos e geração de valor.** 1^a edição, 382p. Editora Pearson Prentice Hall

SHARPE, W.; **Mutual Fund Performance.** **The Journal of Finance**, v.39, n.1, pp.119-138, 1966.

SOUZA, L. A. R. **Valor em Risco em Épocas de Crise.** Dissertação de Mestrado, Departamento de Economia - Universidade de São Paulo, 1999.

SOUZA, L.A.R.; SILVA, M.E.(1999), **Teoria de valores extremos para cálculo de VaR.**

TSAY, R. S. **Analysis of Financial Time Series** (2002), 448p, John Wiley & Sons, New York.

VARGA, G.(1999) **Índice de Sharpe e outros Indicadores de Performance Aplicados a Fundos de Ações Brasileiros.**

Apêndice A

Gráfico das Simulações de VaR por Simulação de Monte Carlo e Teoria dos Valores Extremos para carteiras constituídas por Modelo de Índice Único e Medida Ômega.

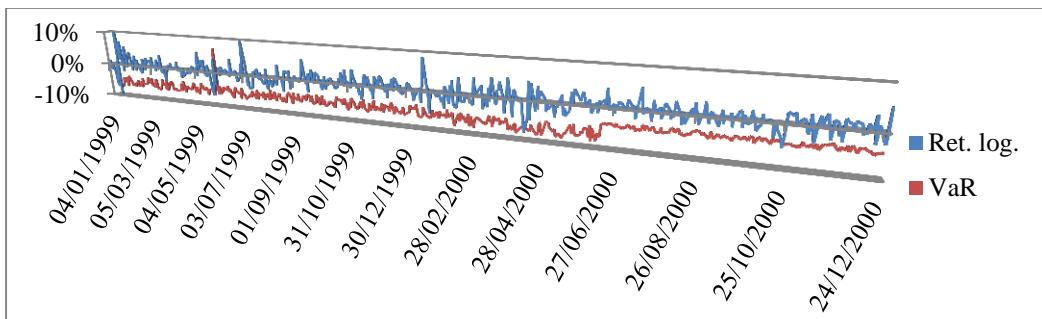


Figura 7 : VaR - Carteira A.M.I.U.T.V.E. - $p = 0,50\%$

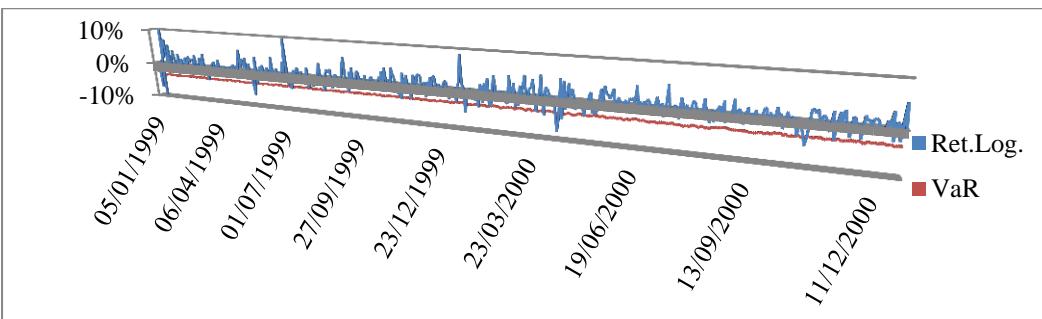


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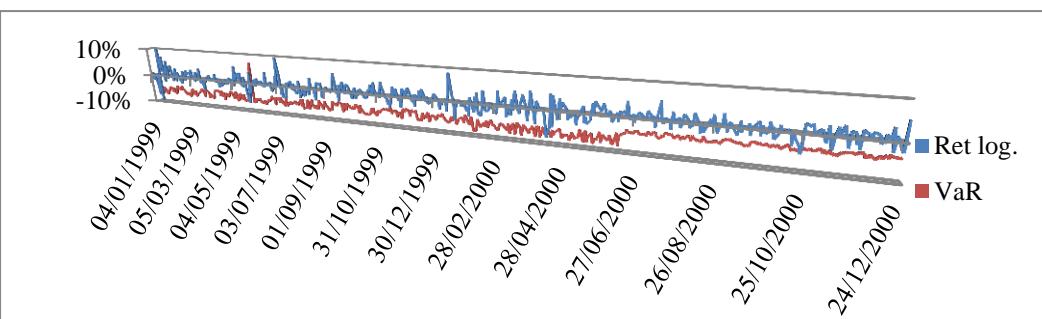


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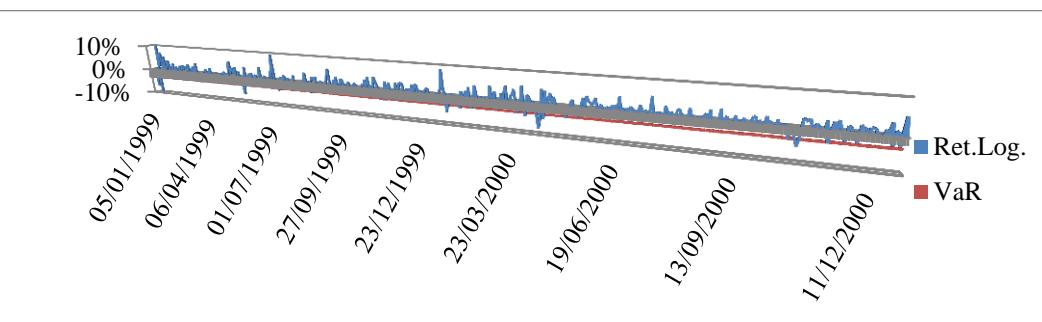


Figura 10 : VaR - Carteira A.M.I.U.S.M.C. - $p = 1\%$

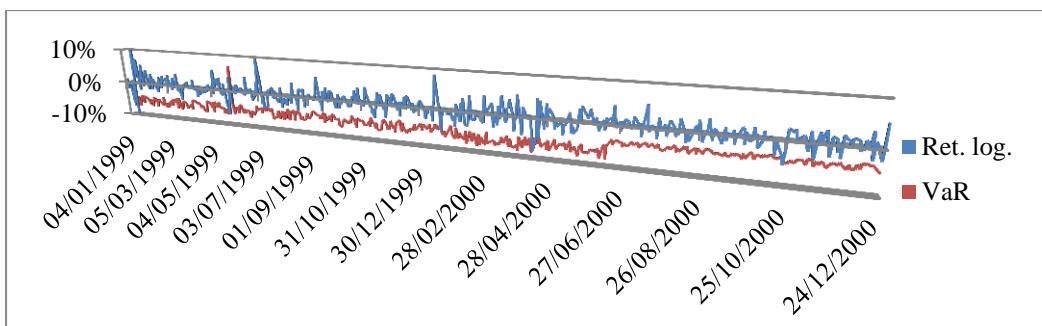


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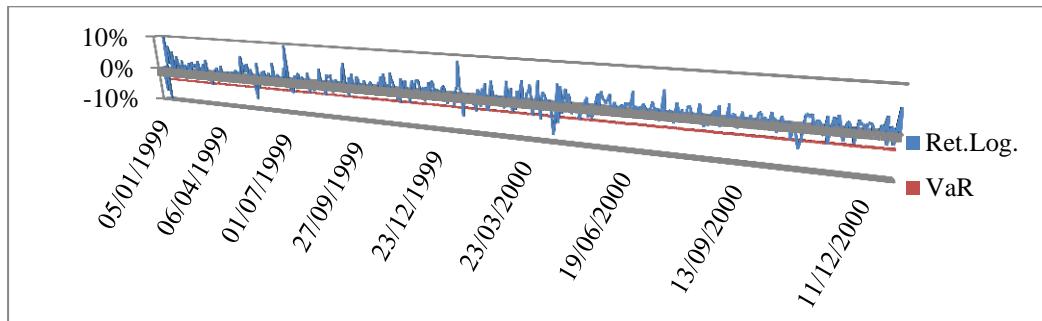


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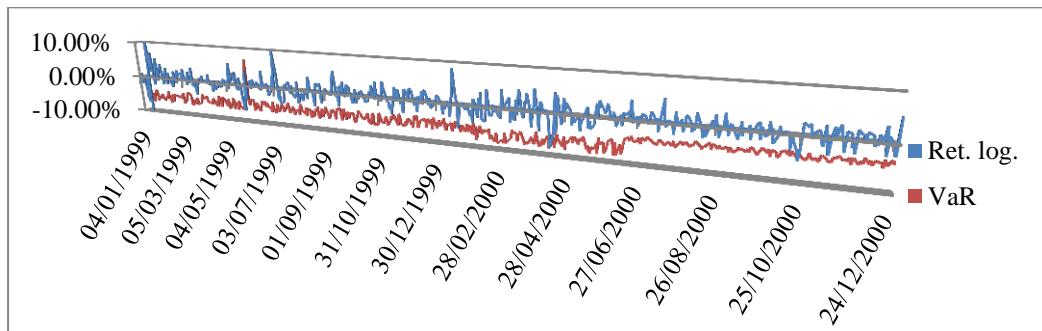


Figura 13 : VaR - Carteira A.M.I.U.T.V.E. - $p = 5\%$

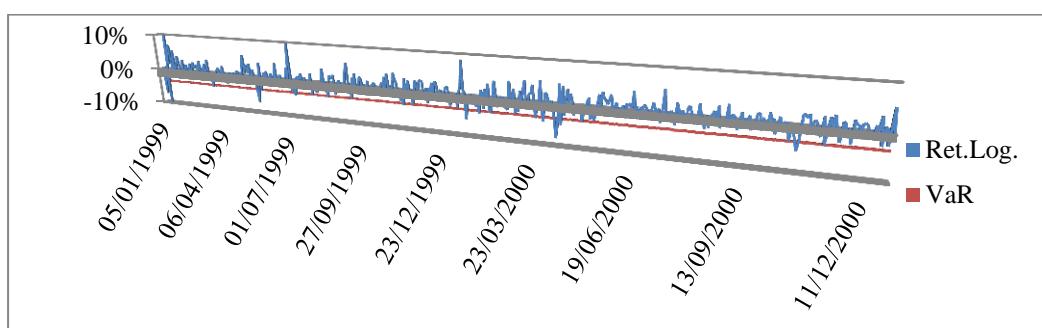


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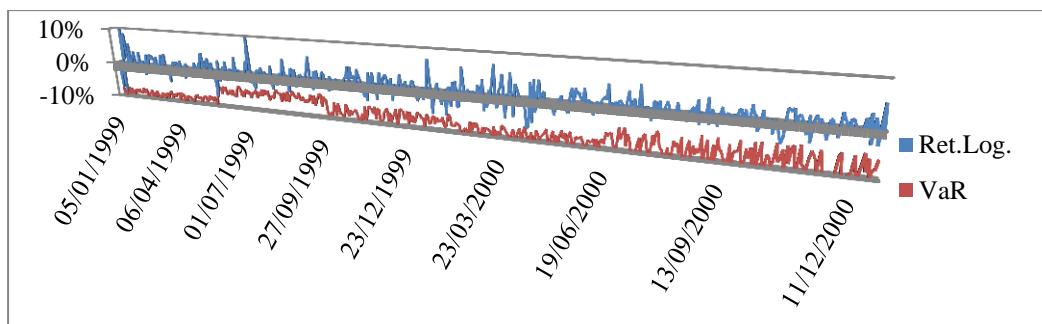


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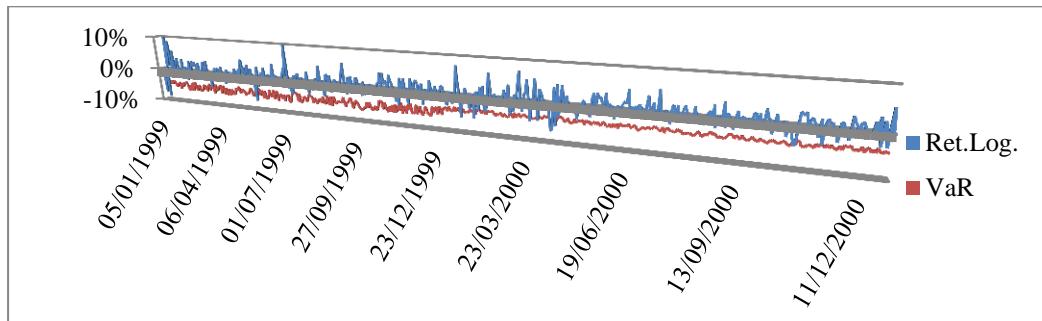


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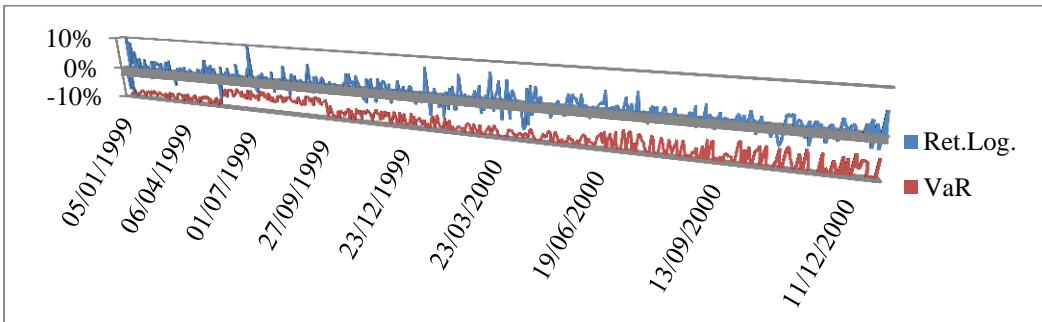


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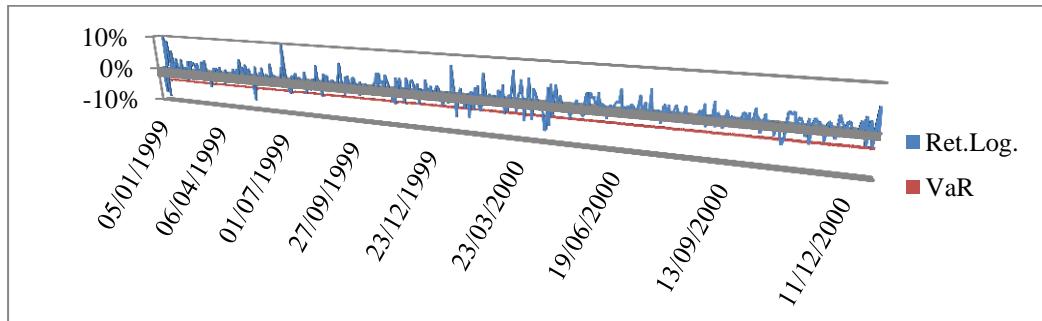


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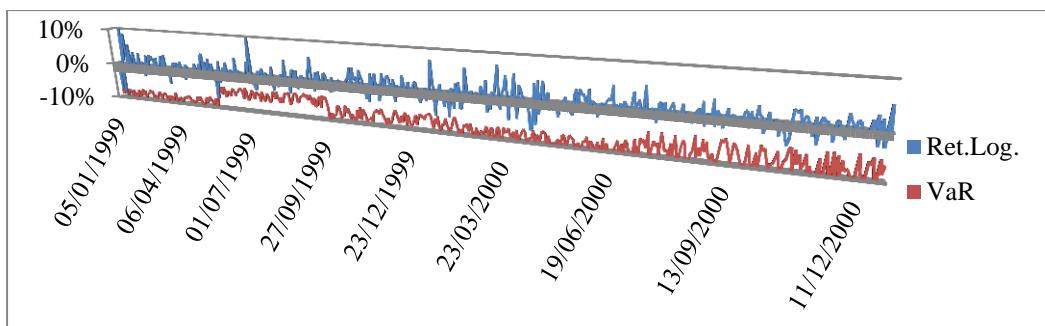


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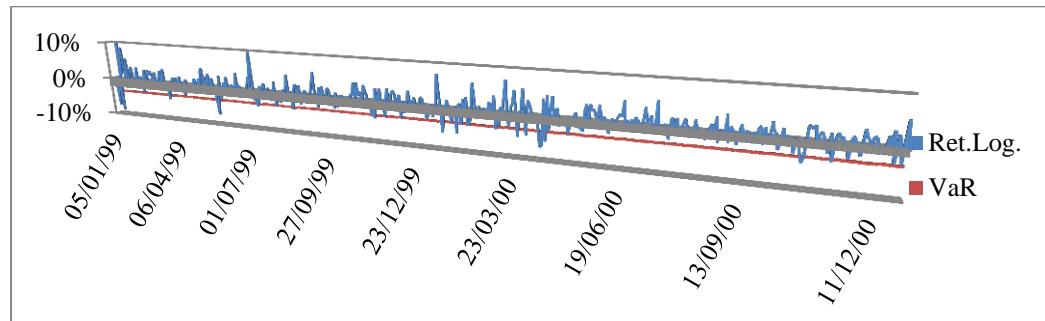


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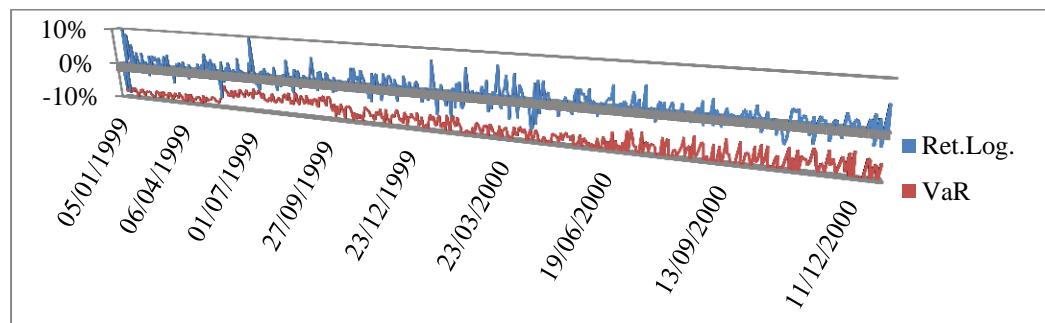


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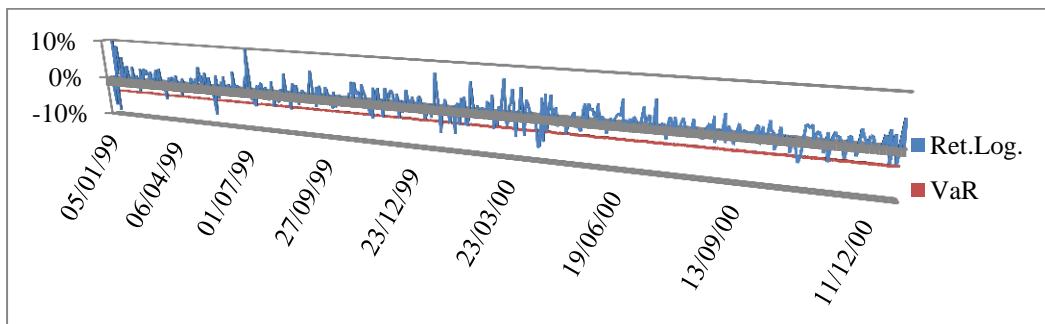


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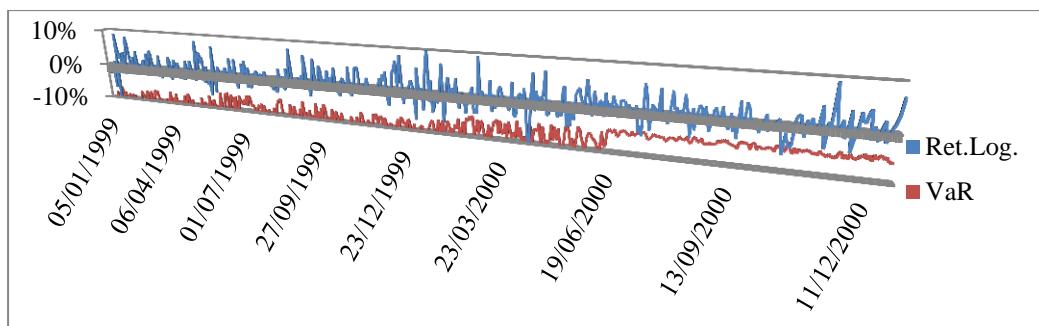


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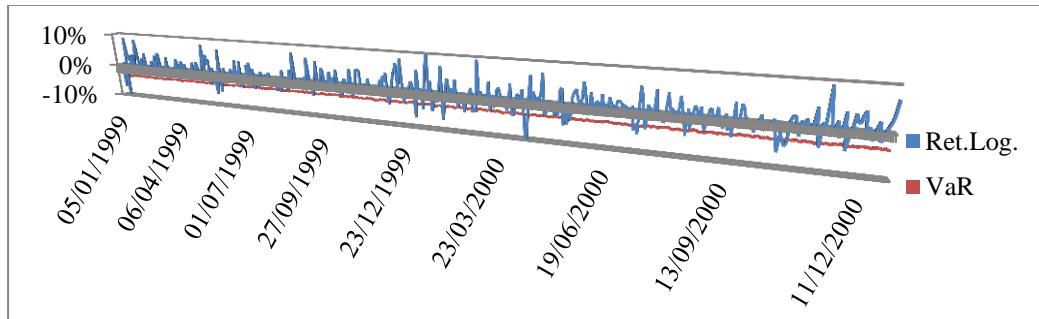


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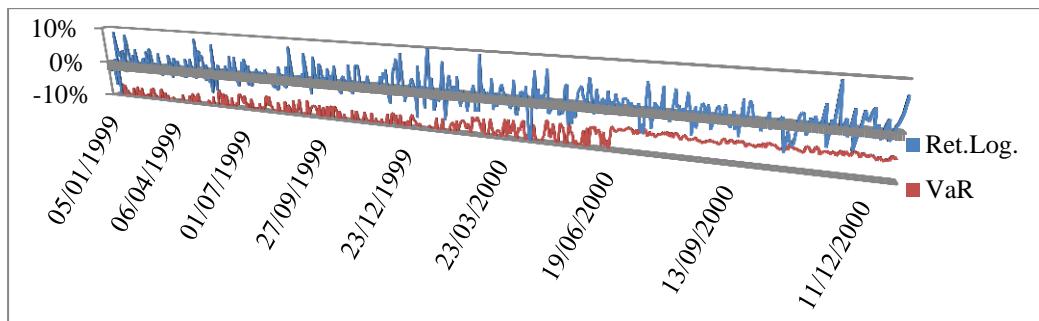


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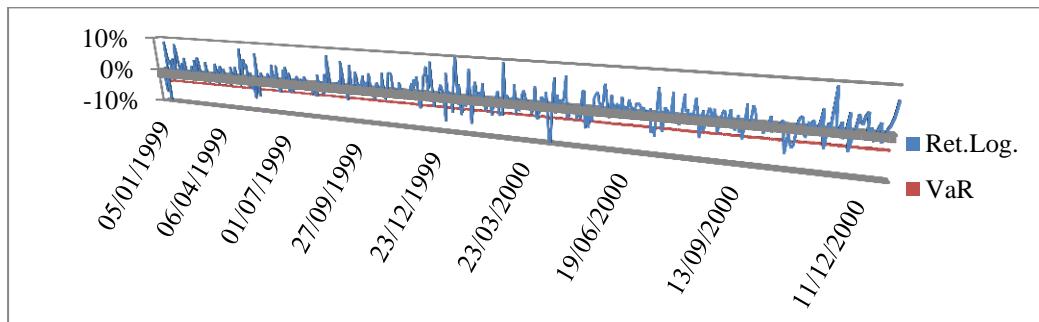


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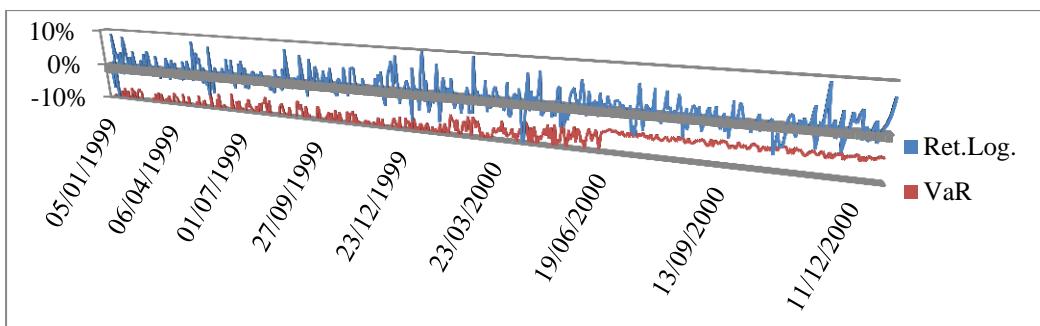


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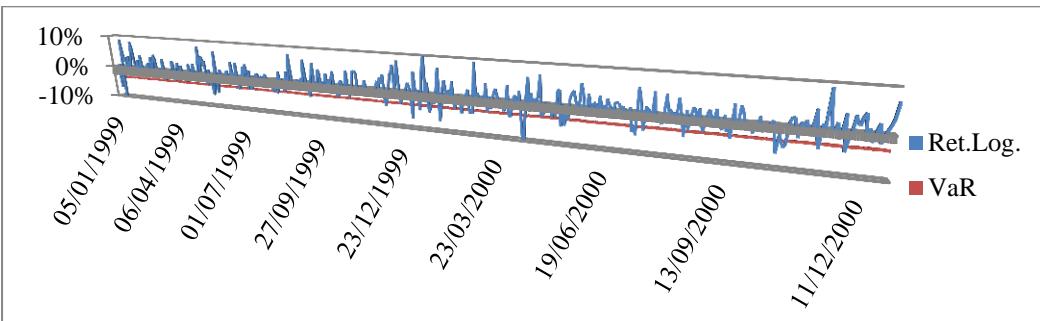


Figura 28: VaR - Carteira A.M.O.L=2,50%.S.M.C. - p = 2,50%

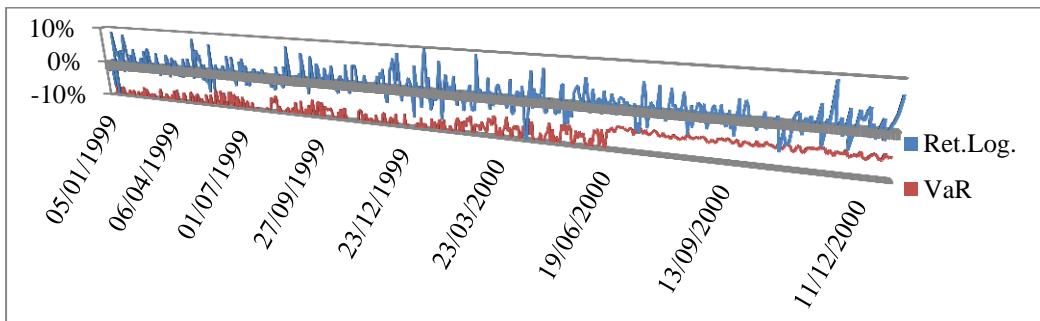


Figura 29 : VaR - Carteira A.M.O.L=2,50%.T.V.E. - p = 5%

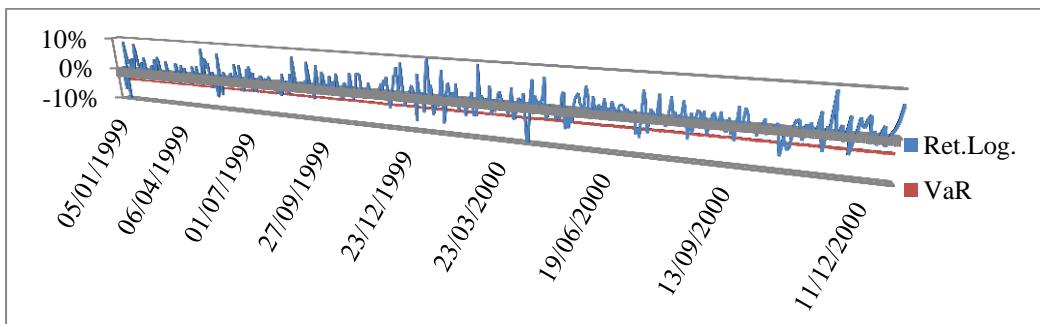


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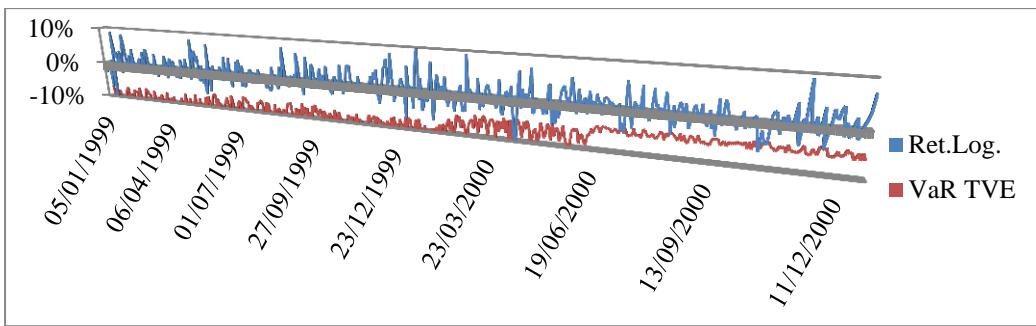


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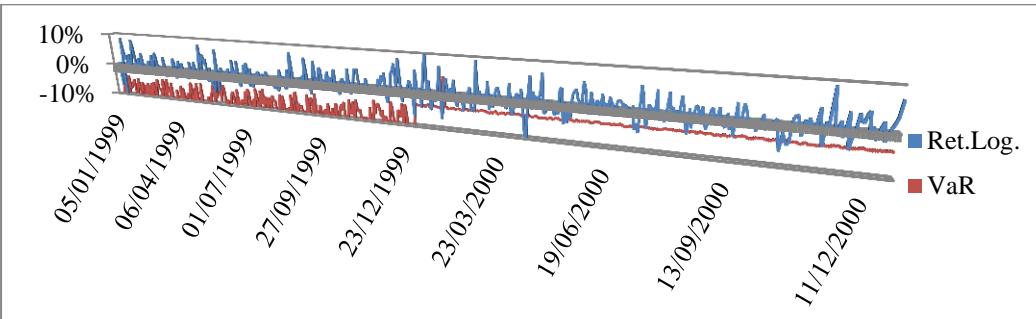


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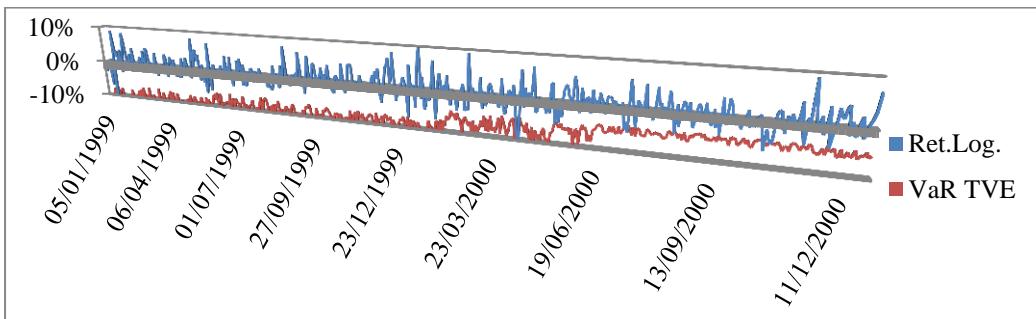


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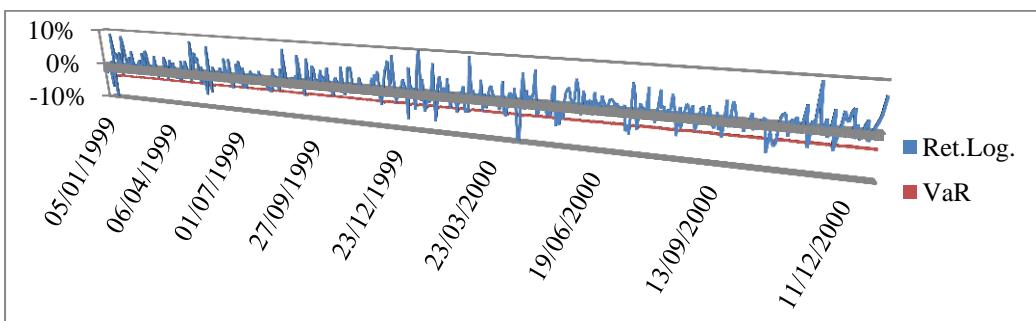


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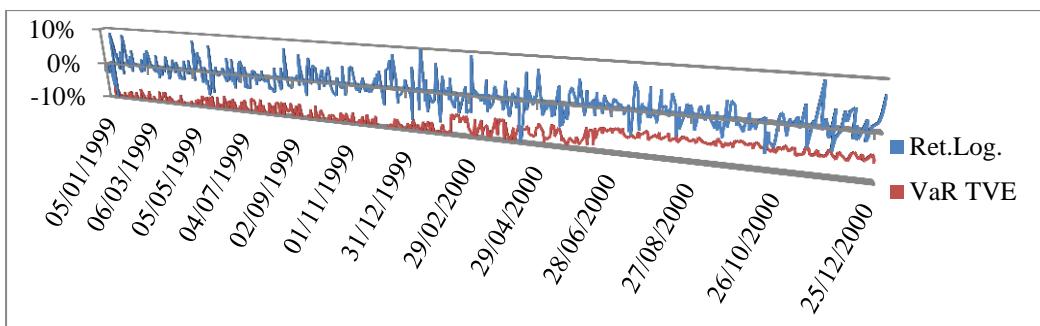


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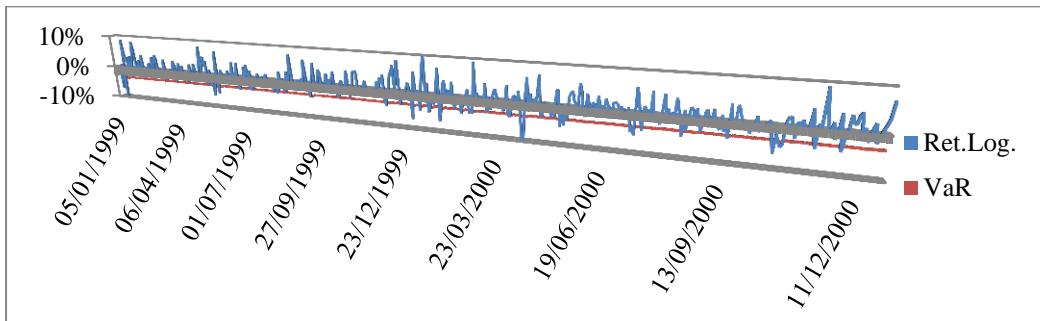


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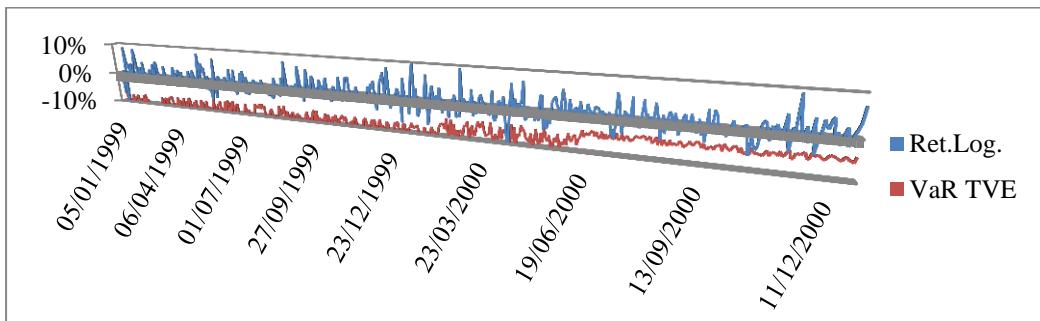


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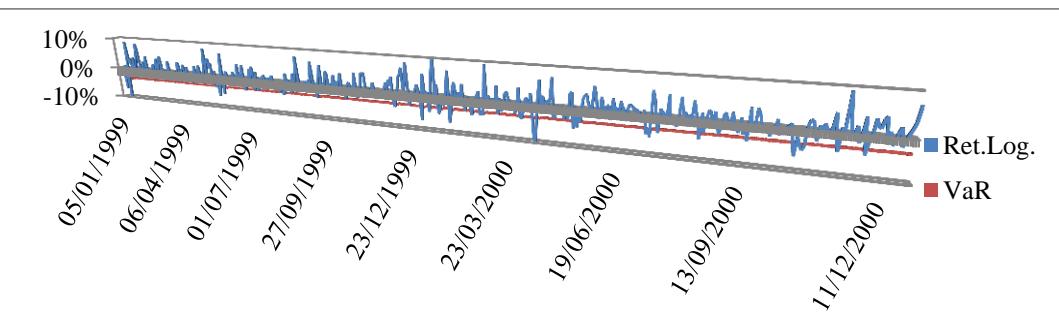


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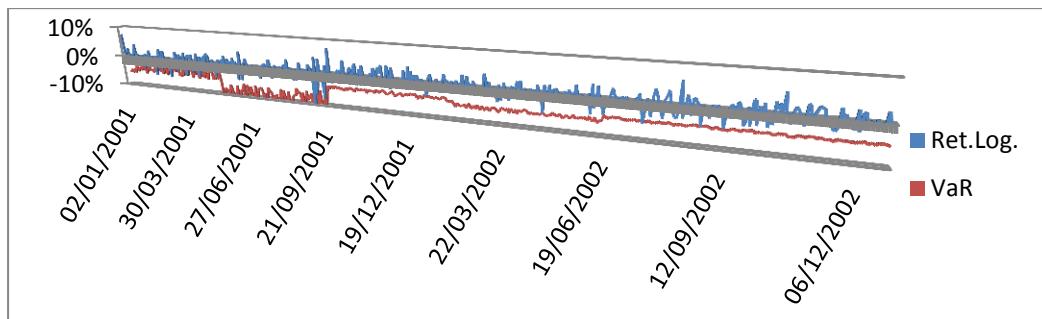


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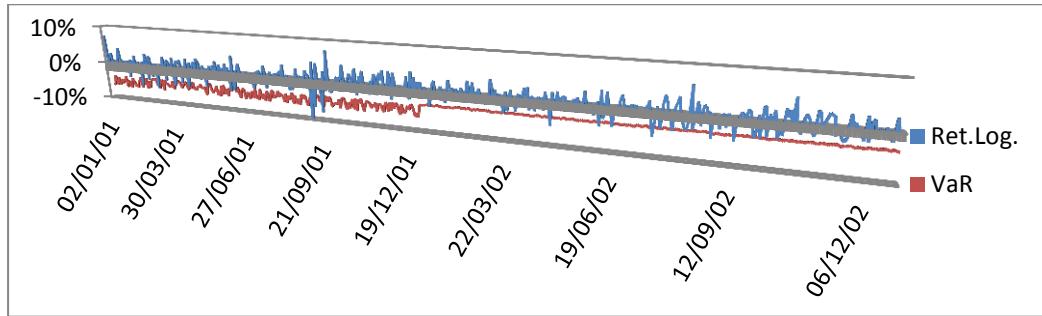


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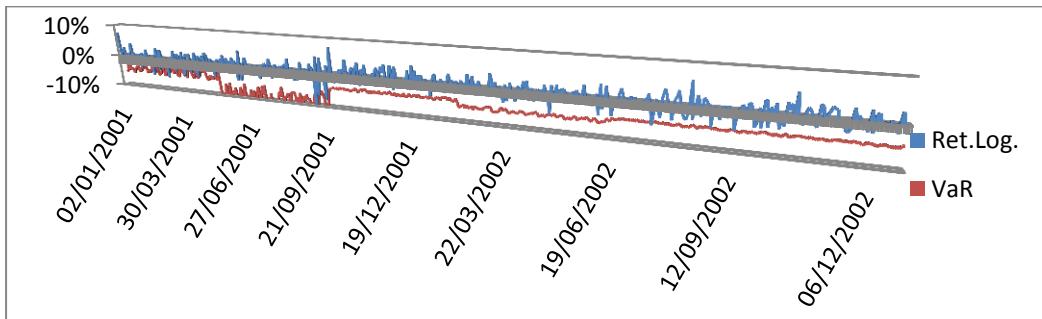


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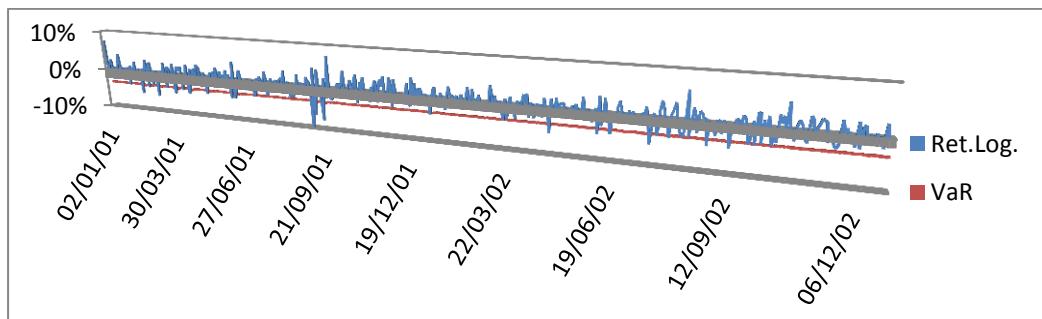


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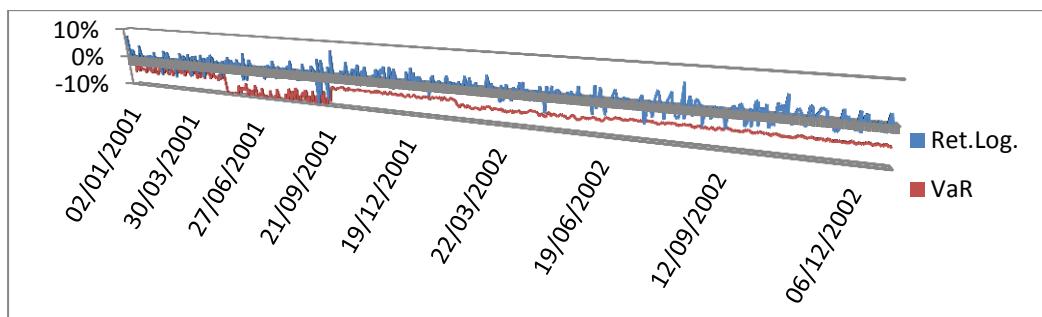


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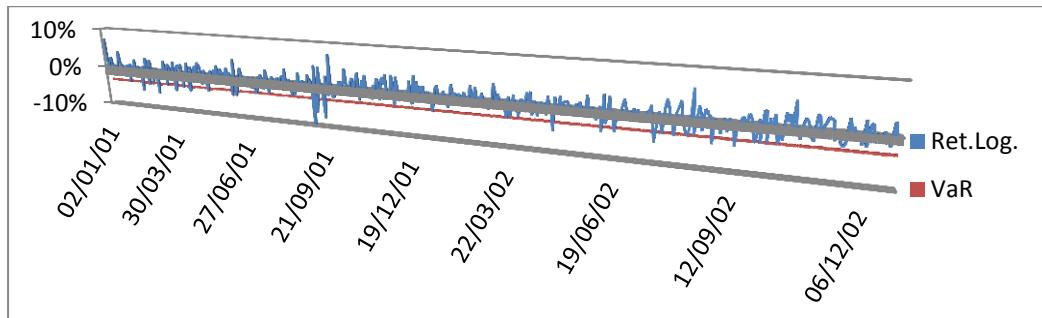


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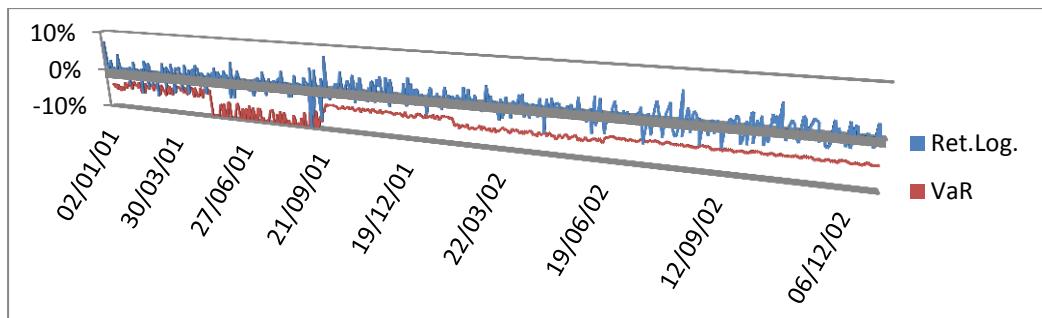


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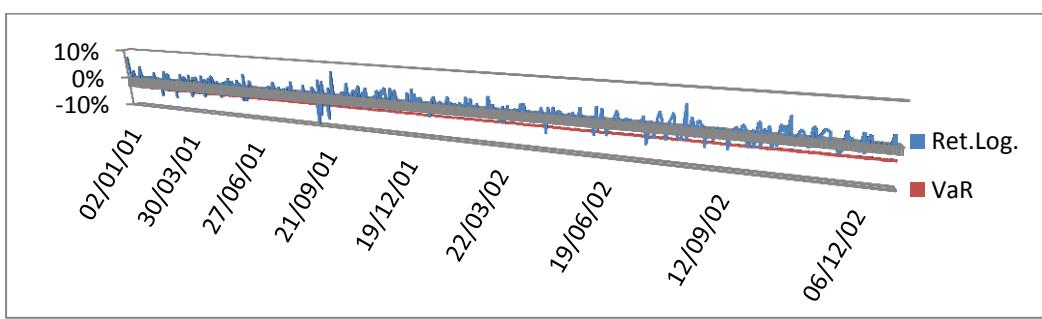


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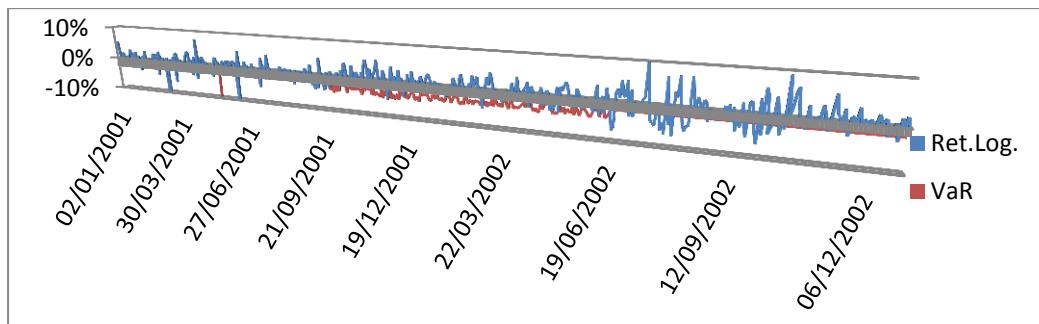


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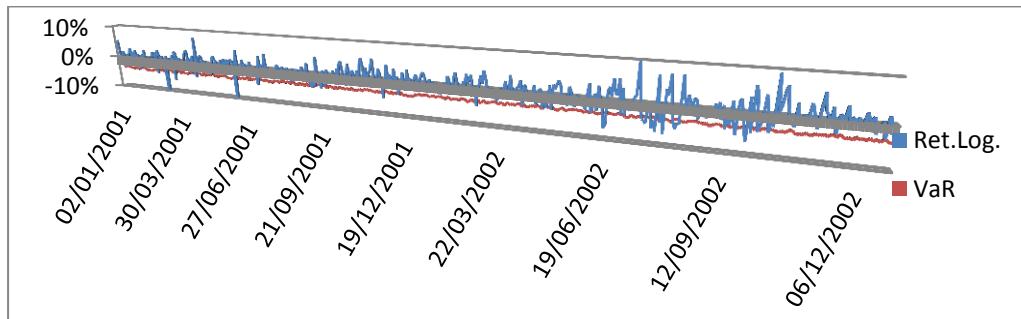


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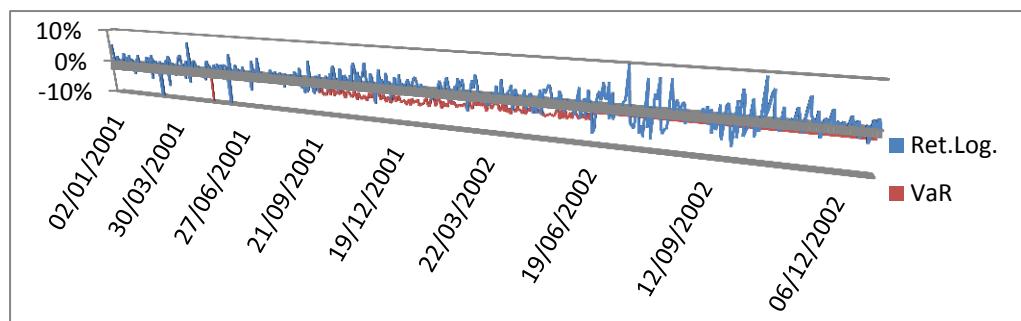


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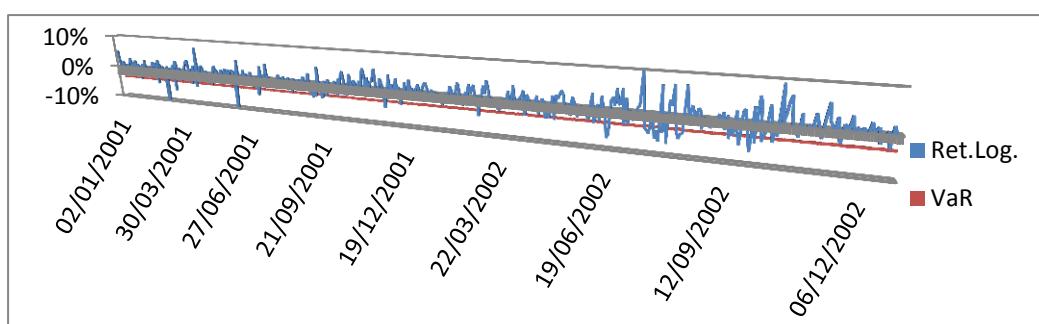


Figura 50: VaR - Carteira B.M.O.L=0%.S.M.C. - $p = 1\%$

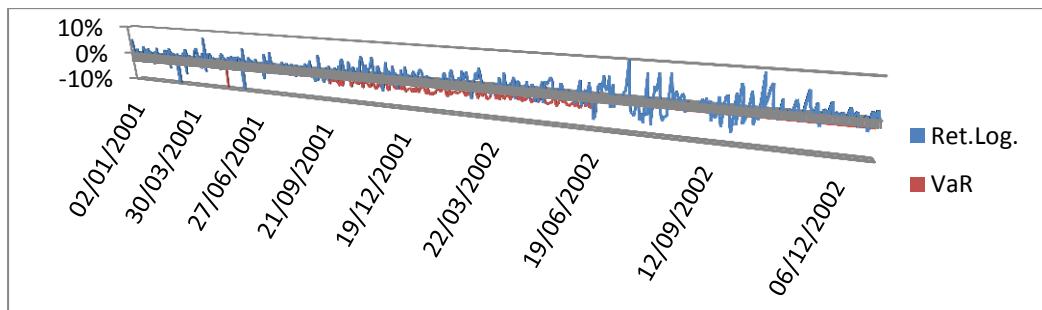


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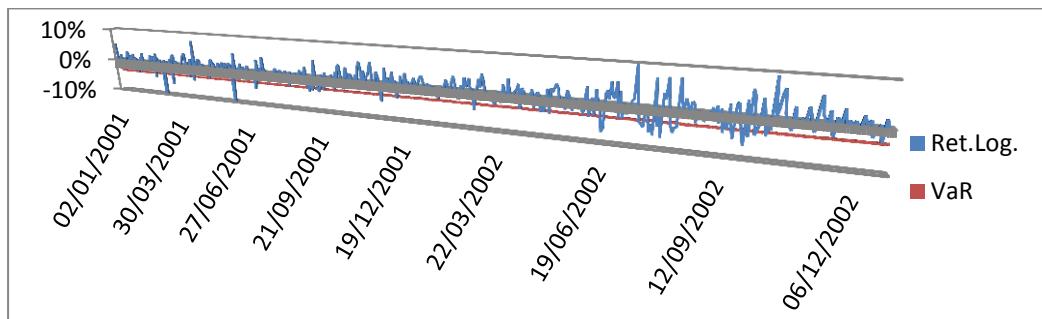


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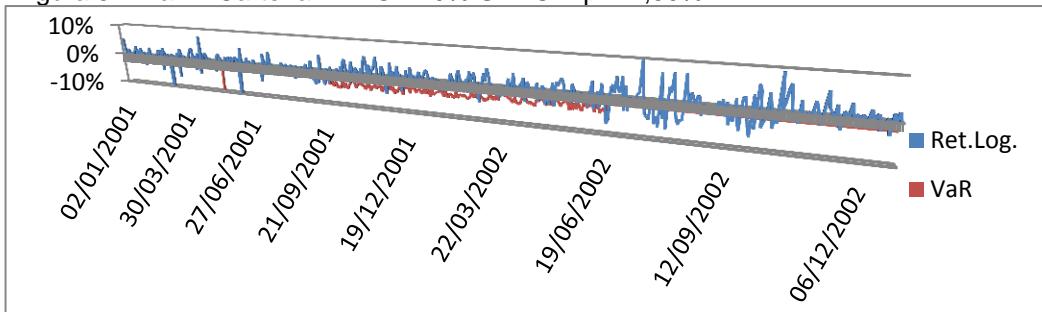


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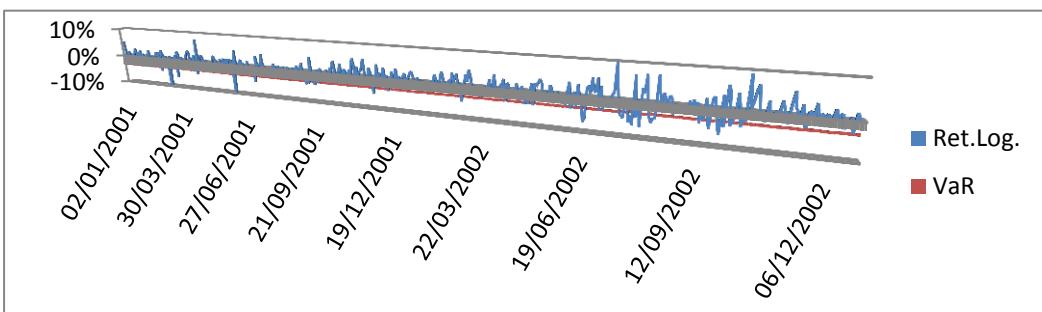


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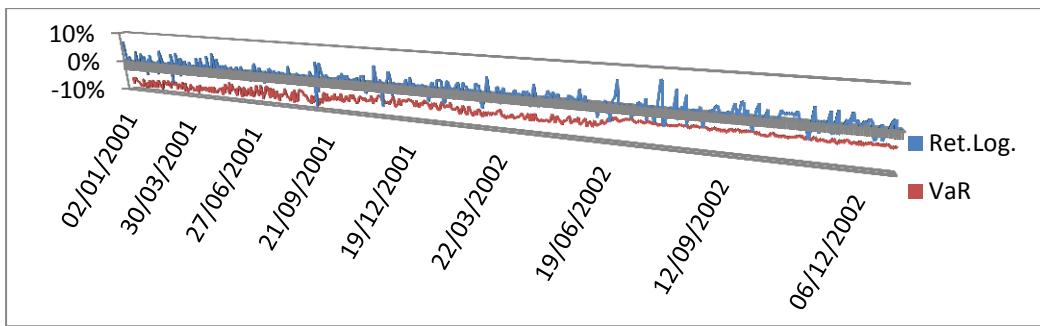


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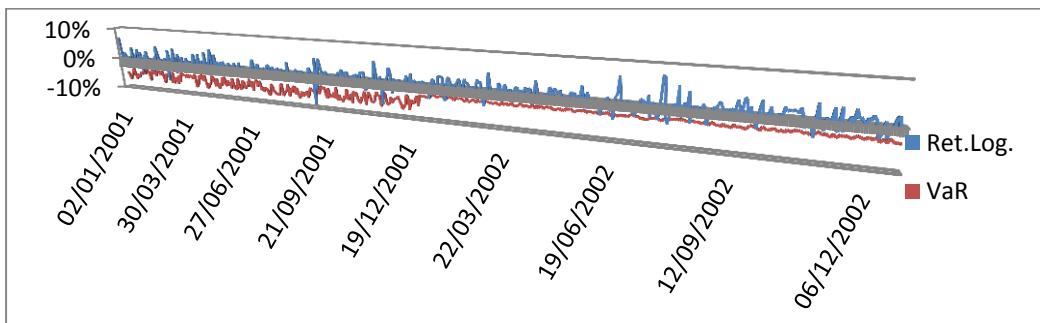


Figura 56: VaR - Carteira B.M.O.L=2,50%.S.M.C. - $p = 0,50\%$

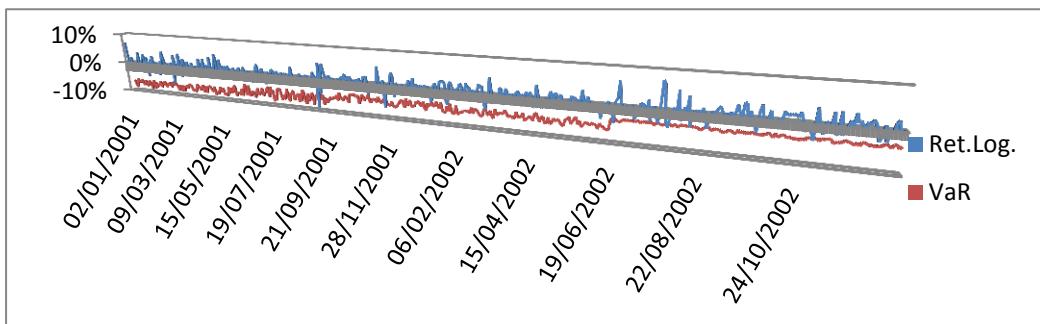


Figura 57: VaR - Carteira B.M.O.L=2,50%.T.V.E. - $p = 1\%$

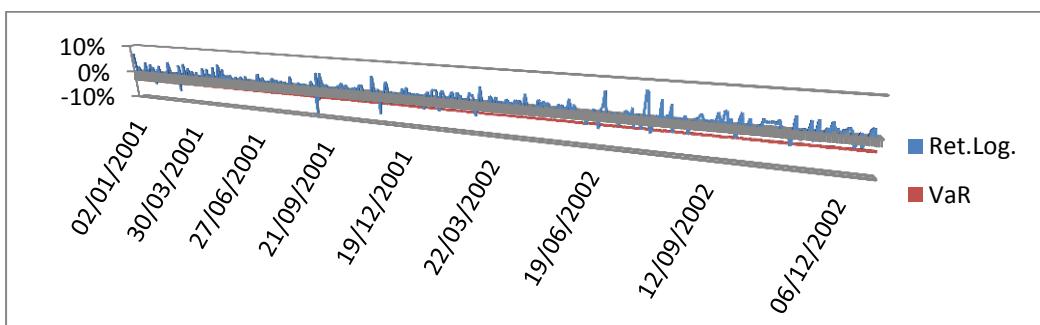


Figura 58: VaR - Carteira B.M.O.L=2,50%.S.M.C. - $p = 1\%$

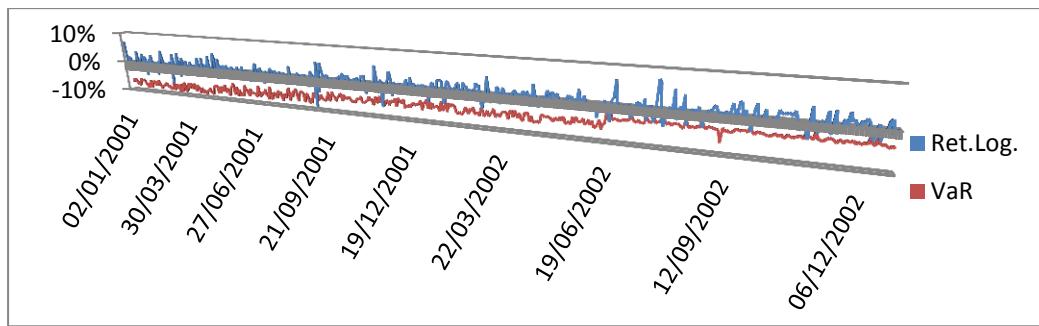


Figura 59: VaR - Carteira B.M.O.L=2,50%.T.V.E. - $p = 2,50\%$

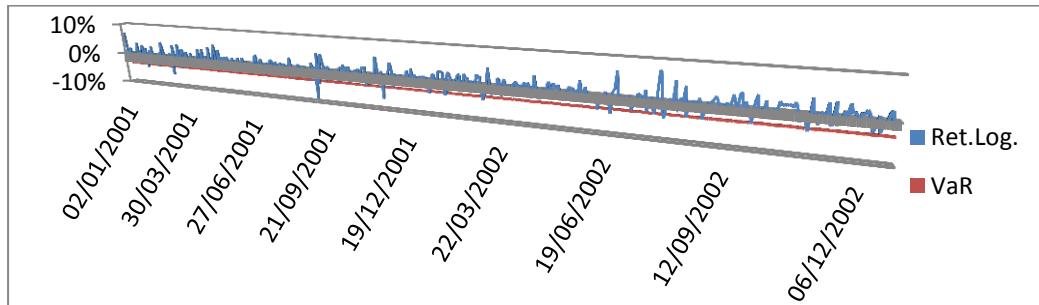


Figura 60: VaR - Carteira B.M.O.L=2,50%.S.M.C. - $p = 2,50\%$

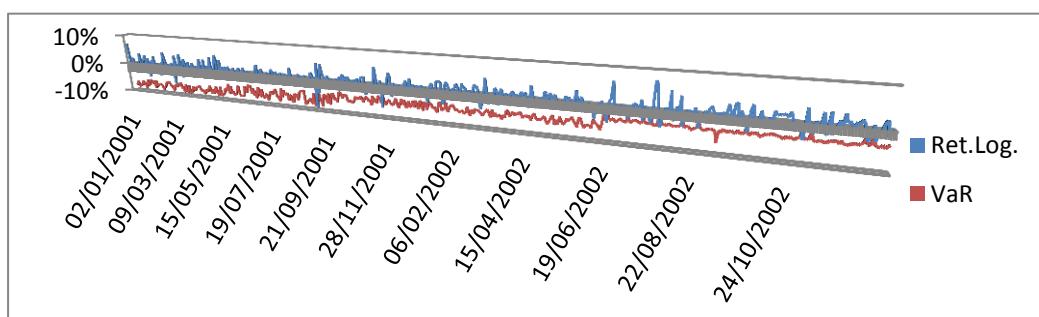


Figura 61: VaR - Carteira B.M.O.L=2,50%.T.V.E. - $p = 5\%$

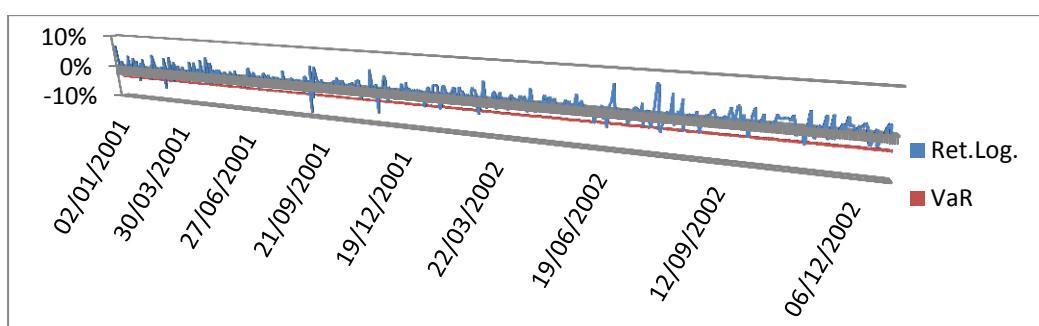


Figura 62: VaR - Carteira B.M.O.L=2,50%.S.M.C. - $p = 5\%$

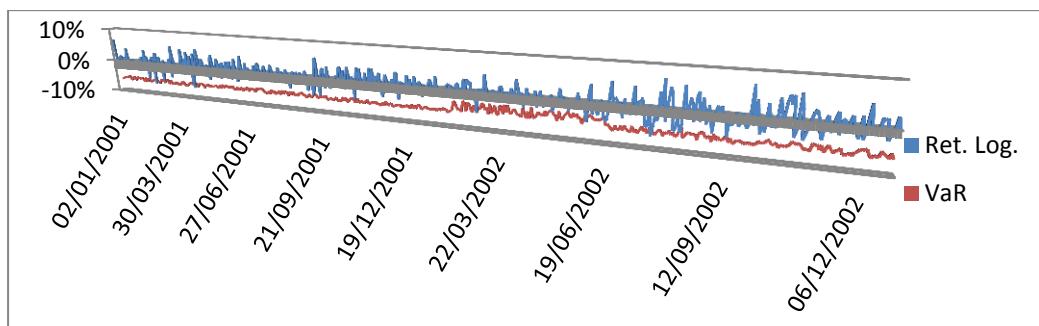


Figura 63: VaR - Carteira B.M.O.L=5%.T.V.E. - $p = 0,50\%$

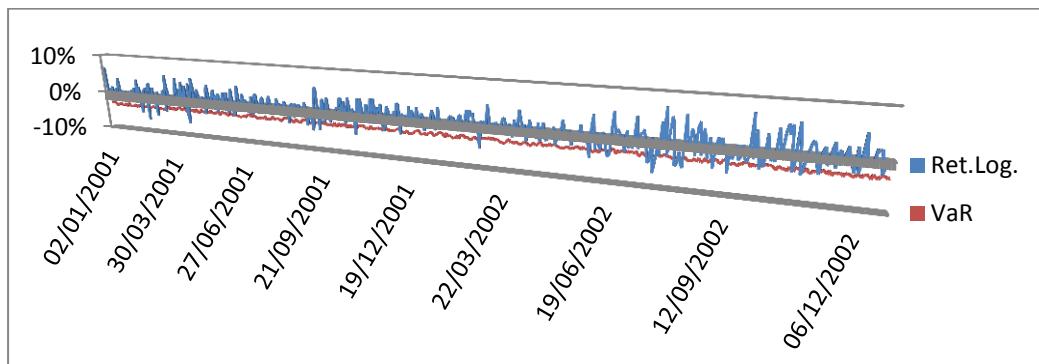


Figura 64: VaR - Carteira B.M.O.L=5%.S.M.C. - $p = 0,50\%$

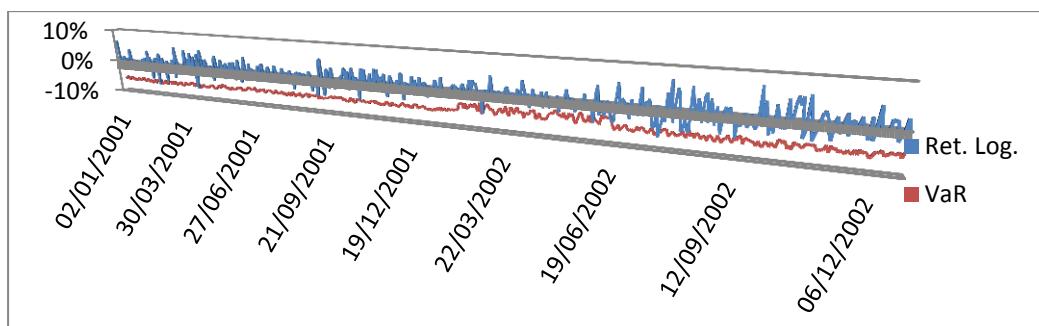


Figura 65: VaR - Carteira B.M.O.L=5%.T.V.E. - $p = 1\%$

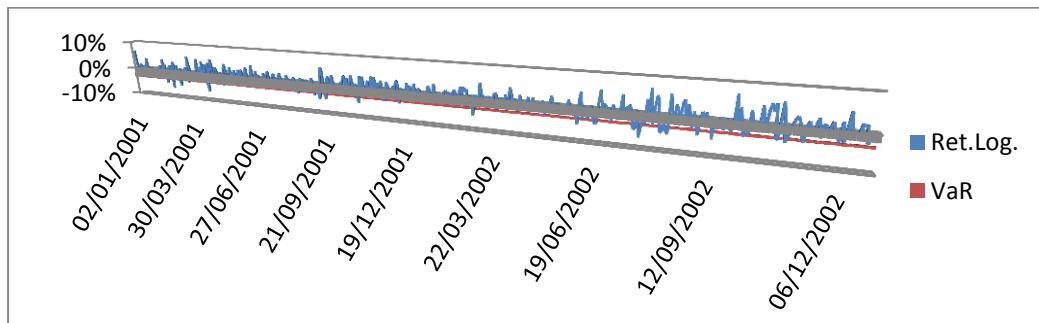


Figura 66: VaR - Carteira B.M.O.L=5%.S.M.C. - $p = 1\%$

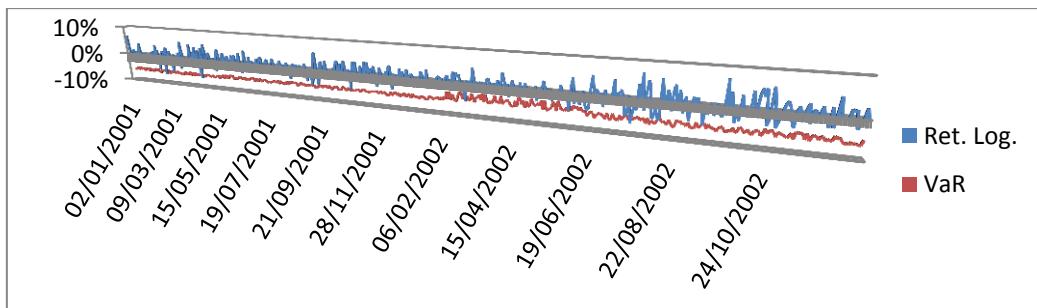


Figura 67: VaR - Carteira B.M.O.L=5%.T.V.E. - $p = 2,50\%$

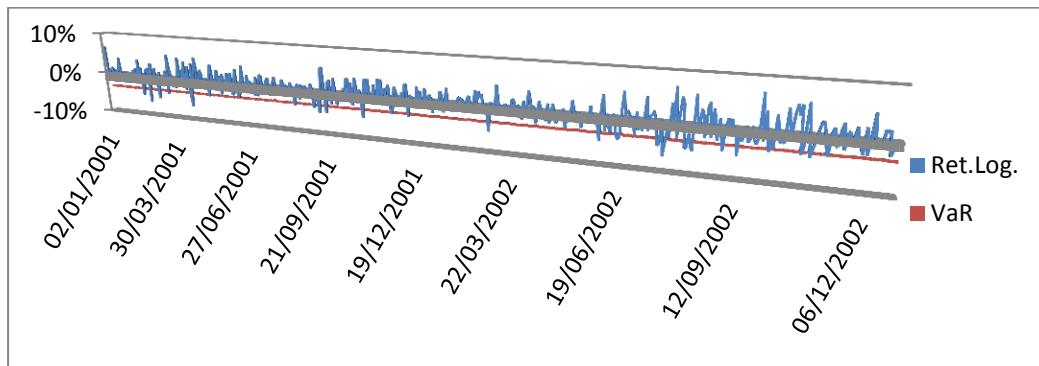


Figura 68: VaR - Carteira B.M.O.L=5%.S.M.C. - $p = 2,50\%$

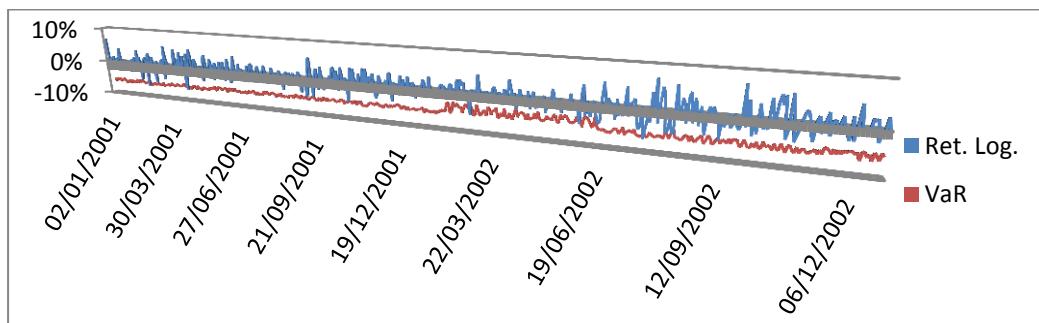


Figura 69: VaR - Carteira B.M.O.L=5%.T.V.E. - $p = 2,50\%$

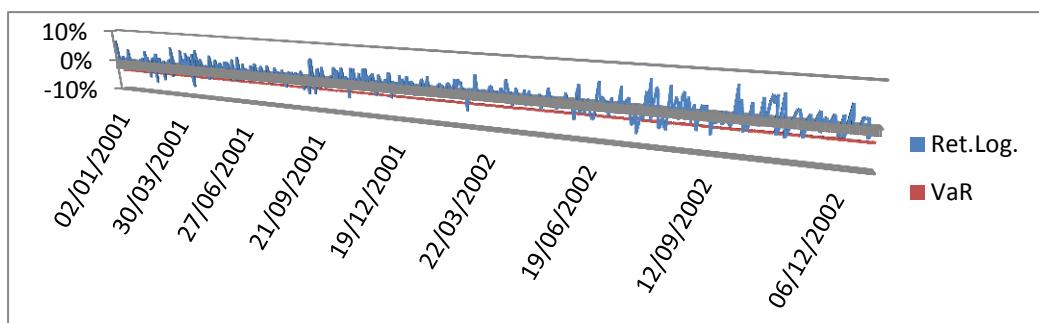


Figura 70: VaR - Carteira B.M.O.L=5%.S.M.C. - $p = 5\%$

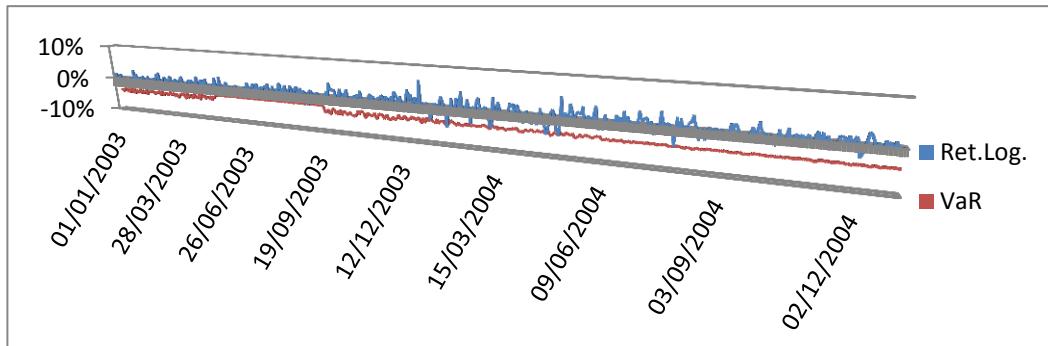


Figura 71: VaR - Carteira C.M.I.U.T.V.E. - $p = 0,50\%$

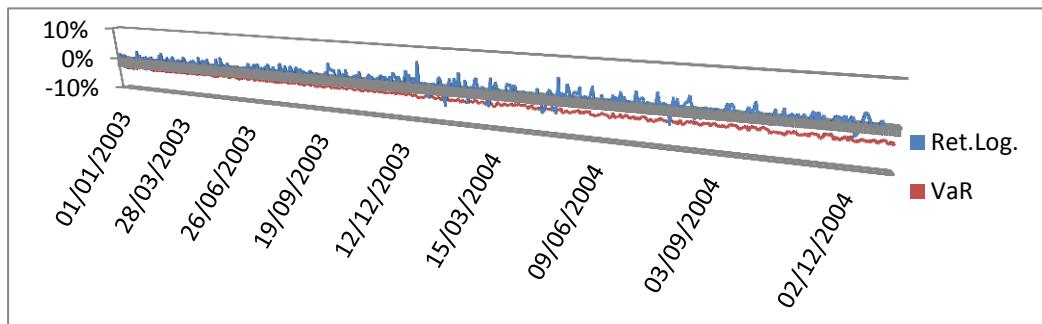


Figura 72: VaR - Carteira C.M.I.U.S.M.C. - $p = 0,50\%$

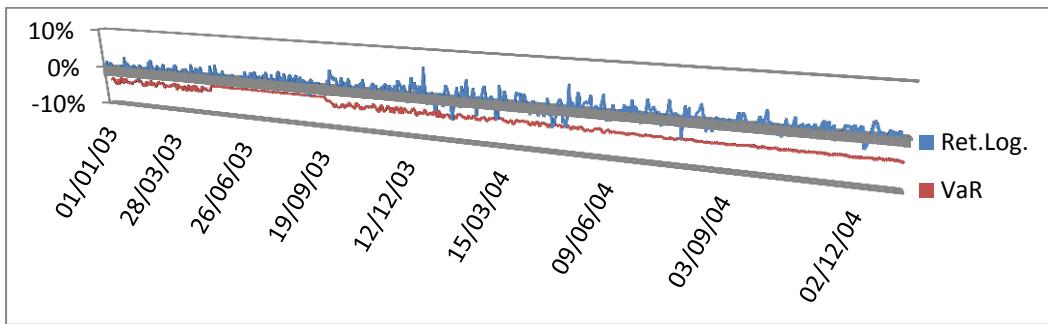


Figura 73: VaR - Carteira C.M.I.U.T.V.E. - $p = 1\%$

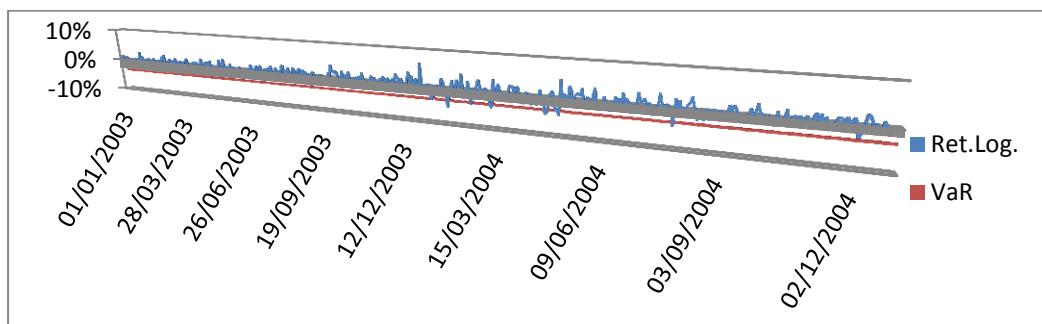


Figura 74: VaR - Carteira C.M.I.U.T.V.E. - $p = 1\%$

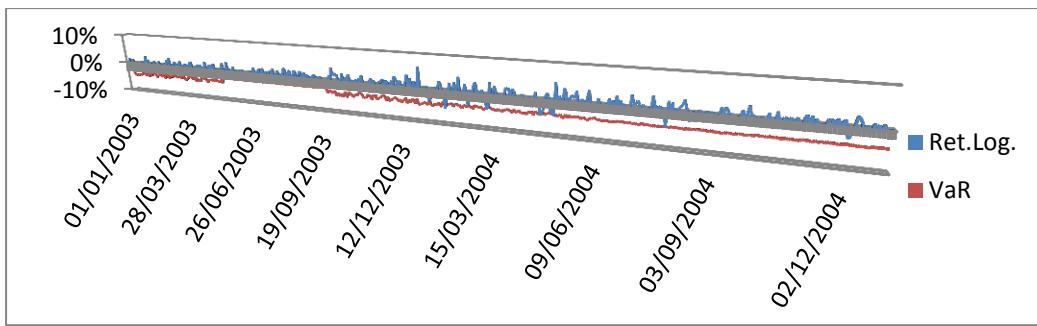


Figura 75: VaR - Carteira C.M.I.U.T.V.E. - $p = 2,50\%$

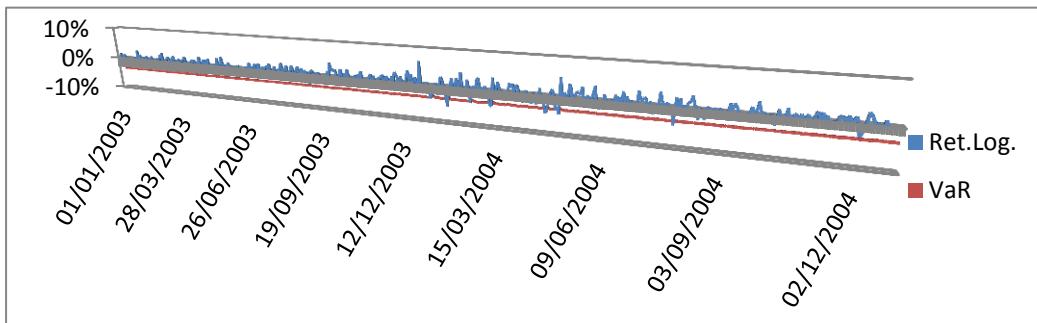


Figura 76: VaR - Carteira C.M.I.U.S.M.C. - $p = 2,50\%$

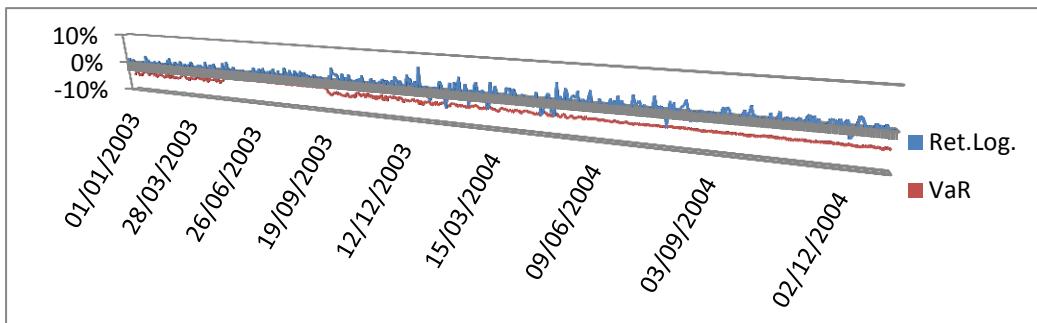


Figura 77: VaR - Carteira C.M.I.U.T.V.E. - $p = 5\%$

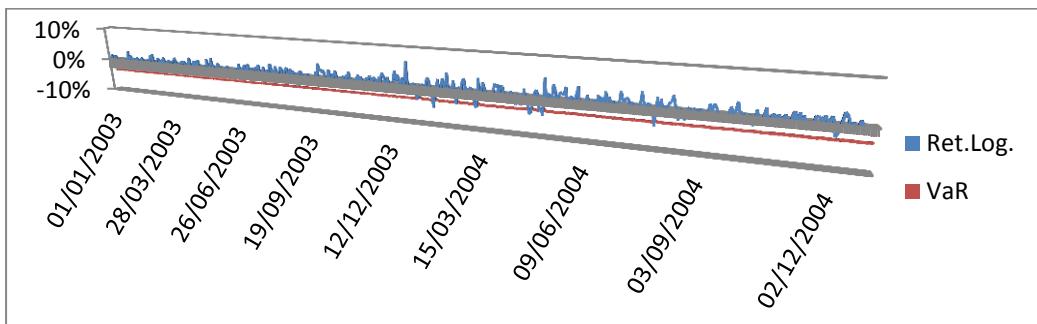


Figura 78: VaR - Carteira C.M.I.U.S.M.C. - $p = 5\%$

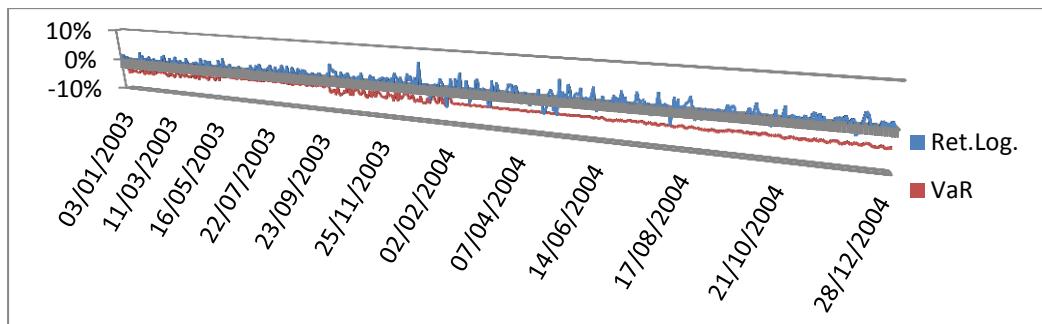


Figura 79: VaR - Carteira C.M.O.L=0%.T.V.E. - $p = 0,50\%$

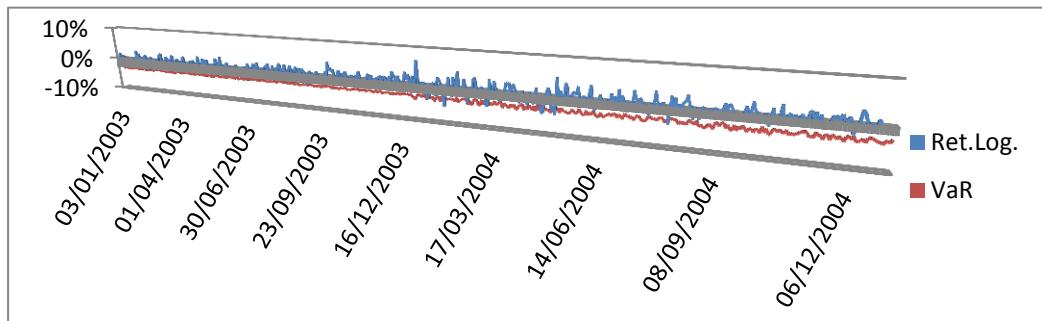


Figura 80: VaR - Carteira C.M.O.L=0%.S.M.C. - $p = 0,50\%$

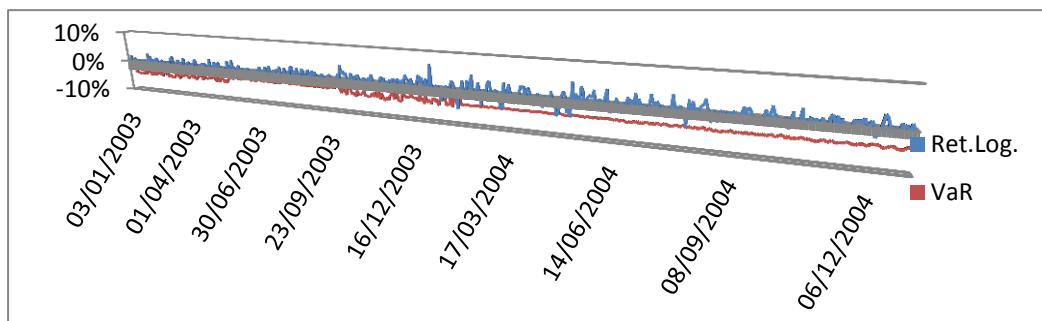


Figura 81: VaR - Carteira C.M.O.L=0%.T.V.E. - $p = 1\%$

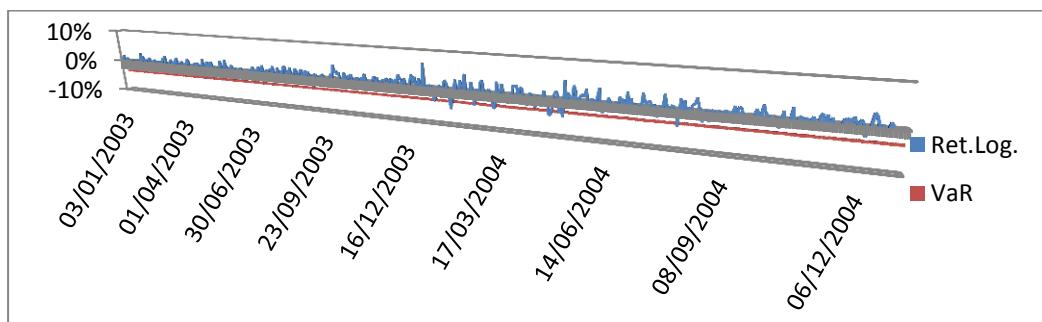


Figura 82: VaR - Carteira C.M.O.L=0%.S.M.C. - $p = 1\%$

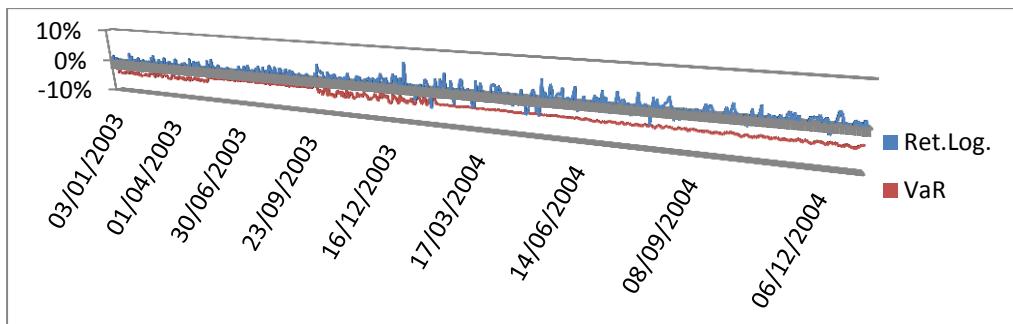


Figura 83: VaR - Carteira C.M.O.L=0%.T.V.E. - $p = 2,50\%$

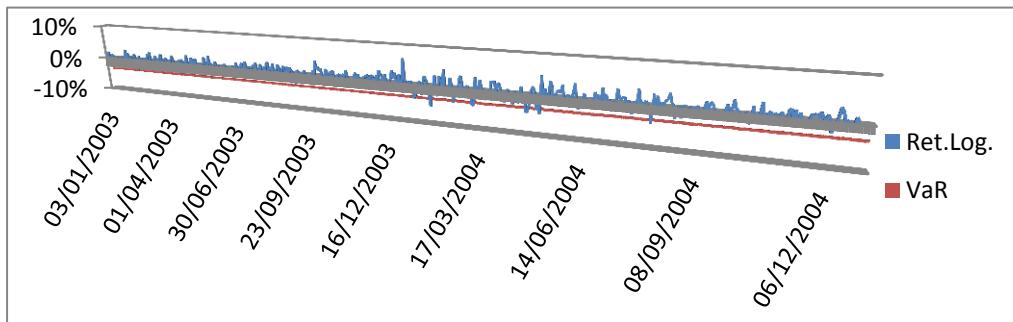


Figura 84: VaR - Carteira C.M.O.L=0%.S.M.C. - $p = 2,50\%$

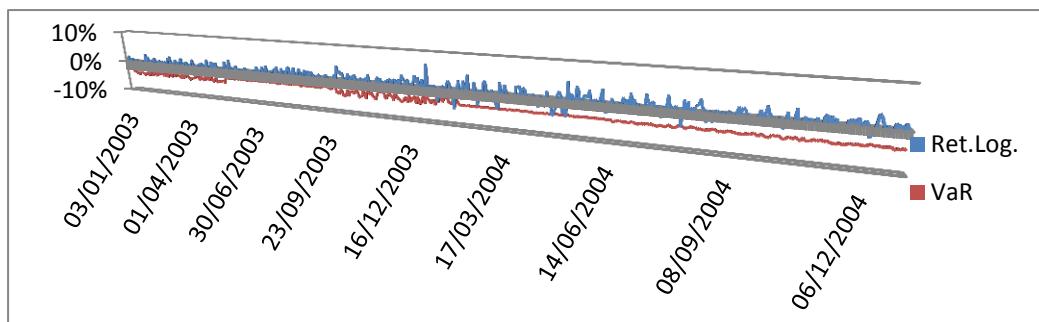


Figura 85: VaR - Carteira C.M.O.L=0%.T.V.E. - $p = 5\%$

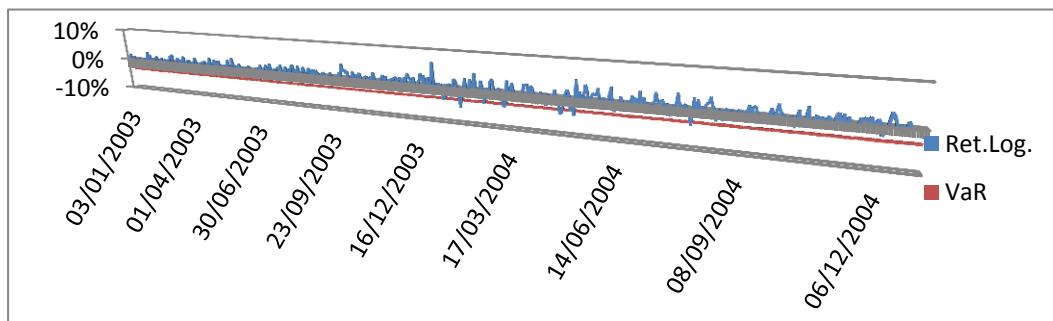


Figura 86: VaR - Carteira C.M.O.L=0%.S.M.C. - $p = 5\%$

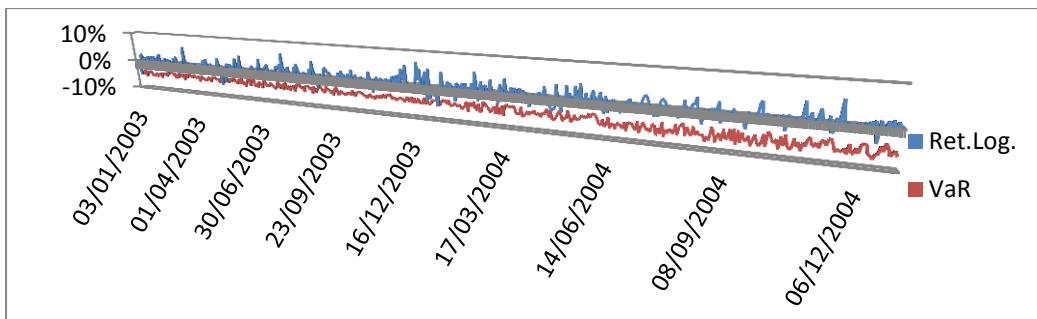


Figura 87: VaR - Carteira C.M.O.L=2,50%.T.V.E. - p = 0,50%

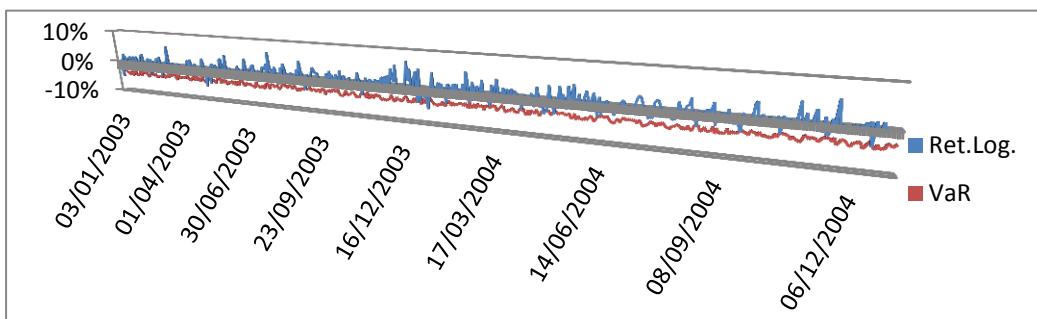


Figura 88: VaR - Carteira C.M.O.L=2,50%.S.M.C. - p = 0,50%

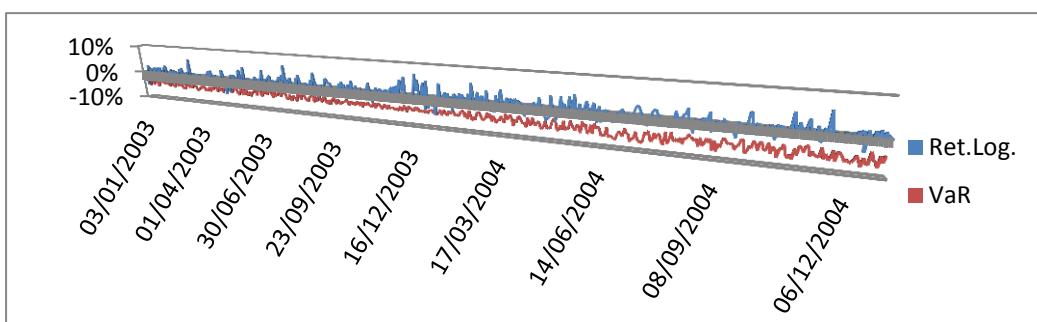


Figura 89: VaR - Carteira C.M.O.L=2,50%.T.V.E. - p = 1%

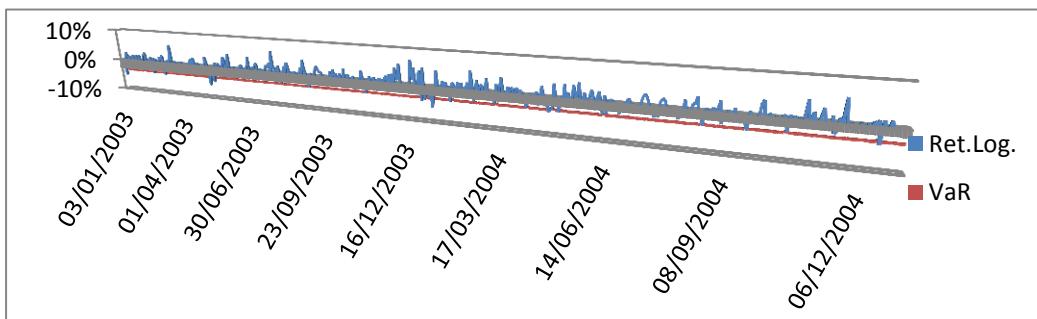


Figura 90: VaR - Carteira C.M.O.L=2,50%.S.M.C. - p = 1%

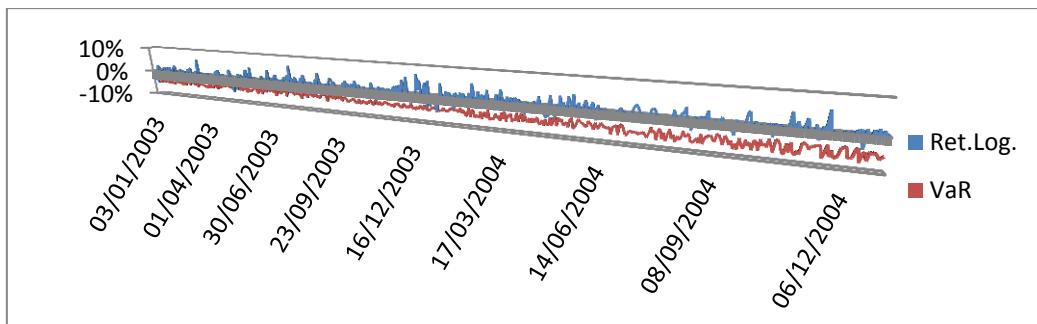


Figura 91: VaR - Carteira C.M.O.L=2,50%.T.V.E. - $p = 2,50\%$

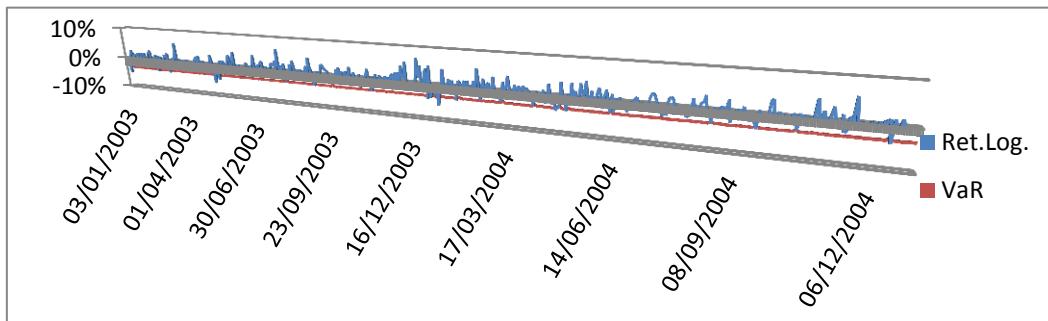


Figura 92: VaR - Carteira C.M.O.L=2,50%.S.M.C. - $p = 2,50\%$

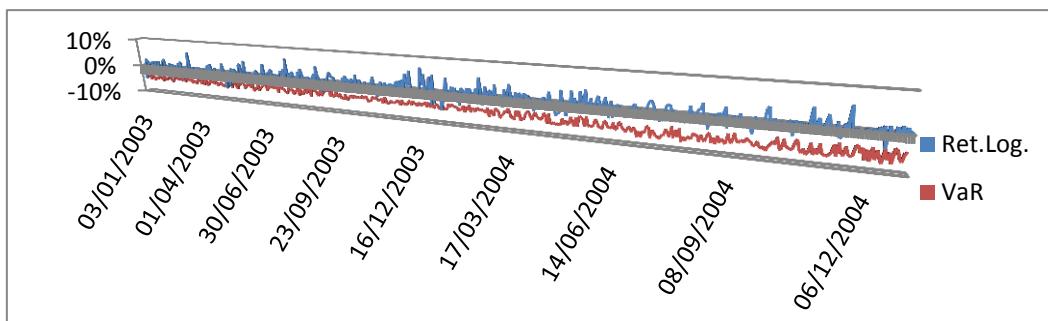


Figura 93: VaR - Carteira C.M.O.L=2,50%.T.V.E. - $p = 5\%$

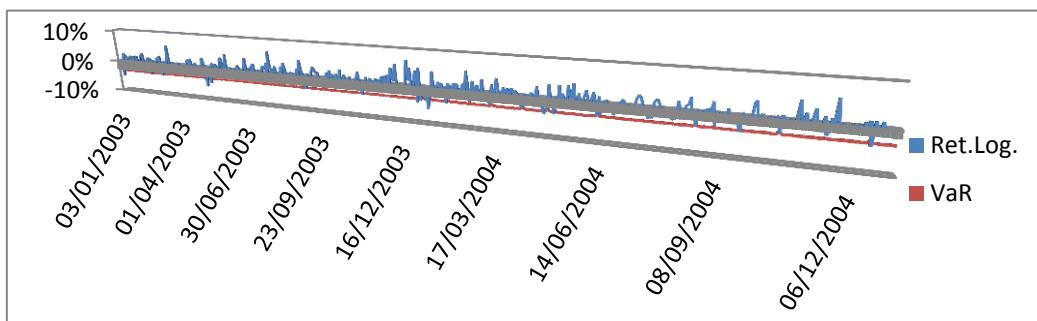


Figura 94: VaR - Carteira C.M.O.L=2,50%.S.M.C. - $p = 5\%$

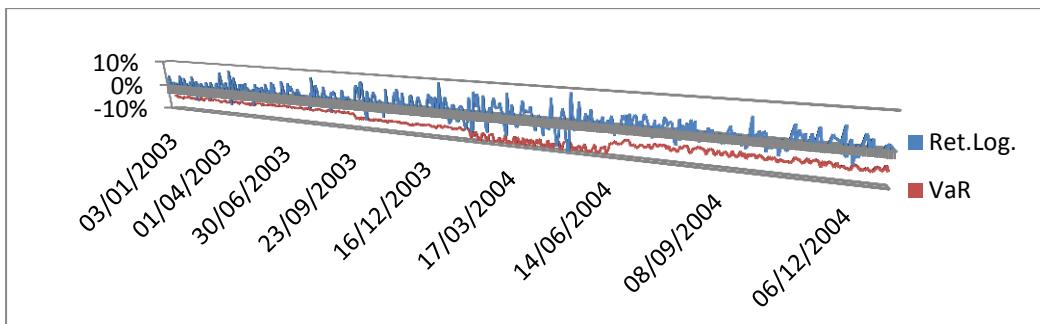


Figura 95: VaR - Carteira C.M.O.L=5%.T.V.E. - $p = 0,50\%$

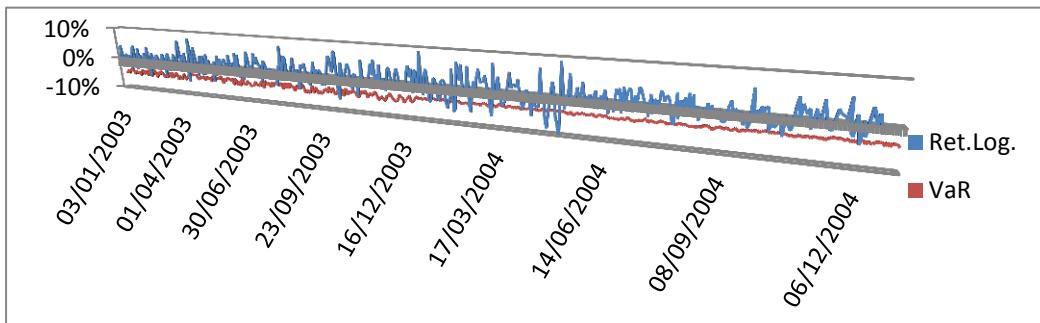


Figura 96: VaR - Carteira C.M.O.L=5%.S.M.C. - $p = 0,50\%$

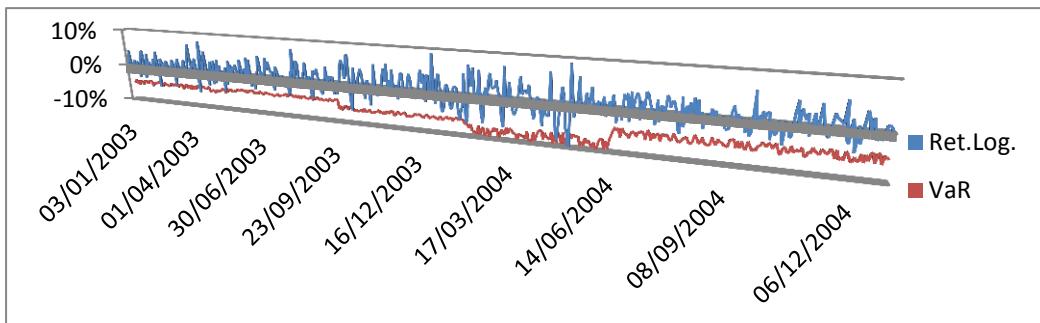


Figura 97: VaR - Carteira C.M.O.L=5%.T.V.E. - $p = 1\%$

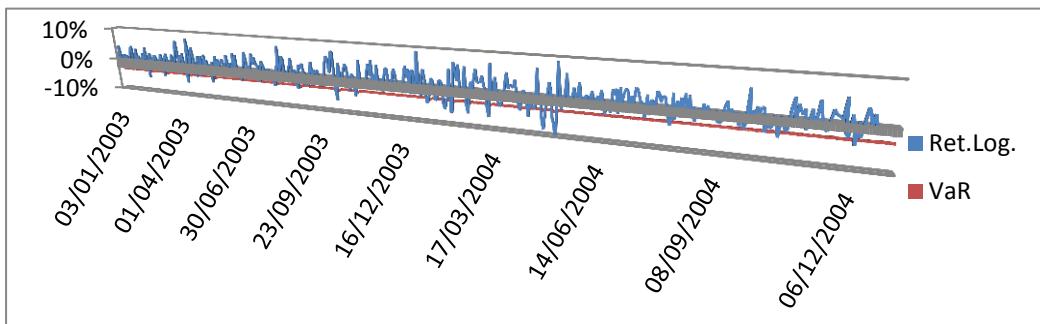


Figura 98: VaR - Carteira C.M.O.L=5%.S.M.C. - $p = 1\%$

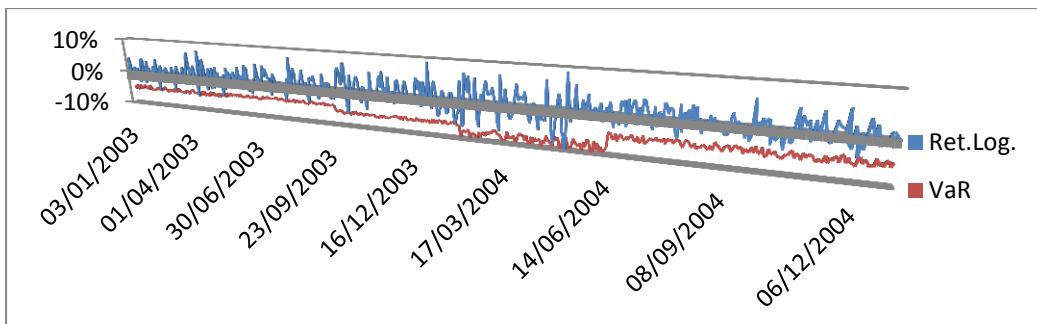


Figura 99: VaR - Carteira C.M.O.L=5%.T.V.E. - $p = 2,50\%$

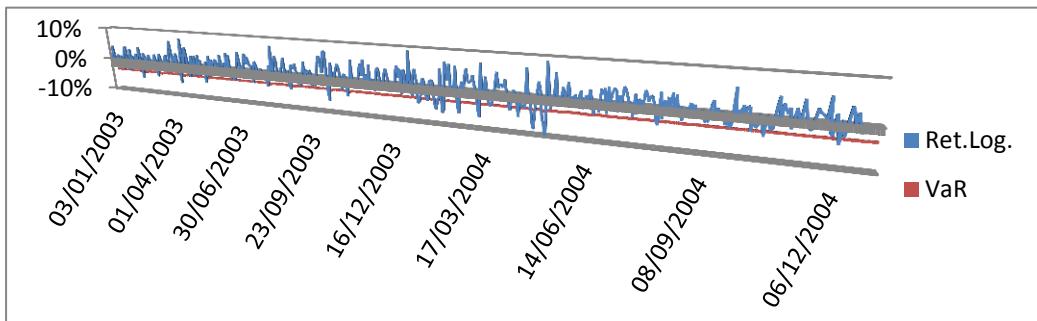


Figura 100: VaR - Carteira C.M.O.L=5%.S.M.C. - $p = 2,50\%$

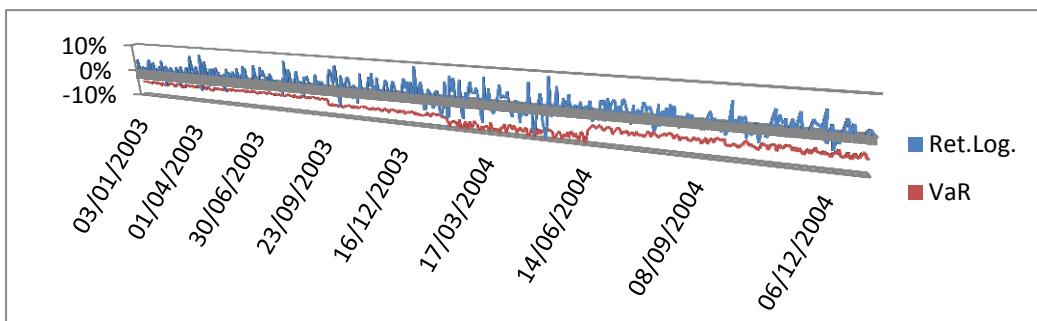


Figura 101: VaR - Carteira C.M.O.L=5%.T.V.E. - $p = 5\%$

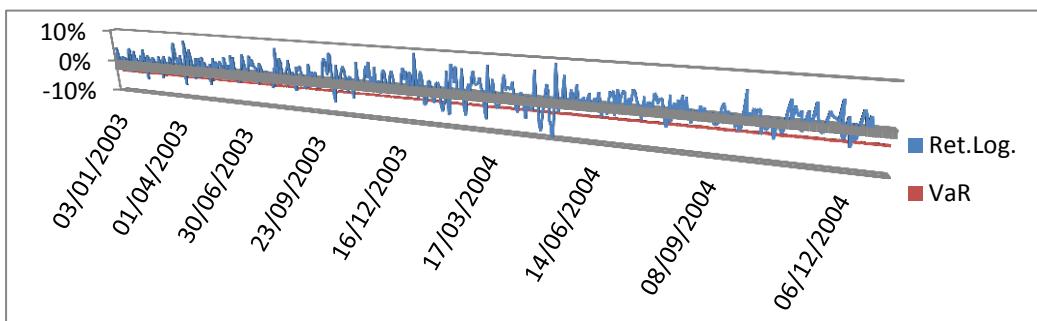


Figura 102: VaR - Carteira C.M.O.L=5%.S.M.C. - $p = 5\%$

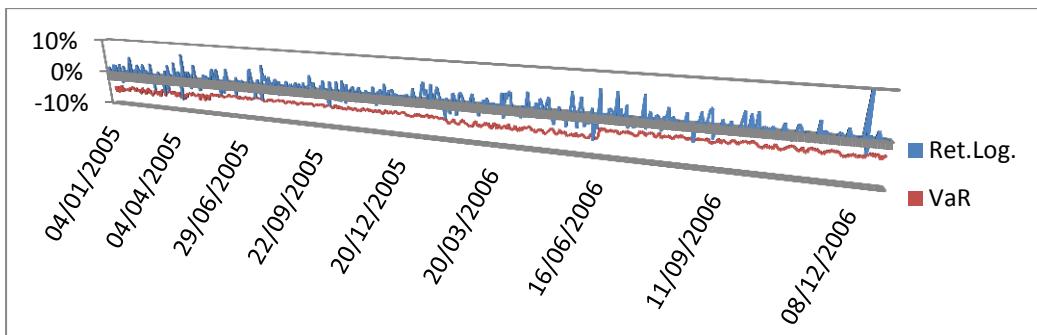


Figura 103: VaR - Carteira D.M.I.U.T.V.E. – $p = 0,50\%$

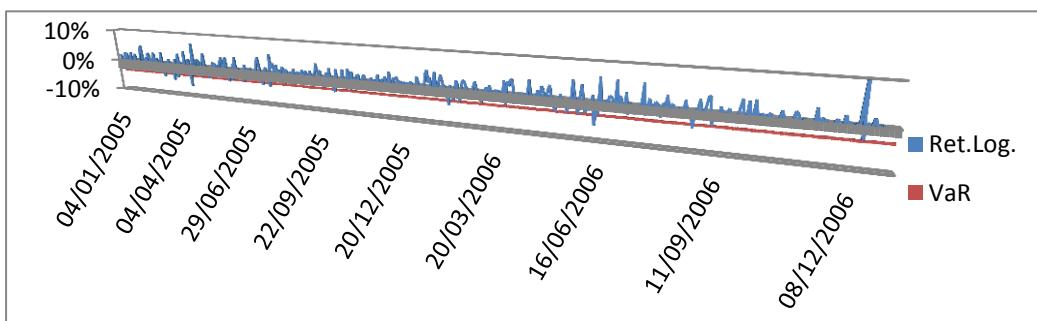


Figura 104: VaR - Carteira D.M.I.U.S.M.C. - $p = 0,50\%$

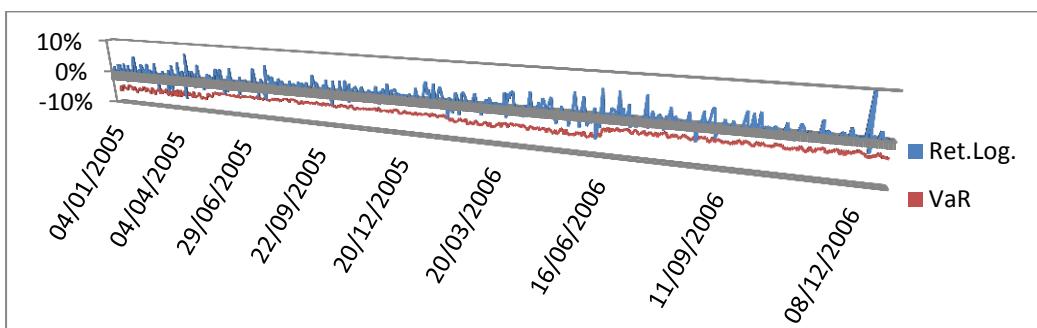


Figura 105: VaR - Carteira D.M.I.U.T.V.E. - $p = 1\%$

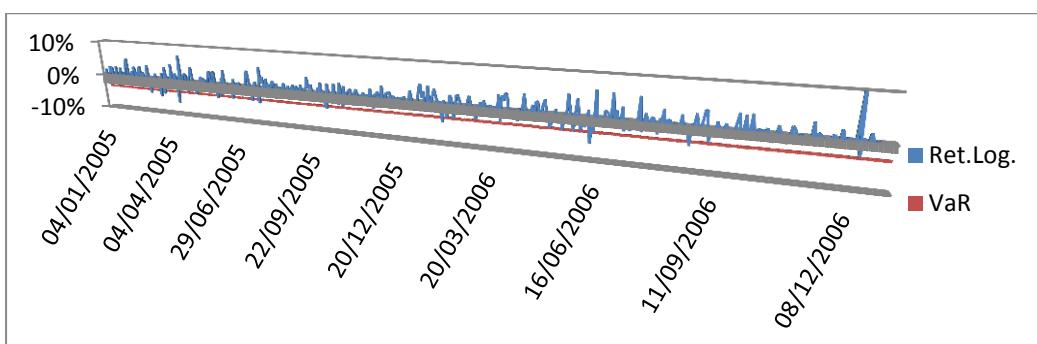


Figura A106: VaR - Carteira D.M.I.U.S.M.C. - $p = 1\%$

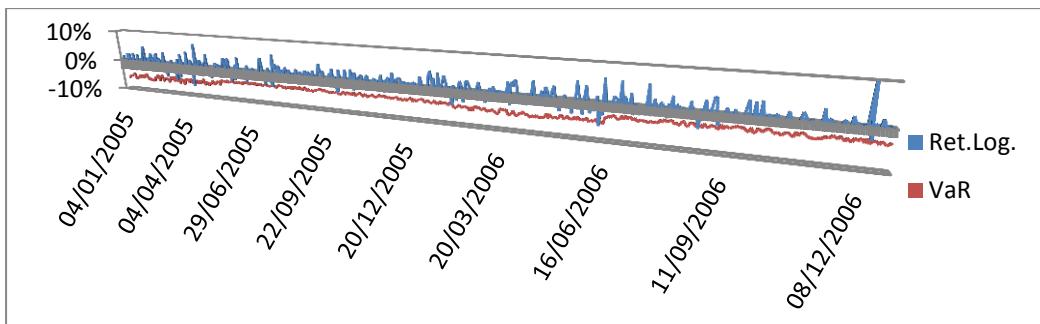


Figura 107: VaR - Carteira D.M.I.U.T.V.E. - $p = 2,50\%$

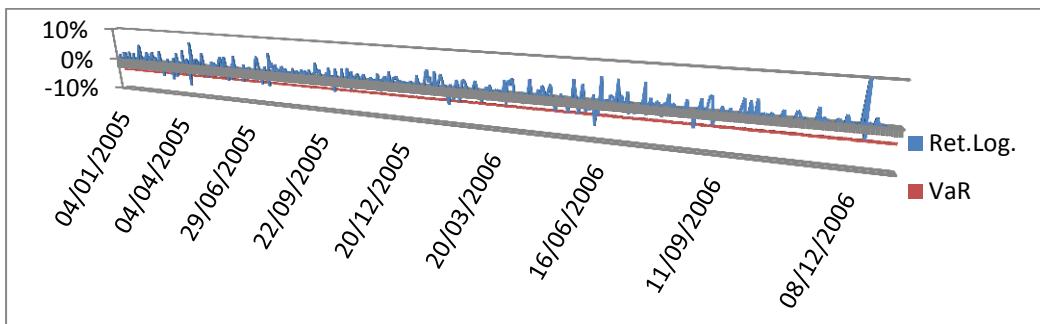


Figura 108: VaR - Carteira D.M.I.U.S.M.C. - $p = 2,50\%$

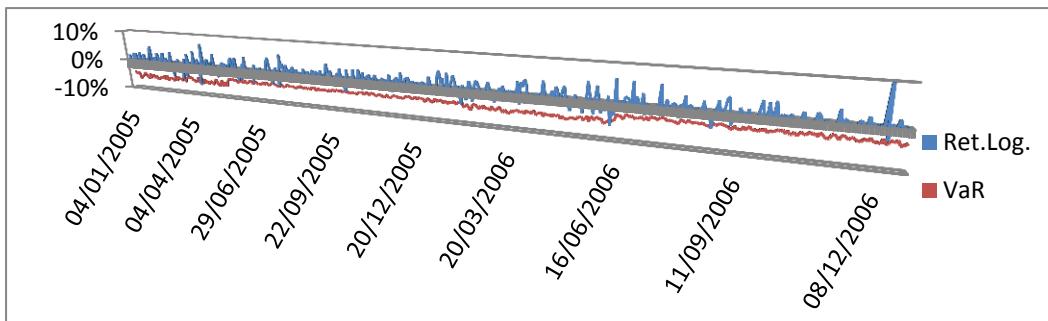


Figura 109: VaR - Carteira D.M.I.U.T.V.E. - $p = 5\%$

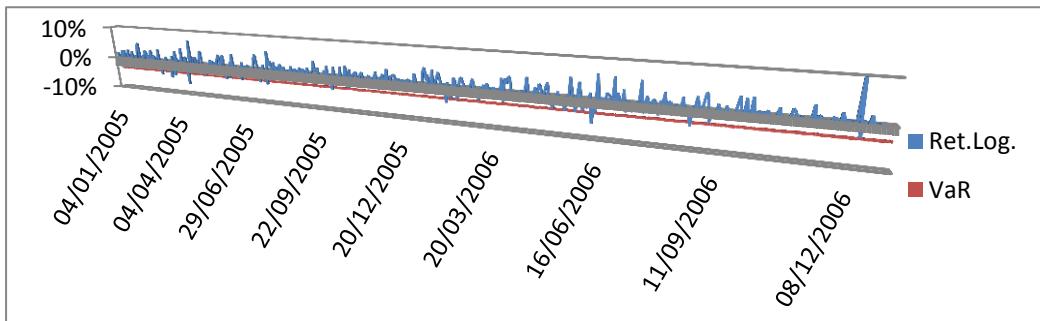


Figura 110: VaR - Carteira D.M.I.U.S.M.C. - $p = 5\%$

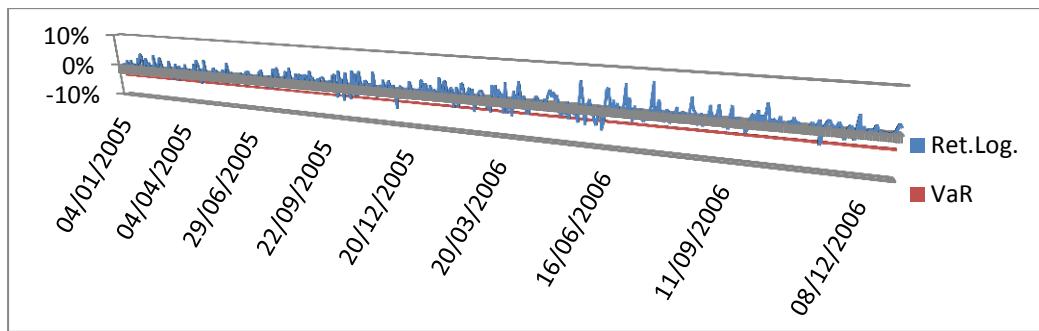


Figura 111: VaR - Carteira D.M.O.L=0%.T.V.E. - $p = 0,50\%$

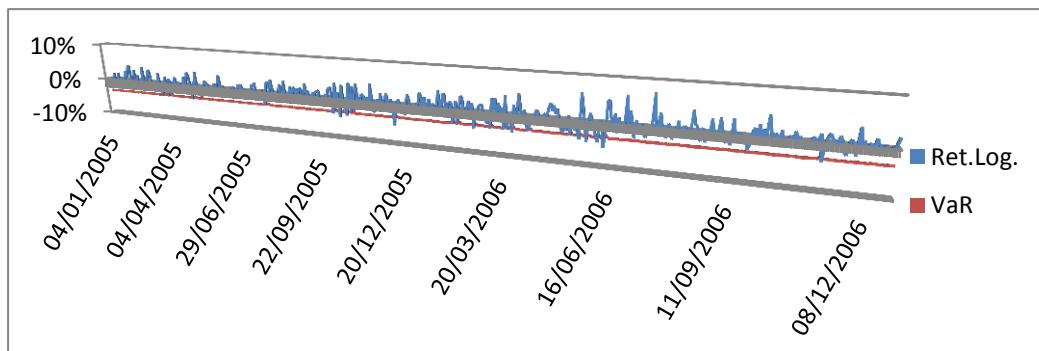


Figura 112: VaR - Carteira D.M.O.L=0%.S.M.C. - $p = 0,50\%$

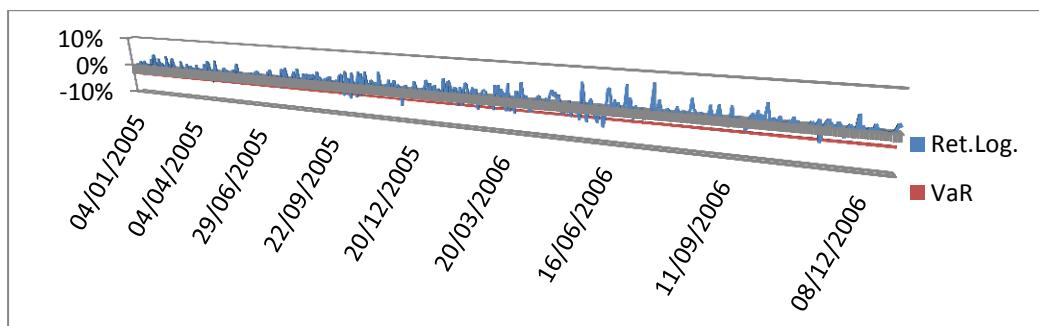


Figura 113: VaR - Carteira D.M.O.L=0%.T.V.E. - $p = 1\%$

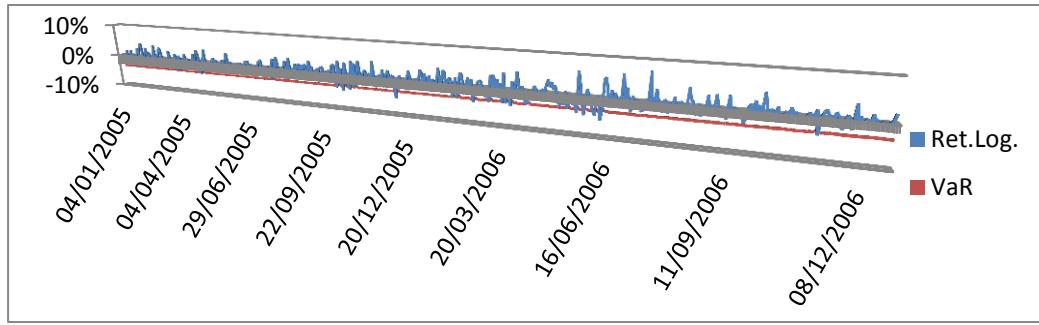


Figura 114: VaR - Carteira D.M.O.L=0%.S.M.C. - $p = 1\%$

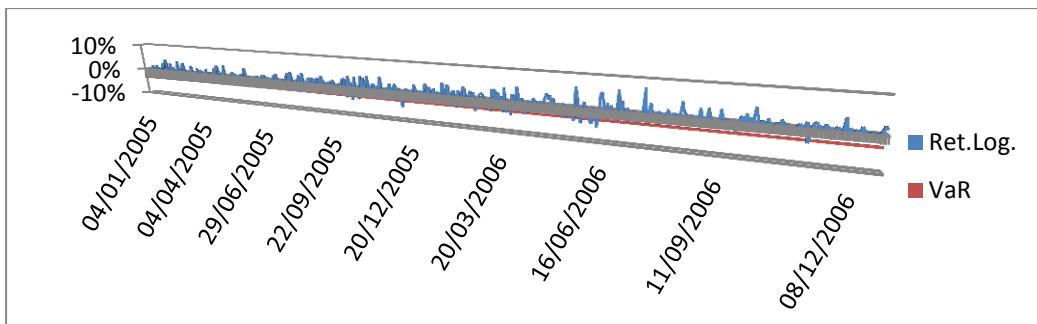


Figura 115: VaR - Carteira D.M.O.L=0%.T.V.E. - $p = 2,50\%$

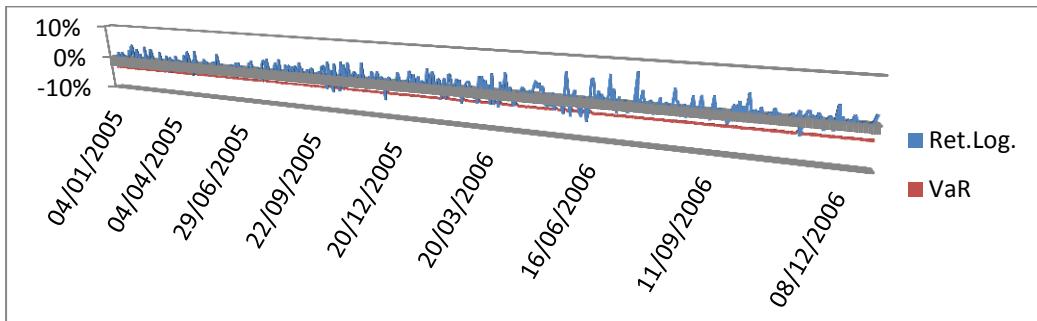


Figura 116: VaR - Carteira D.M.O.L=0%.S.M.C. - $p = 2,50\%$

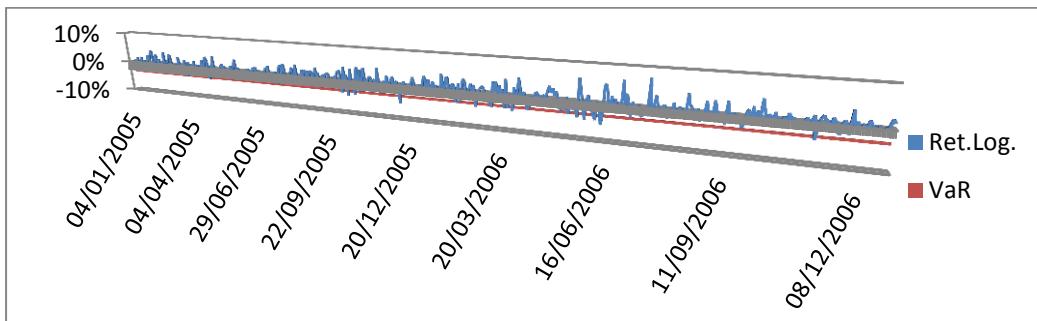


Figura 117: VaR - Carteira D.M.O.L=0%.T.V.E. - $p = 5\%$

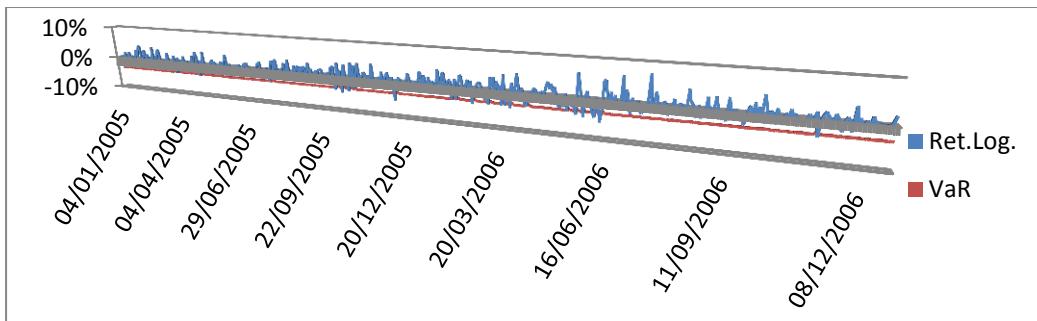


Figura 118: VaR - Carteira D.M.O.L=0%.S.M.C. - $p = 5\%$

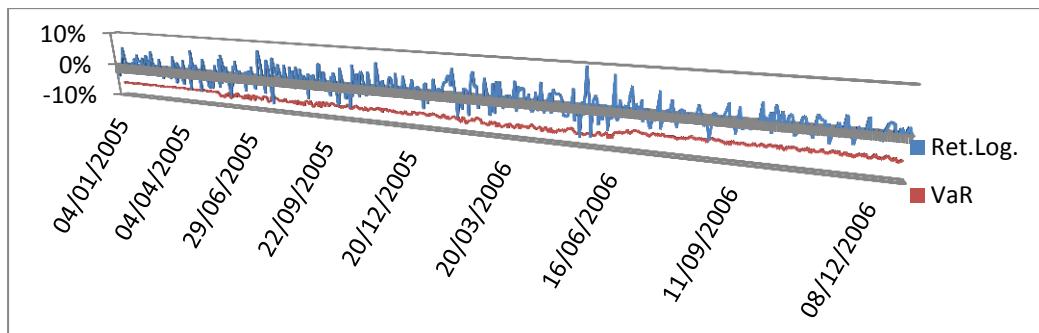


Figura 119: VaR - Carteira D.M.O.L=2,50%.T.V.E. - $p = 0,50\%$

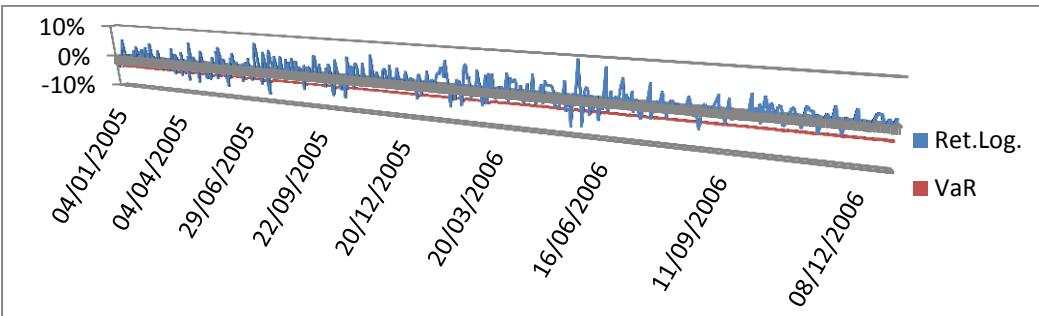


Figura 120: VaR - Carteira D.M.O.L=2,50%.S.M.C. - $p = 0,50\%$

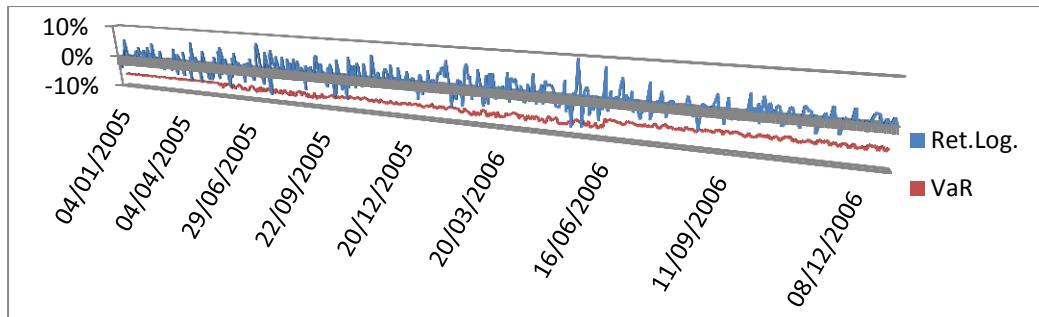


Figura 121: VaR - Carteira D.M.O.L=2,50%.T.V.E. - $p = 1\%$

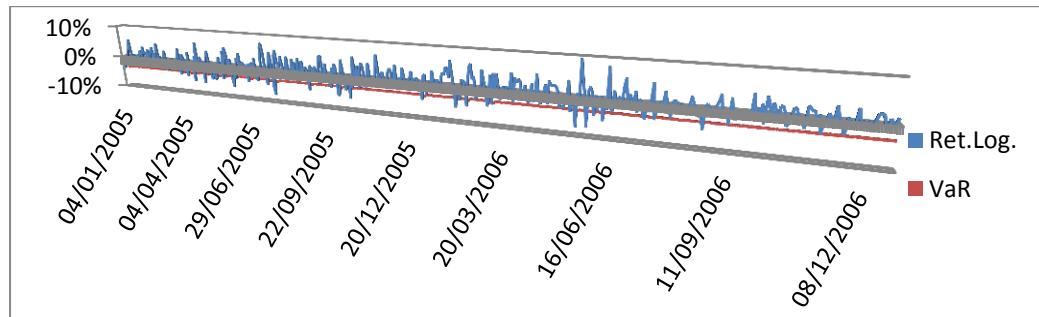


Figura 122: VaR - Carteira D.M.O.L=2,50%.S.M.C. - $p = 1\%$

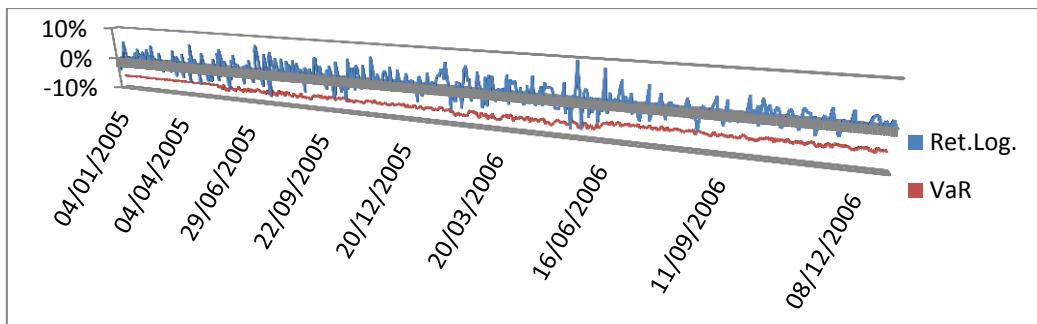


Figura 123: VaR - Carteira D.M.O.L=2,50%.T.V.E. - p = 2,50%

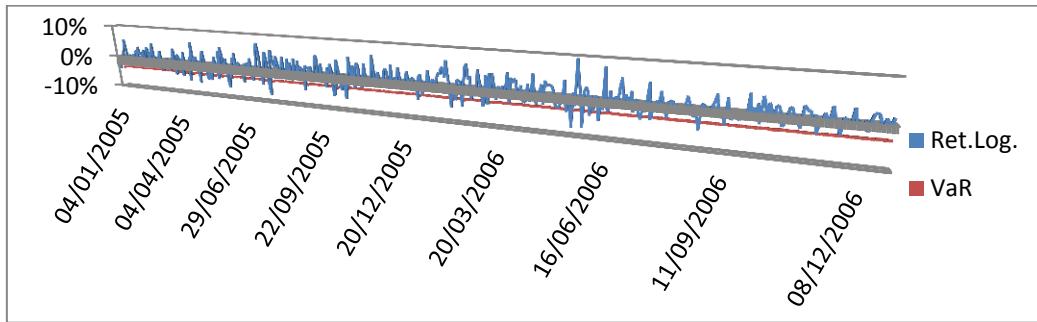


Figura 124: VaR - Carteira D.M.O.L=2,50%.S.M.C. - p = 2,50%

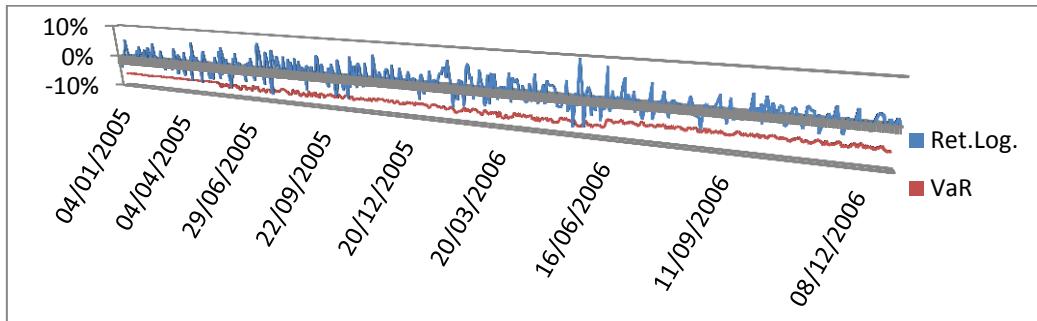


Figura 125: VaR - Carteira D.M.O.L=2,50%.T.V.E. - p = 2,50%

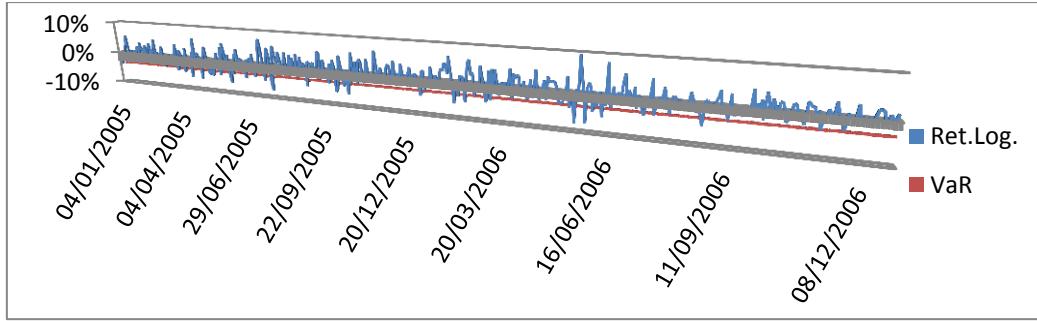


Figura 126: VaR - Carteira D.M.O.L=2,50%.S.M.C. - p = 5%

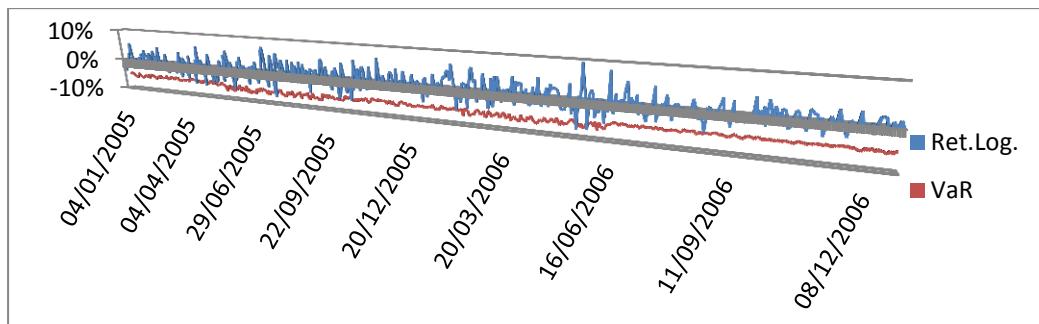


Figura 127: VaR - Carteira D.M.O.L=5%.T.V.E. - $p = 0,50\%$

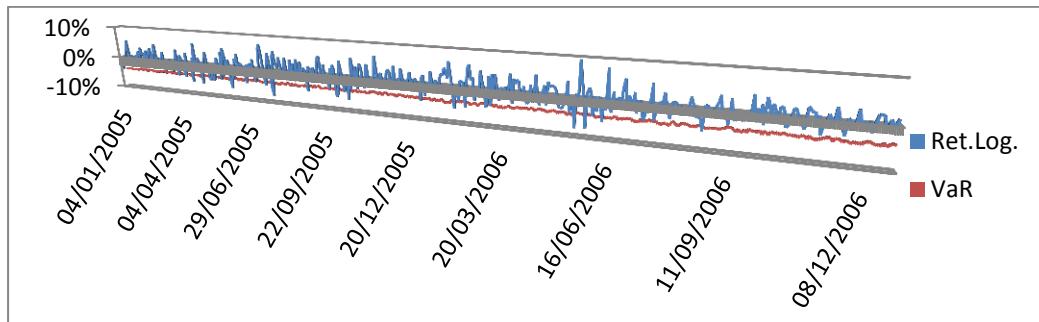


Figura 128: VaR - Carteira D.M.O.L=5%.S.M.C. - $p = 0,50\%$

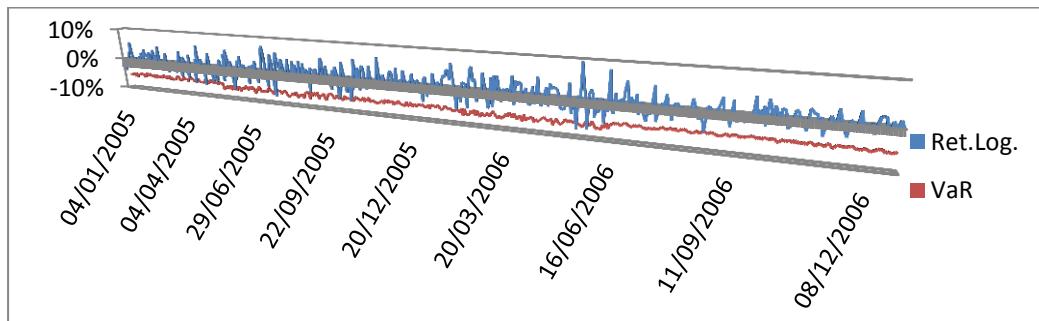


Figura 129: VaR - Carteira D.M.O.L=5%.T.V.E. - $p = 1\%$

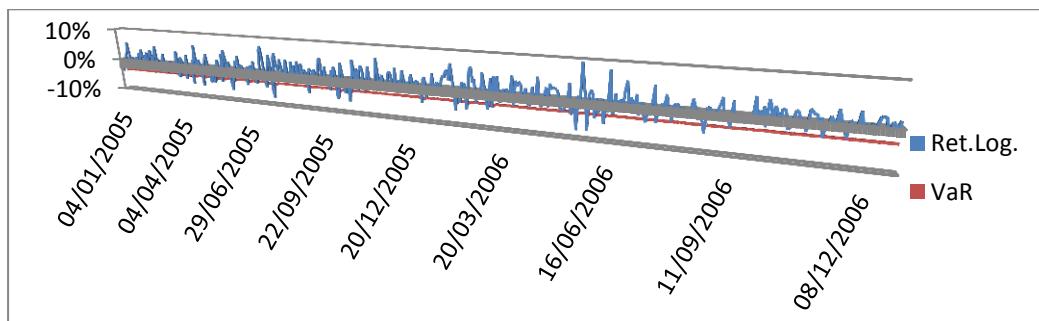


Figura 130: VaR - Carteira D.M.O.L=5%.S.M.C. - $p = 1\%$

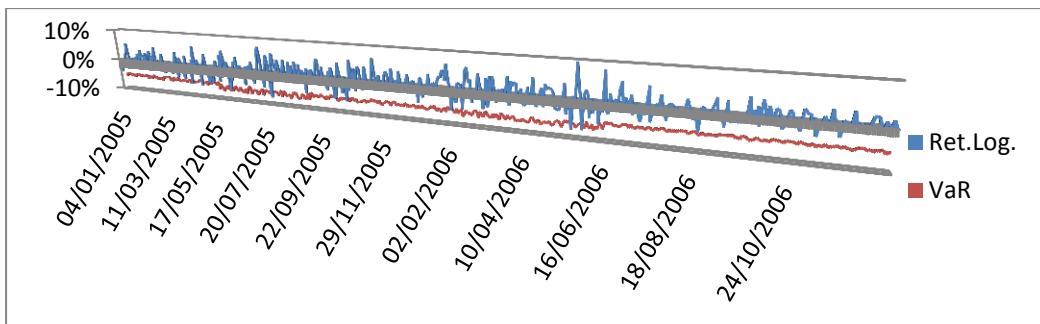


Figura 131: VaR - Carteira D.M.O.L=5%.T.V.E. - $p = 2,50\%$

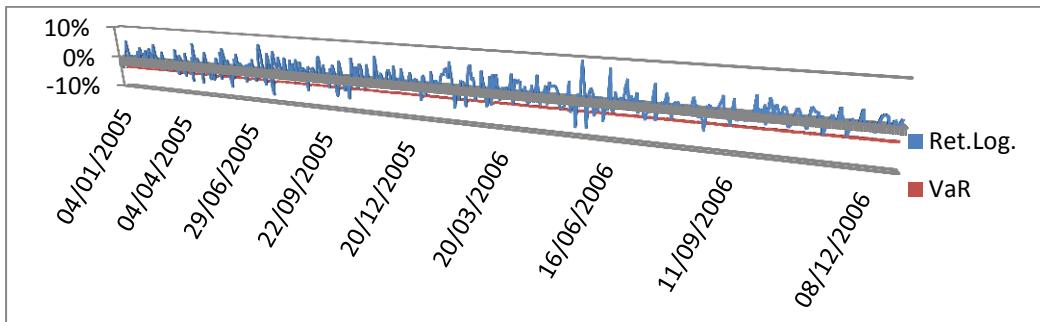


Figura 132: VaR - Carteira D.M.O.L=5%.S.M.C. - $p = 2,50\%$

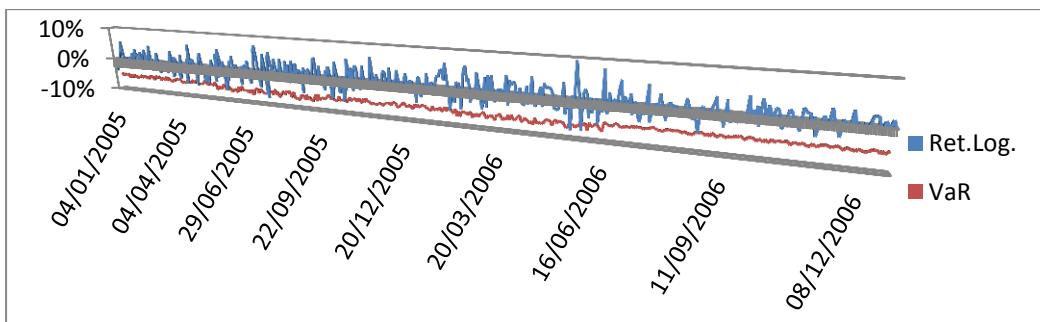


Figura 133: VaR - Carteira D.M.O.L=5%.T.V.E. - $p = 5\%$

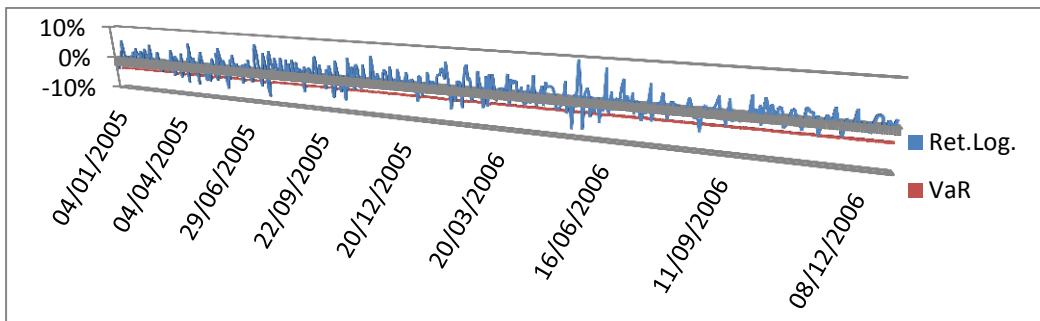


Figura 134: VaR - Carteira D.M.O.L=5%.S.M.C. - $p = 5\%$

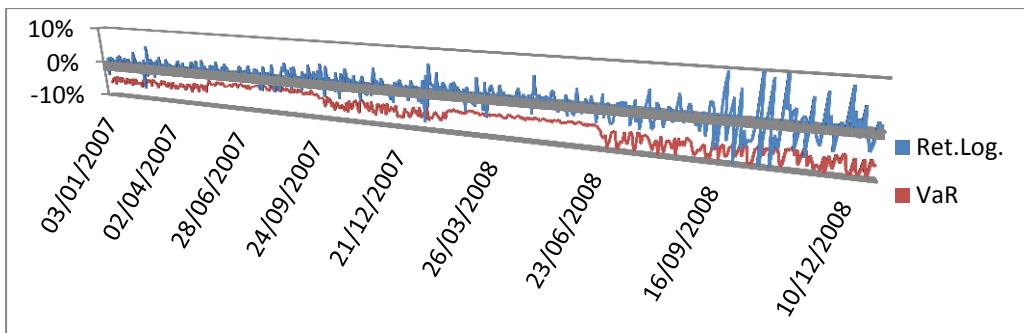


Figura 135: VaR - Carteira E.M.I.U.T.V.E. - $p = 0,50\%$

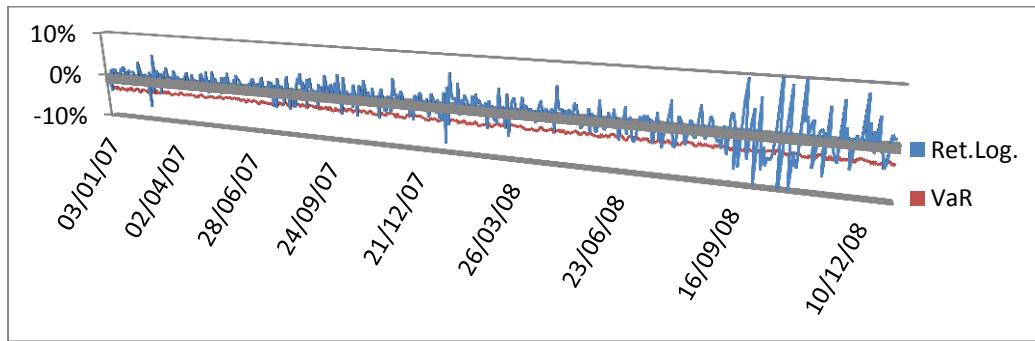


Figura 136: VaR - Carteira E.M.I.U.S.M.C. - $p = 0,50\%$

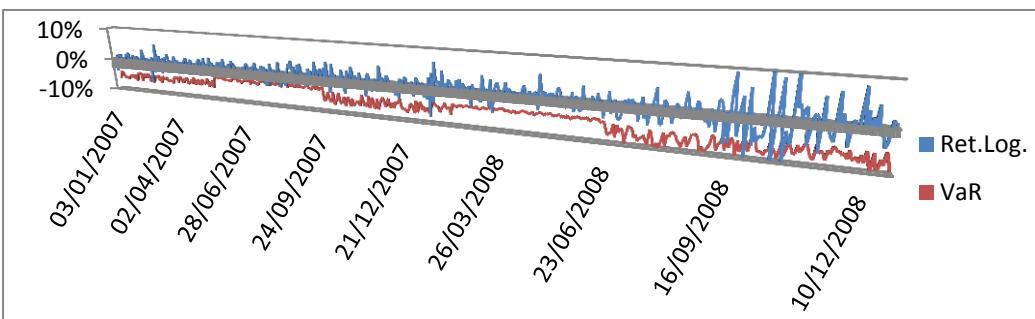


Figura 137: VaR - Carteira E.M.I.U.T.V.E. - $p = 1\%$

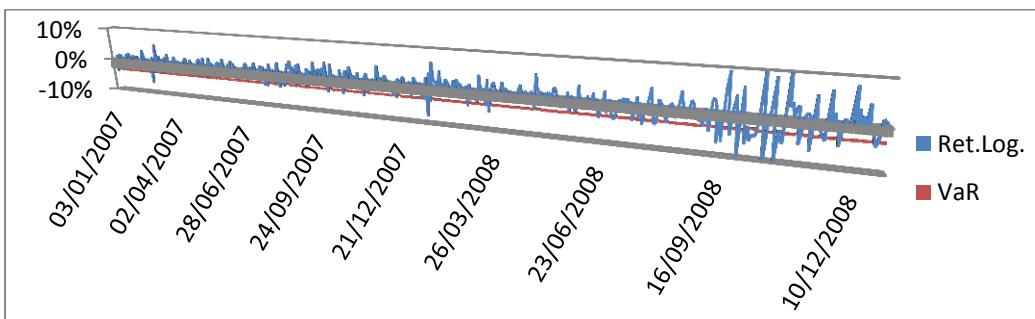


Figura 138: VaR - Carteira E.M.I.U.S.M.C. - $p = 1\%$

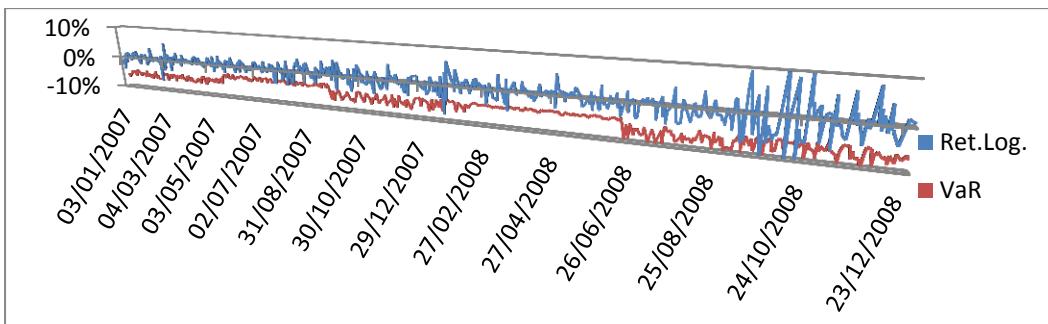


Figura 139: VaR - Carteira E.M.I.U.T.V.E. - $p = 2,50\%$

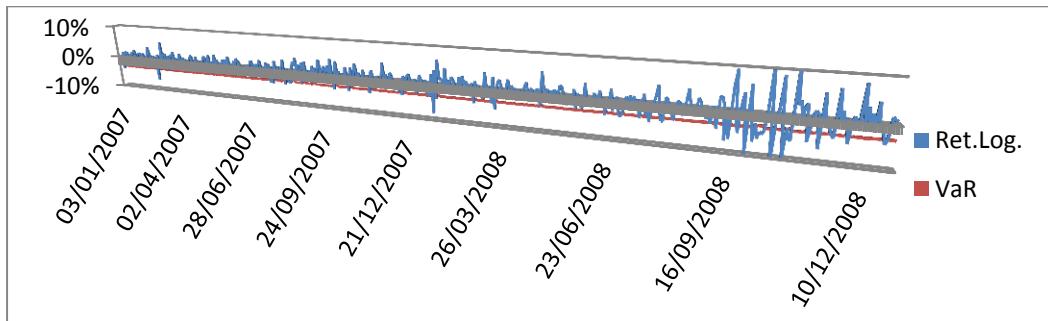


Figura 140: VaR - Carteira E.M.I.U.S.M.C. - $p = 2,50\%$

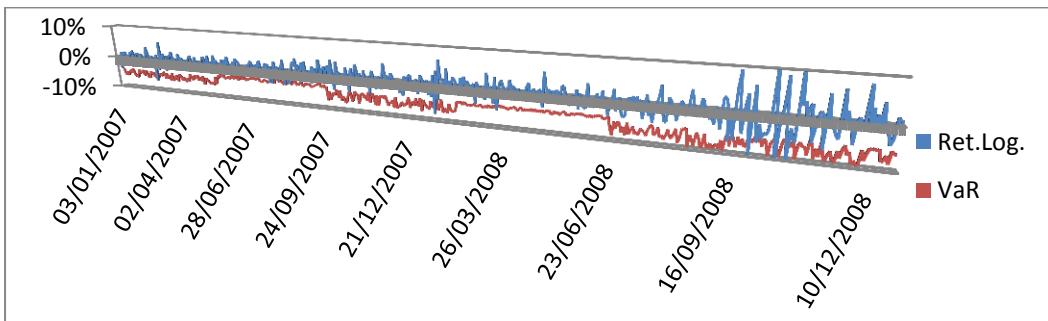


Figura 141: VaR - Carteira E.M.I.U.T.V.E. - $p = 5\%$

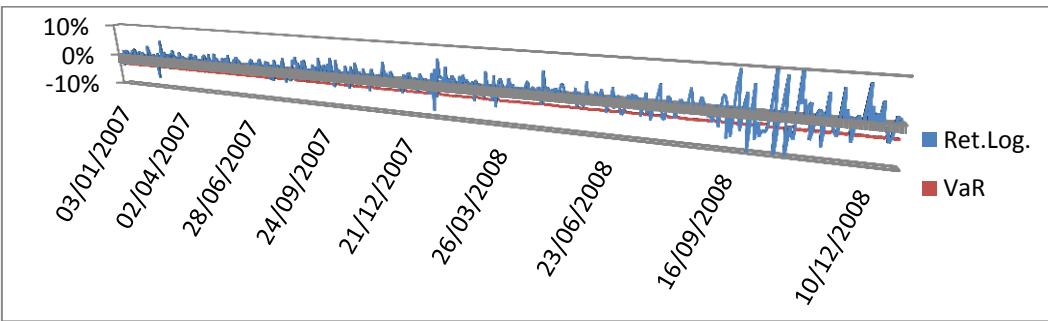


Figura 142: VaR - Carteira E.M.I.U.S.M.C. - $p = 5\%$

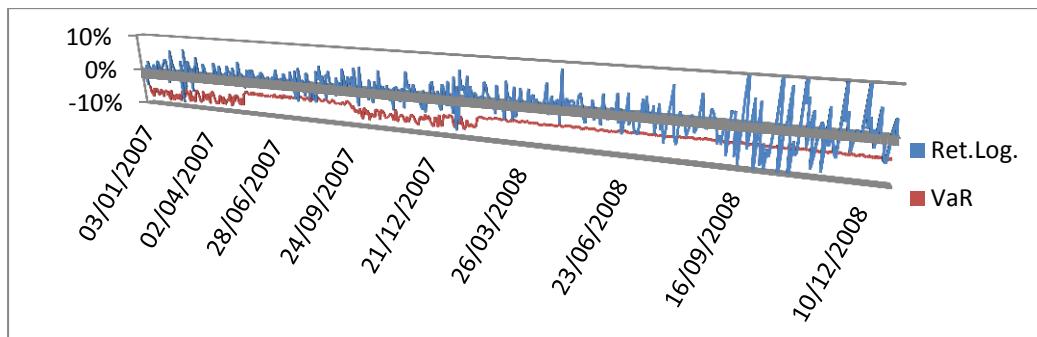


Figura 143: VaR - Carteira E.M.O.L=0%.T.V.E. - $p = 0,50\%$

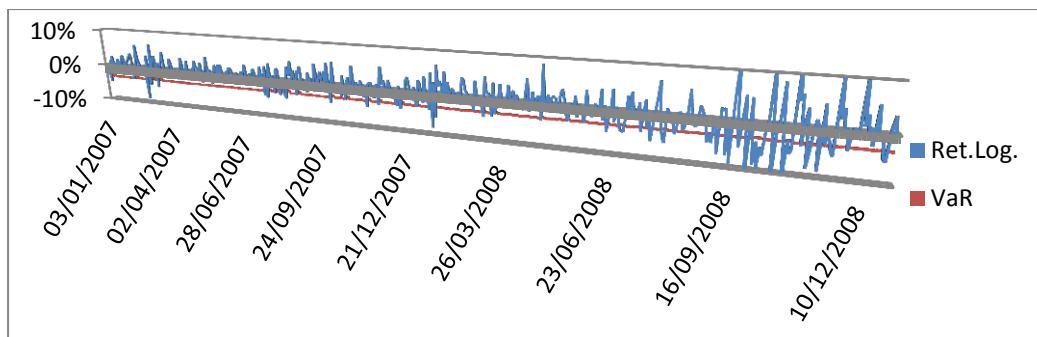


Figura 144: VaR - Carteira E.M.O.L=0%.S.M.C. - $p = 0,50\%$

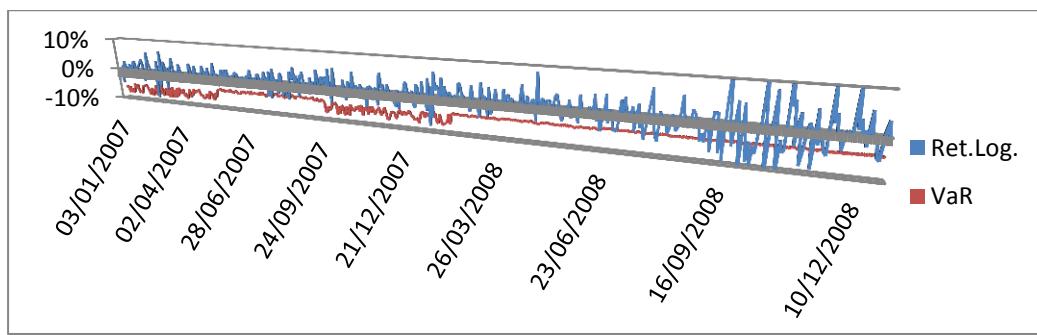


Figura 145: VaR - Carteira E.M.O.L=0%.T.V.E. - $p = 1\%$

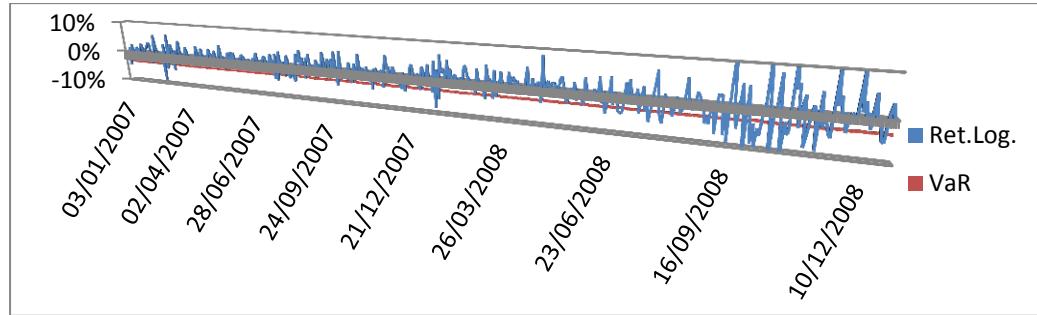


Figura 146: VaR - Carteira E.M.O.L=0%.S.M.C. - $p = 1\%$

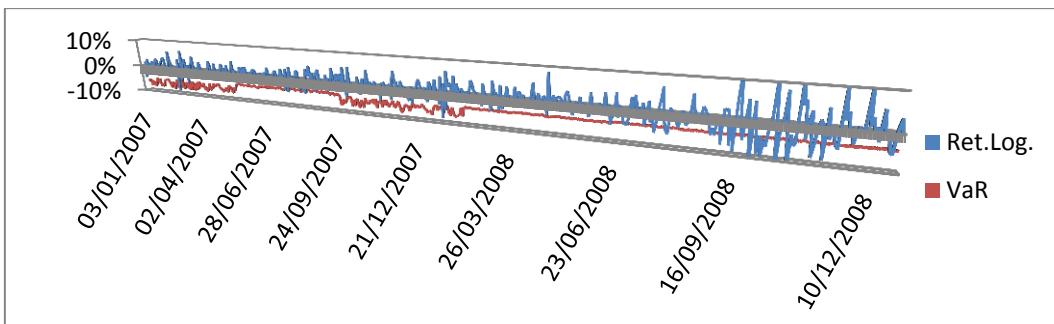


Figura 147: VaR - Carteira E.M.O.L=0%.T.V.E. - $p = 2,50\%$

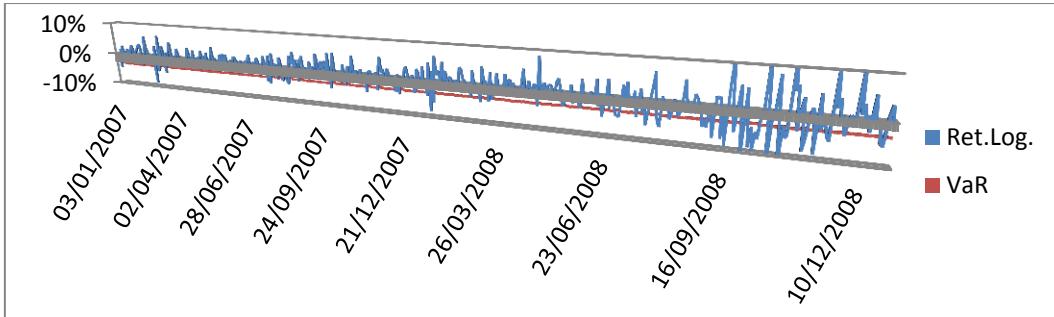


Figura 148: VaR - Carteira E.M.O.L=0%.S.M.C. - $p = 2,50\%$

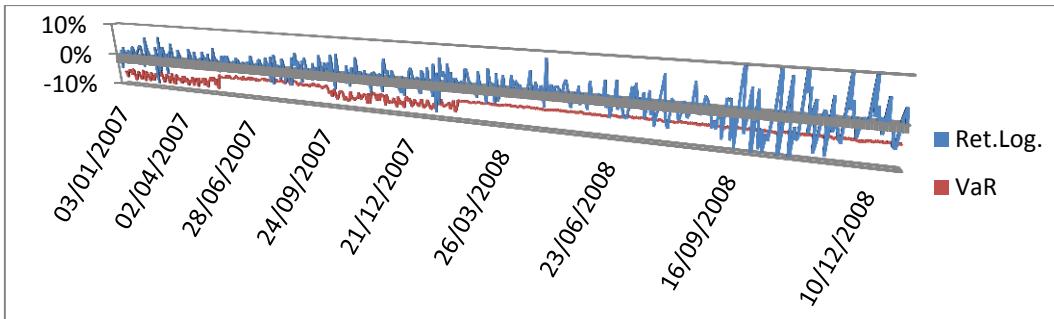


Figura 149: VaR - Carteira E.M.O.L=0%.T.V.E. - $p = 5\%$

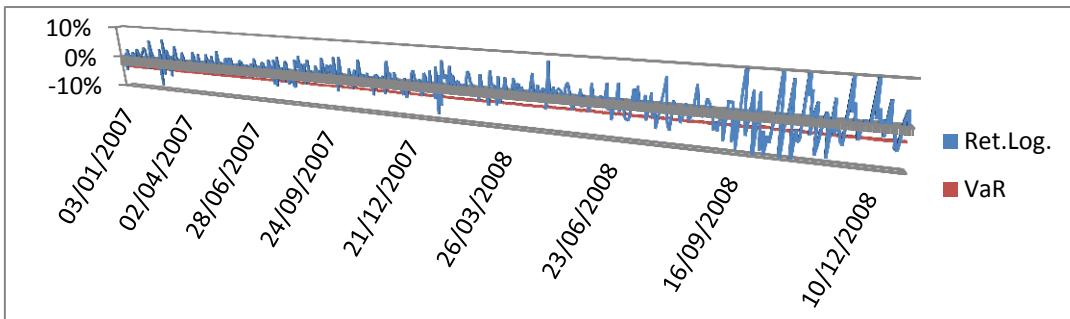


Figura 150: VaR - Carteira E.M.O.L=0%.S.M.C. - $p = 5\%$

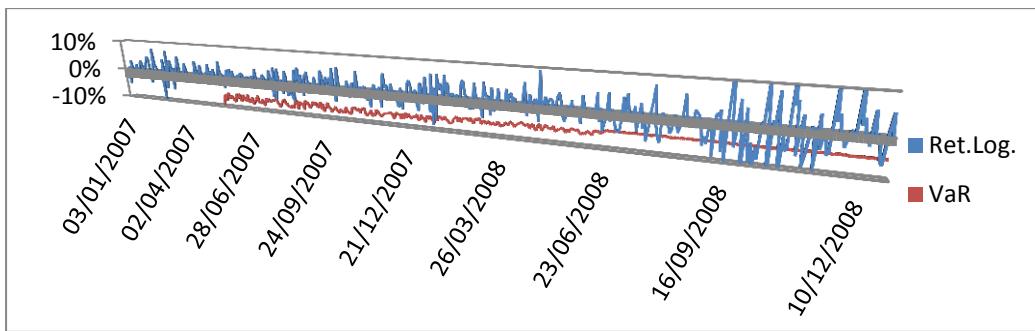


Figura 151: VaR - Carteira E.M.O.L=2,50%.T.V.E. - $p = 0,50\%$

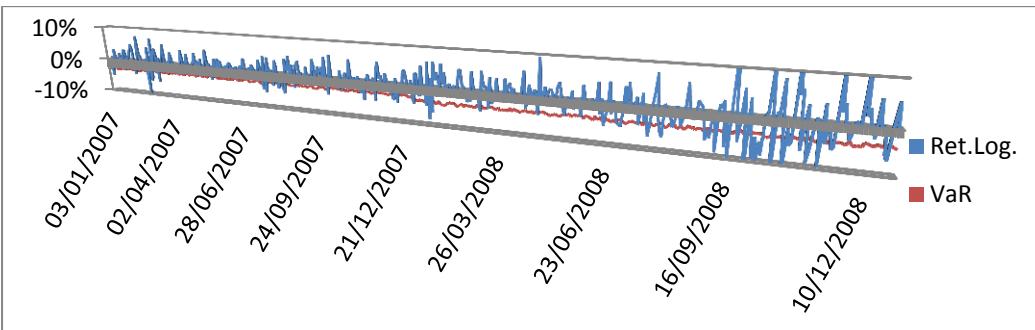


Figura 152: VaR - Carteira E.M.O.L=2,50%.S.M.C. - $p = 0,50\%$

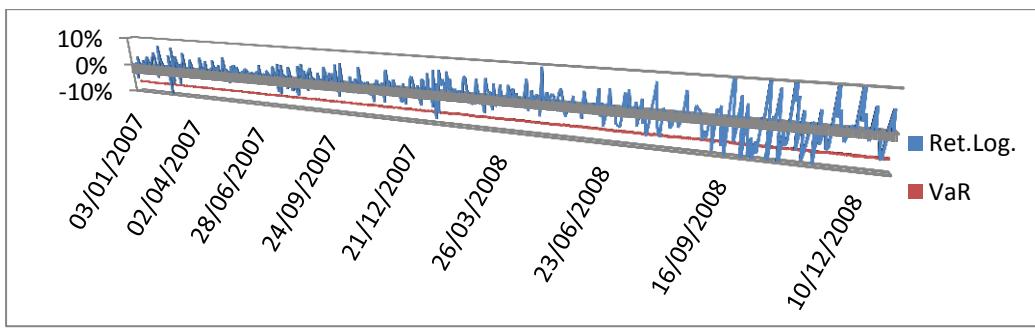


Figura 153: VaR - Carteira E.M.O.L=2,50%.T.V.E. - $p = 1\%$

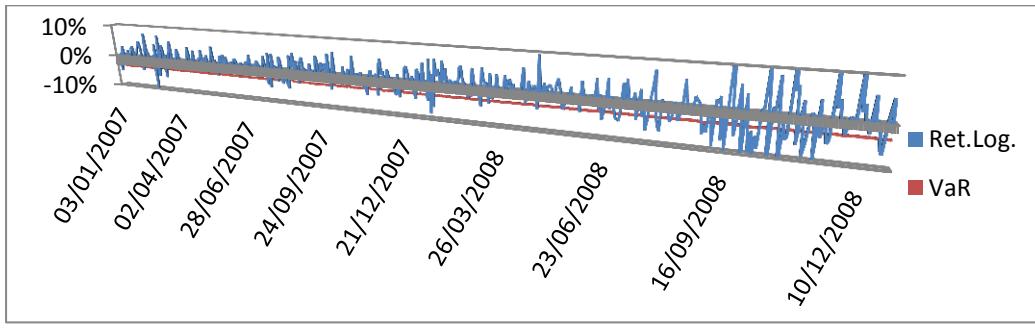


Figura 154: VaR - Carteira E.M.O.L=2,50%.S.M.C. - $p = 1\%$

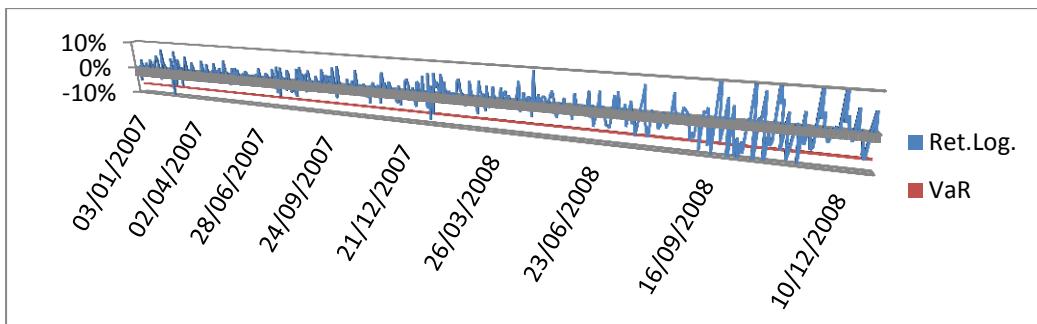


Figura 155: VaR - Carteira E.M.O.L=2,50%.T.V.E. - p = 2,50%

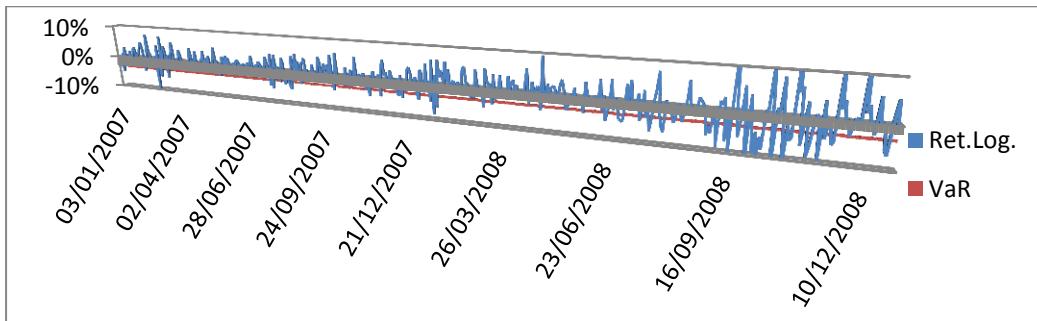


Figura 156: VaR - Carteira E.M.O.L=2,50%.S.M.C. - p = 2,50%

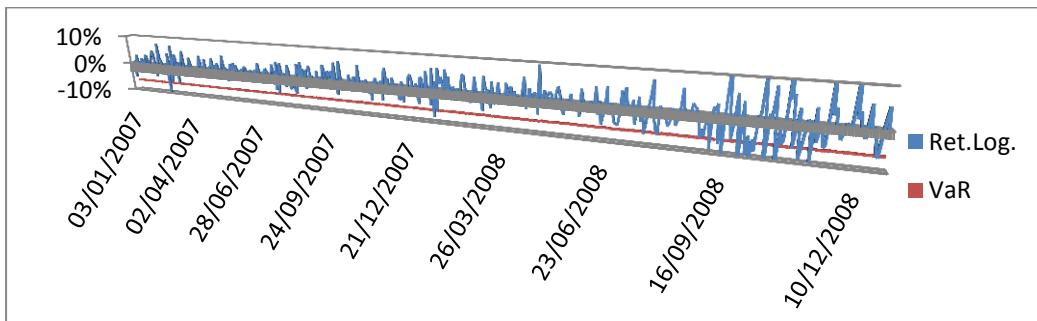


Figura 157: VaR - Carteira E.M.O.L=2,50%.T.V.E. - p = 5%

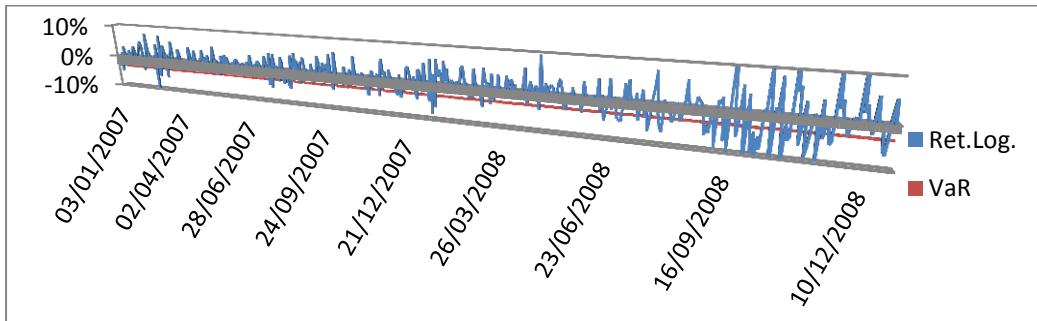


Figura 158: VaR - Carteira E.M.O.L=2,50%.S.M.C. - p = 5%

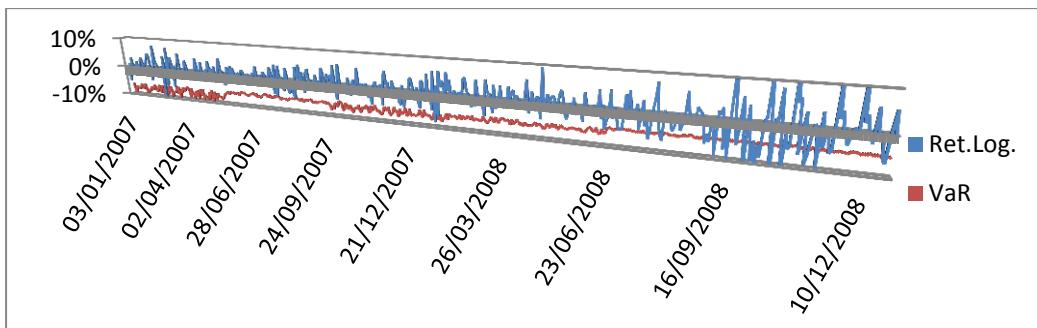


Figura 159: VaR - Carteira E.M.O.L=5%.T.V.E. - $p = 0,50\%$

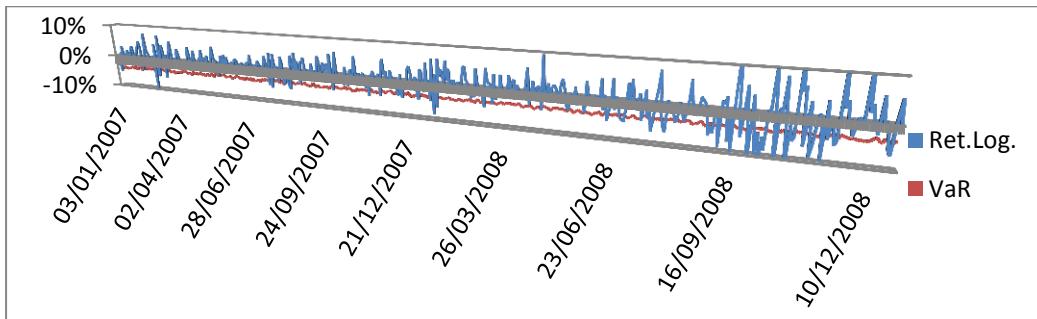


Figura 160: VaR - Carteira E.M.O.L=5%.S.M.C. - $p = 0,50\%$

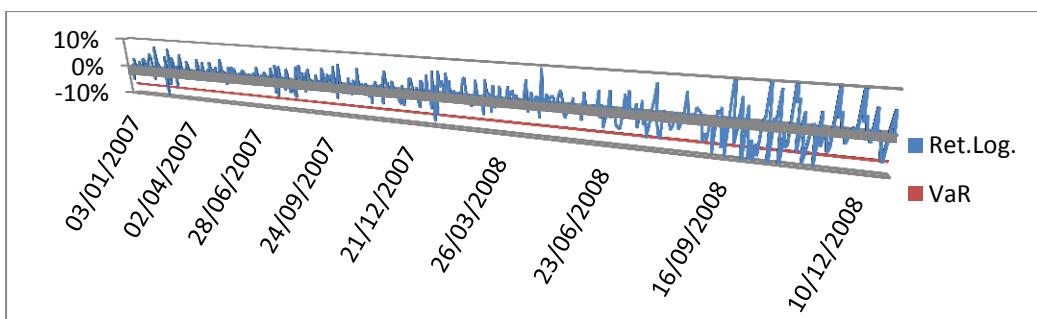


Figura 161: VaR - Carteira E.M.O.L=5%.T.V.E. - $p = 1\%$

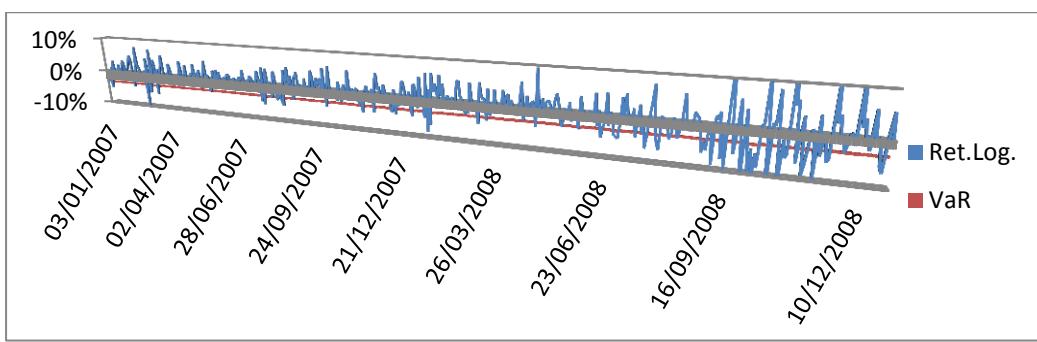


Figura 162: VaR - Carteira E.M.O.L=5%.S.M.C. - $p = 1\%$

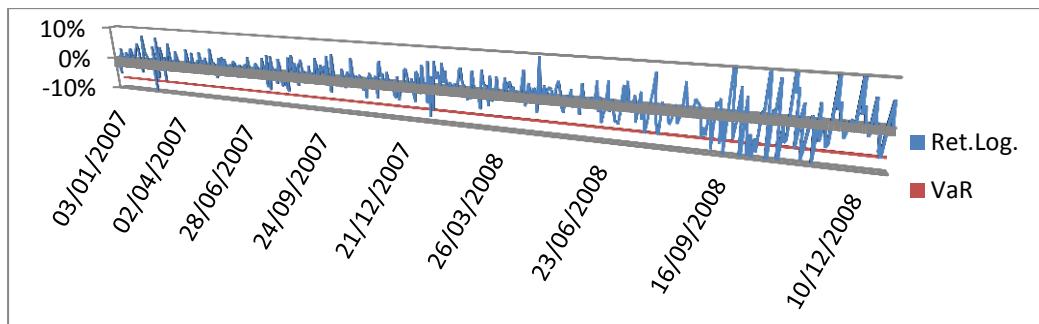


Figura 163: VaR - Carteira E.M.O.L=5%.T.V.E. - p = 2,50%

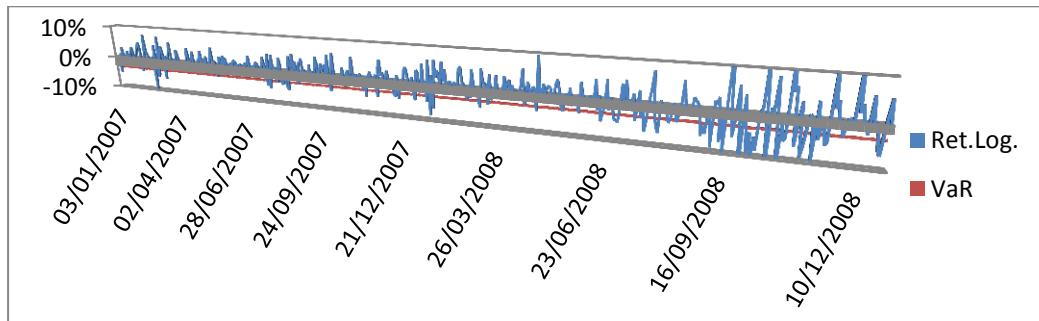


Figura 164: VaR - Carteira E.M.O.L=5%.S.M.C. - p = 2,50%

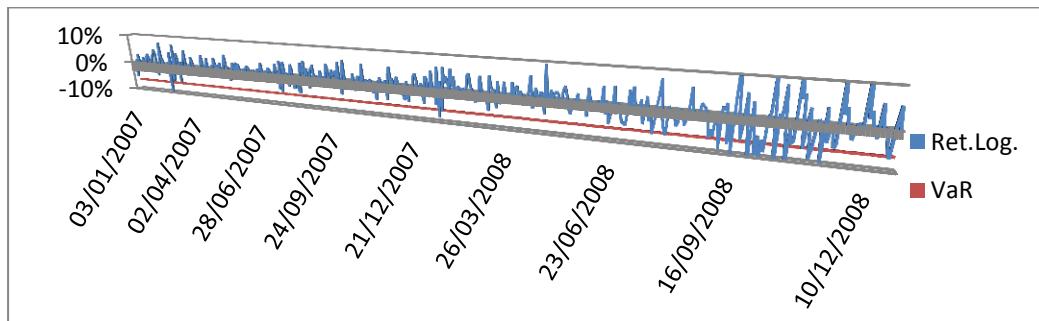


Figura 165: VaR - Carteira E.M.O.L=5%.T.V.E. - p = 5%

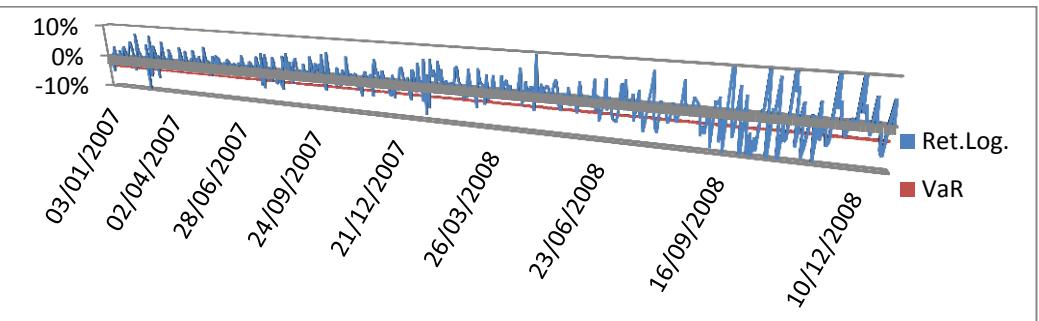


Figura 166: VaR - Carteira E.M.O.L=5%.S.M.C. - p = 5%

Apêndice B

Cálculo dos parâmetros do Hill – plot das carteiras de investimento calculadas por Medida Ômega e Modelo de Índice Único.

Obs: Os dados aqui mostrados se referem a uma probabilidade $p = 2,50\%$, mas não variam significativamente se usadas probabilidades de $p = 0,50\%$, $p = 1\%$ ou $p = 5\%$.

CARTEIRA A.M.I.U.

Para o período de 90 dias:

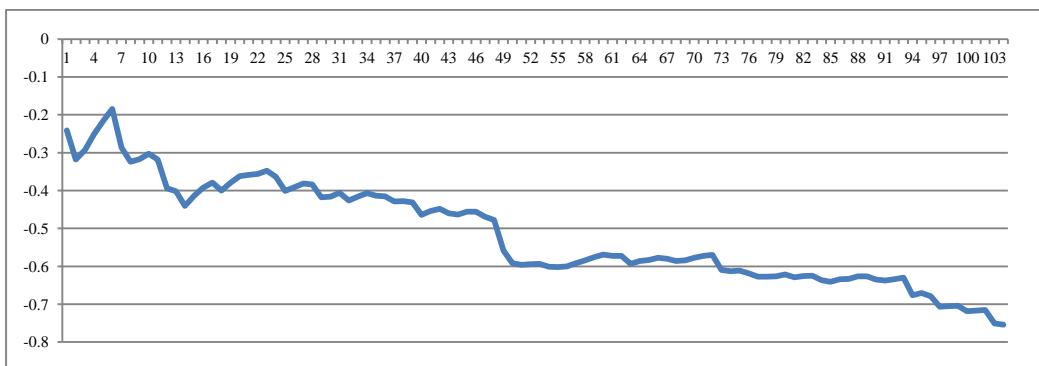


Figura 167: Hill – plot da Carteira A.M.I.U. ($K_h = -18,43\% ; q = 6$).

Para o período de 180 dias:

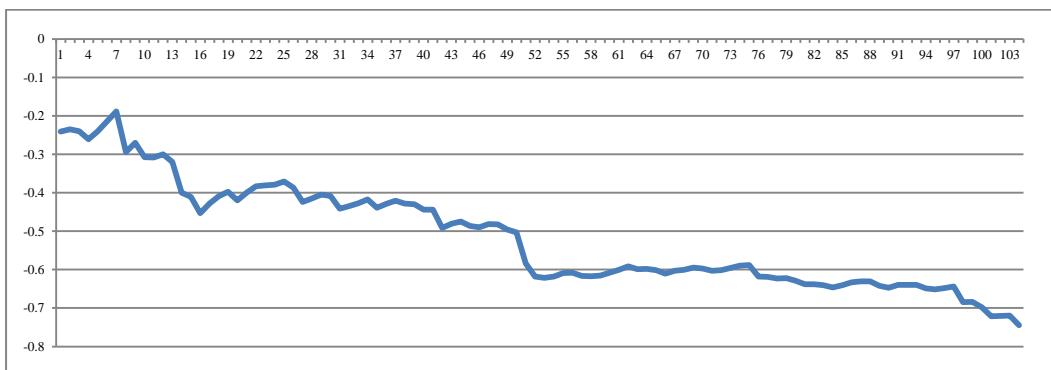


Figura 168: Hill – plot da Carteira A.M.I.U. ($K_h = -18,86\% ; q = 7$).

Para o período de 270 dias:

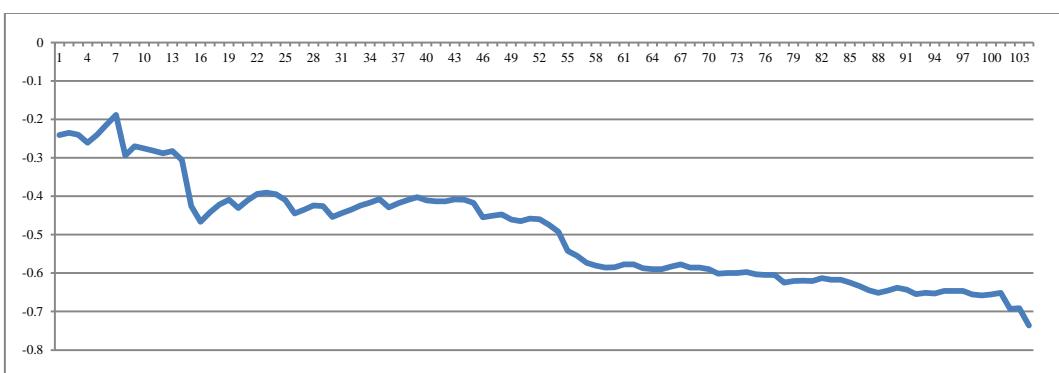


Figura 169: Hill – plot da Carteira A.M.I.U. ($K_h = -18,86\% ; q = 7$).

Para o período de 360 dias

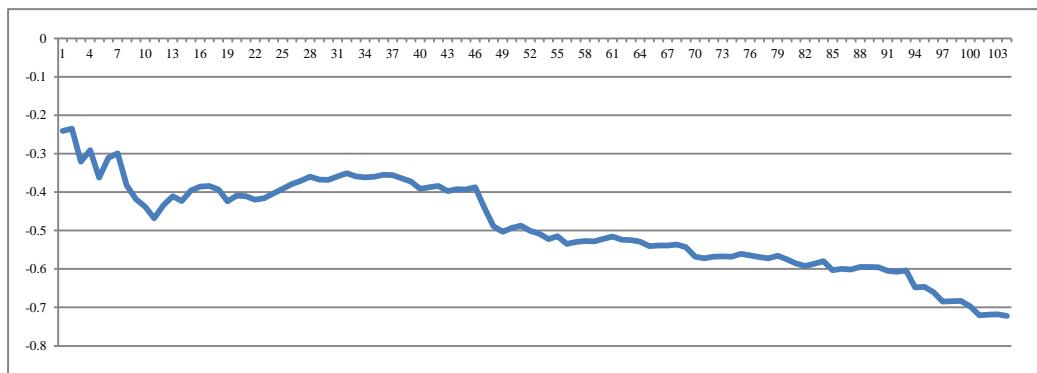


Figura 170: Hill – plot da Carteira A.M.I.U. ($K_h = -23,52\% ; q = 2$).

Para o período de 450 dias:

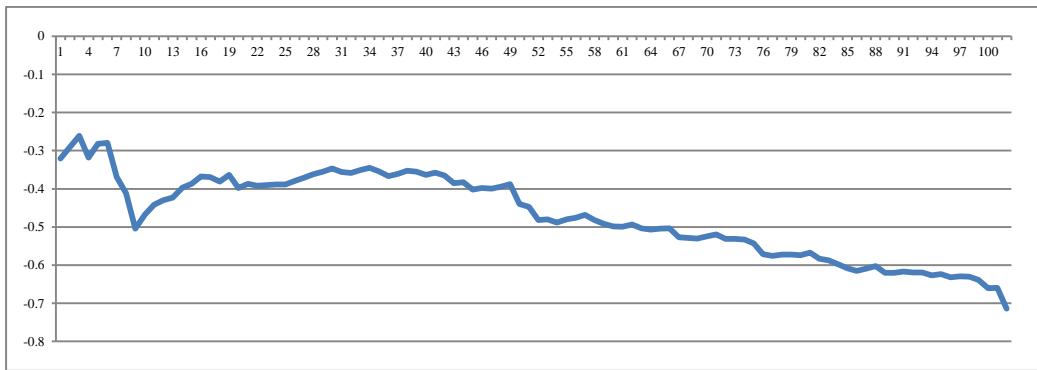


Figura 171: Hill – plot da Carteira A.M.I.U. ($K_h = -26,11\% ; q = 3$).

CARTEIRA A.M.O.L. = 0%

Período de 90 dias:

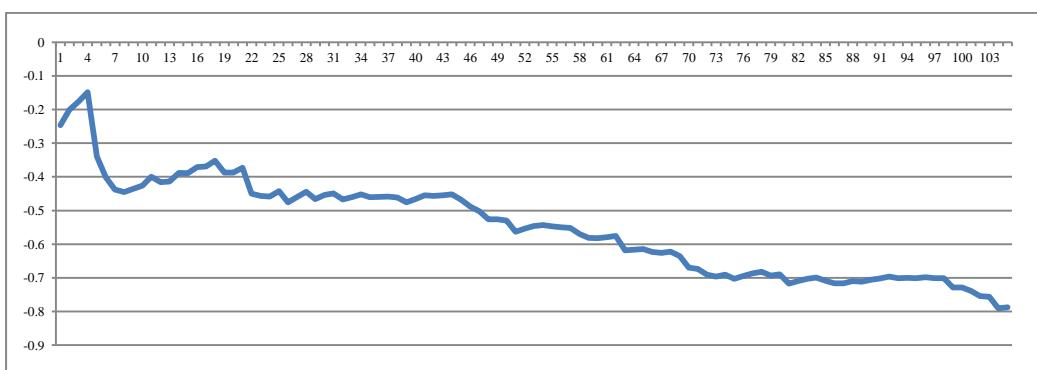


Figura 172: Hill – plot da Carteira A.M.O.L=0% ($K_h = -14,87\% ; q = 5$).

Para o período de 180 dias:

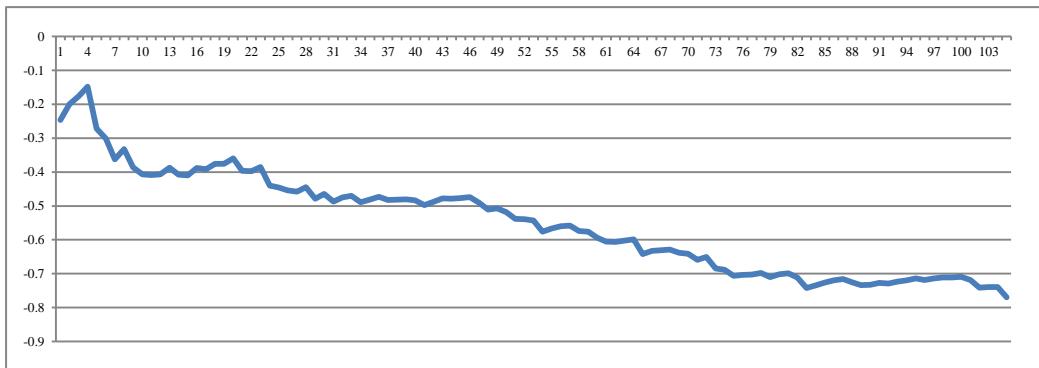


Figura 173: Hill – plot da Carteira A.M.O.L=0% ($K_h = -14,87\%$; $q = 5$).

Para o período de 270 dias:

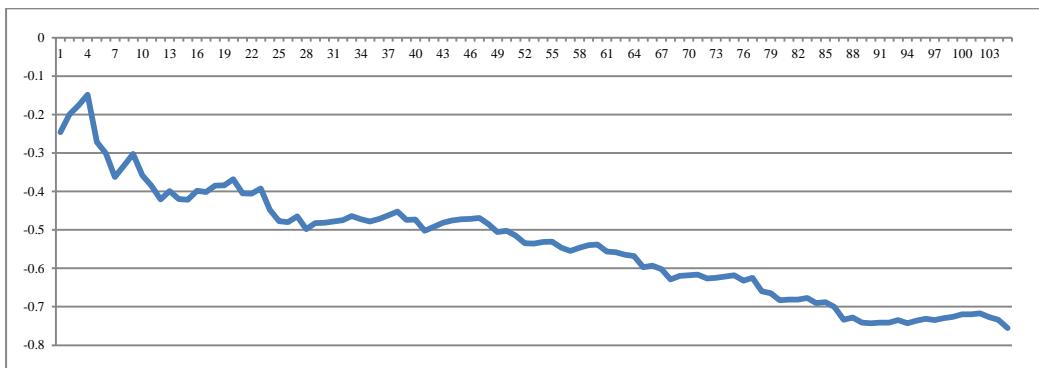


Figura 174: Hill – plot da Carteira A.M.O.L=0% ($K_h = -14,87\%$; $q = 4$).

Para o período de 360 dias:

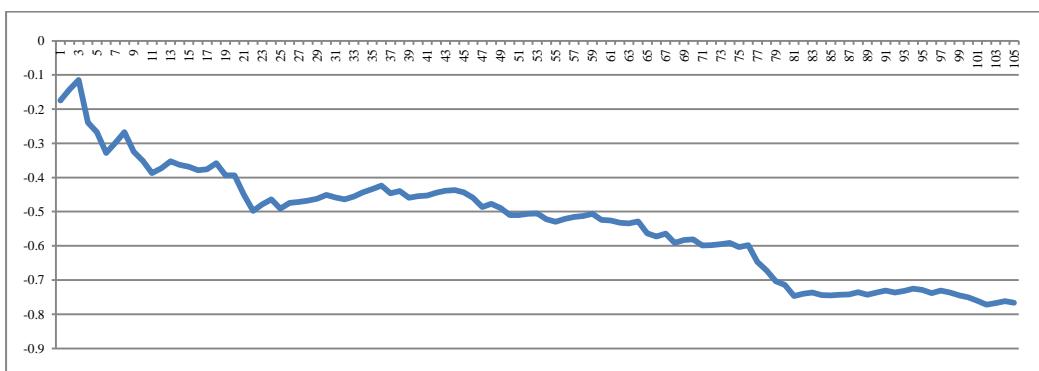


Figura 175: Hill – plot da Carteira A.M.O.L=0% ($K_h = -11,42\%$; $q = 2$).

Para o período de 450 dias:

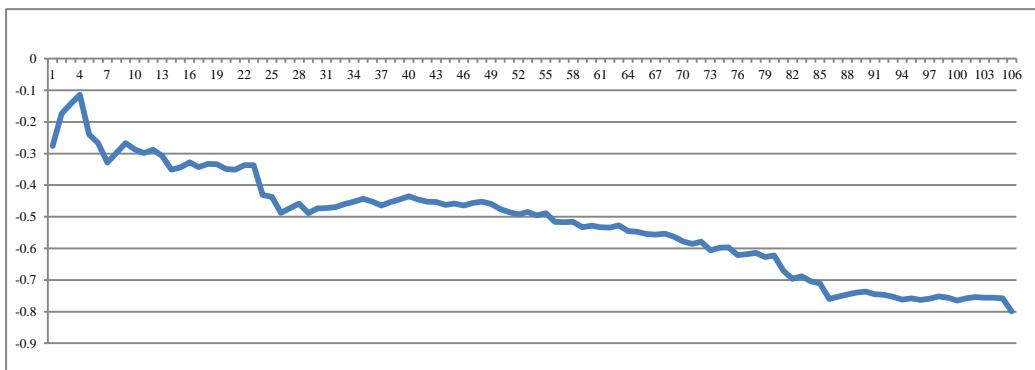


Figura 176: Hill – plot da Carteira A.M.O.L=0% ($K_h = -11,42\%$; $q = 4$).

CARTEIRA A.M.O.L. = 2,5%

Período de 90 dias:

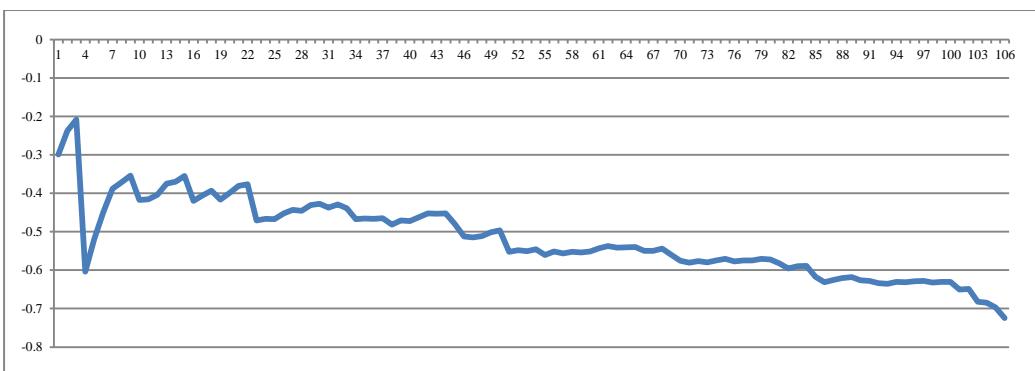


Figura 177: Hill – plot da Carteira A.M.O.L=2,5% ($K_h = -20,84\%$; $q = 3$).

Para o período de 180 dias:

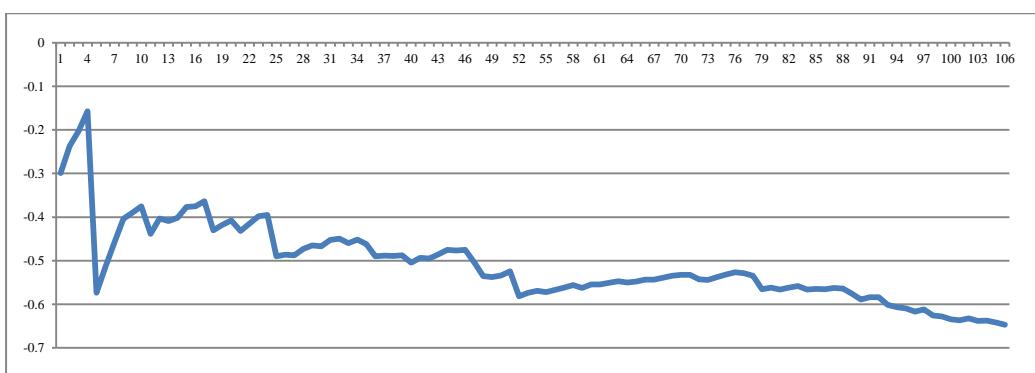


Figura 178: Hill – plot da Carteira A.M.O.L=2,5% ($K_h = -15,76\%$; $q = 4$).

Para o período de 270 dias:

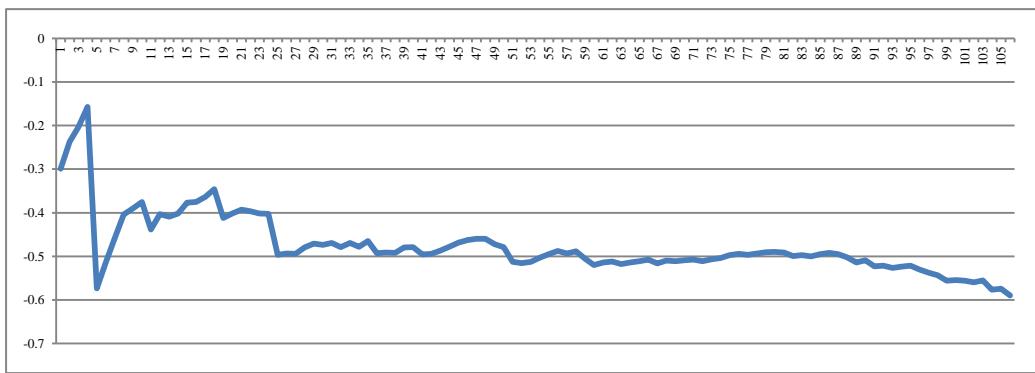


Figura 179: Hill – plot da Carteira A.M.O.L=2,5% ($K_h = -15,76\%$; $q = 4$).

Para o período de 360 dias:

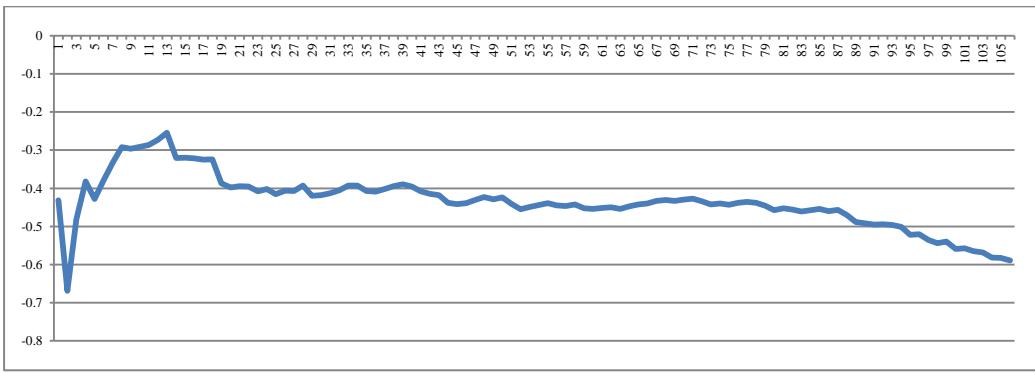


Figura 180: Hill – plot da Carteira A.M.O.L=2,5% ($K_h = -25,42\%$; $q = 13$).

Para o período de 450 dias:

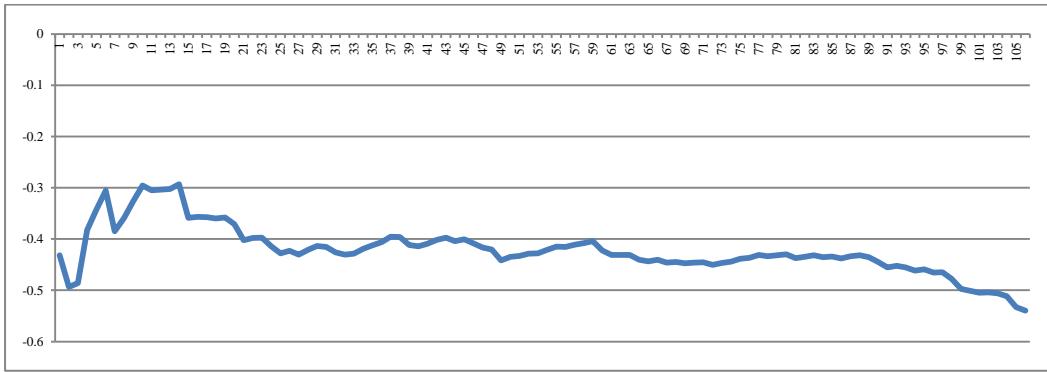


Figura 181: Hill – plot da Carteira A.M.O.L=2,5% ($K_h = -29,34\%$; $q = 14$).

CARTEIRA A.M.O.L. = 5%

Período de 90 dias:

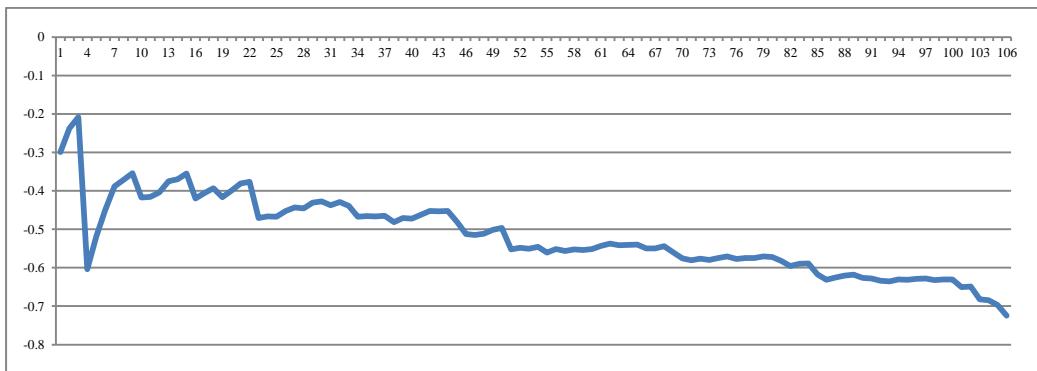


Figura 182: Hill – plot da Carteira A.M.O.L=5% ($K_h = -20,84\%$; $q = 3$).

Para o período de 180 dias:

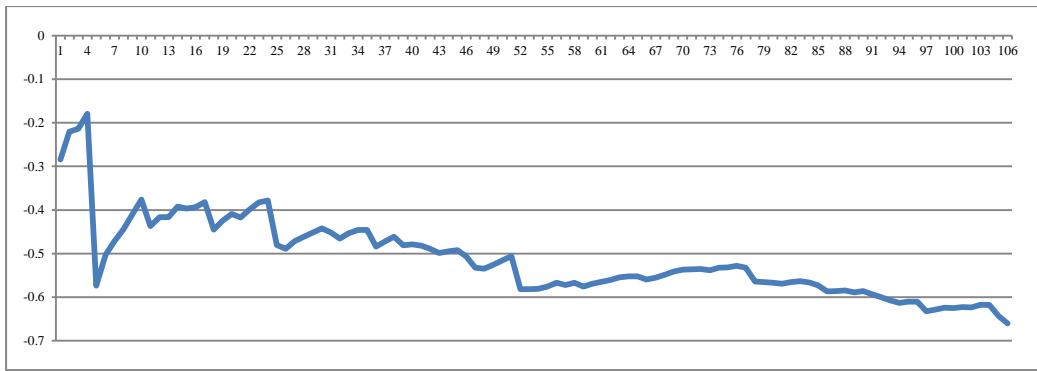


Figura 183: Hill – plot da Carteira A.M.O.L=5% ($K_h = -17,92\%$; $q = 4$).

Para o período de 270 dias:

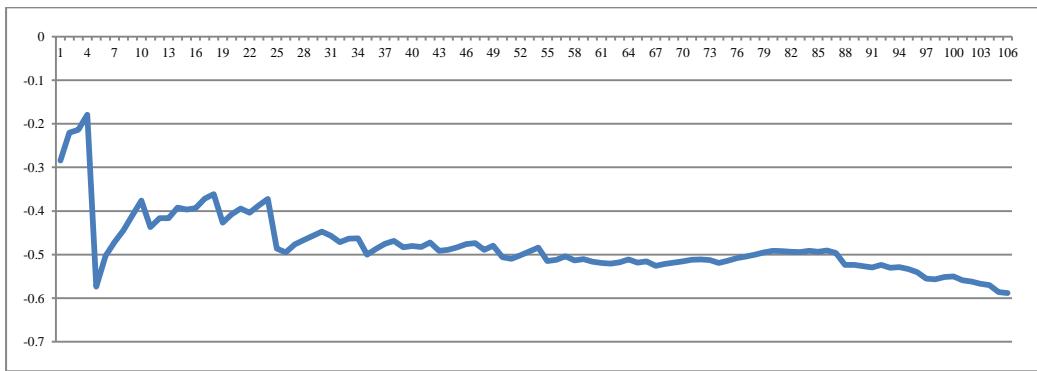


Figura 184: Hill – plot da Carteira A.M.O.L=5% ($K_h = -17,92\%$; $q = 4$).

Para o período de 360 dias:

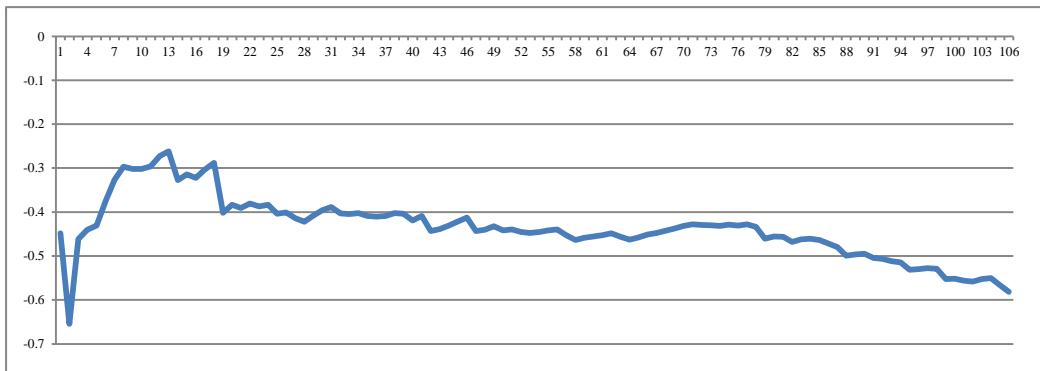


Figura 185: Hill – plot da Carteira A.M.O.L=5% ($K_h = -26,20\%$; $q = 13$).

Para o período de 450 dias:

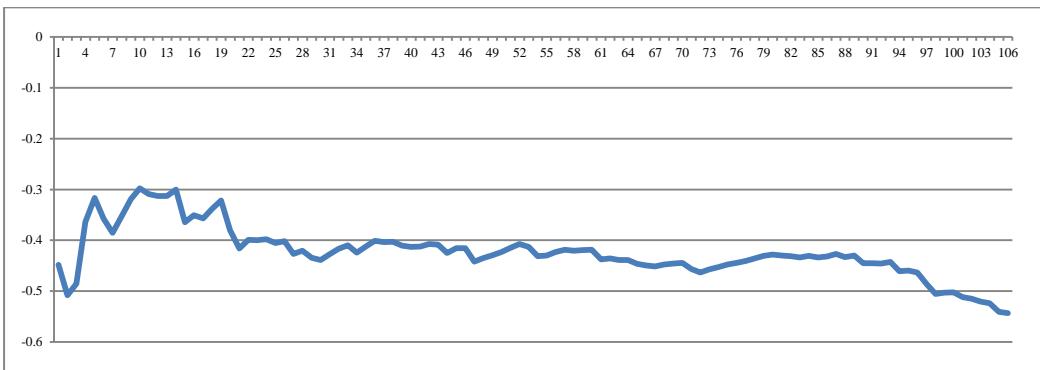


Figura 186: Hill – plot da Carteira A.M.O.L=5% ($K_h = -29,79\%$; $q = 10$).

CARTEIRA B.M.I.U.

Para o período de 90 dias:

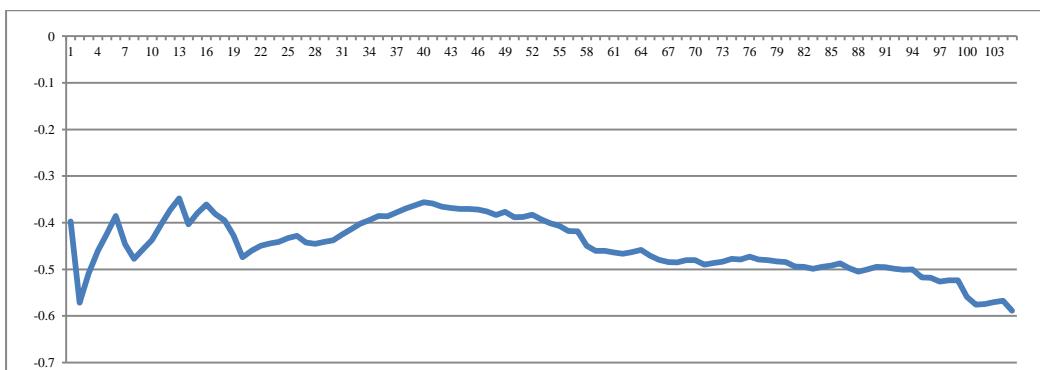


Figura 187: Hill – plot da Carteira B.M.I.U. ($K_h = -34,77\%$; $q = 12$).

Para o período de 180 dias:

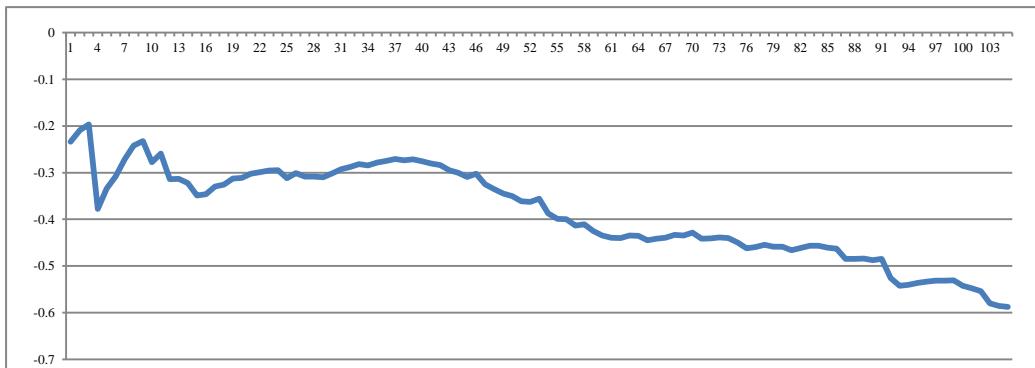


Figura 188: Hill – plot da Carteira A.M.O.L=0% ($K_h = -34,77\%$; $q = 13$).

Para o período de 270 dias:

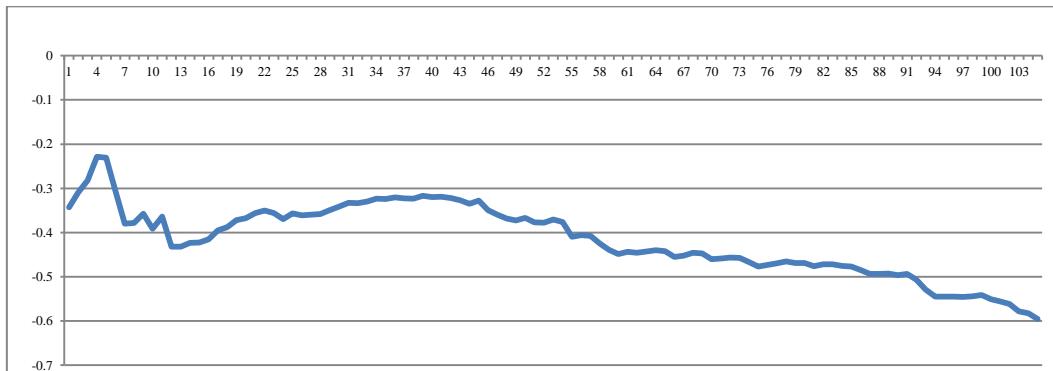


Figura 189: Hill – plot da Carteira B.M.I.U. ($K_h = -22,87\%$; $q = 4$).

Para o período de 360 dias

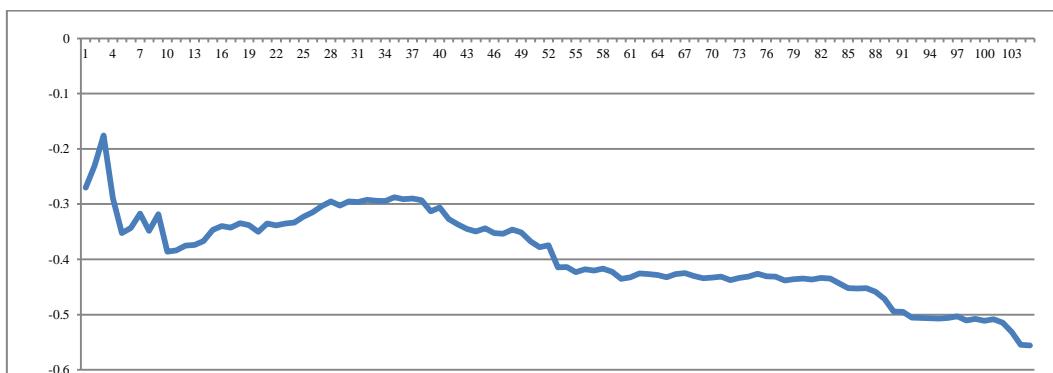


Figura 190: Hill – plot da Carteira B.M.I.U. ($K_h = -22,87\%$; $q = 4$).

Para o período de 450 dias:

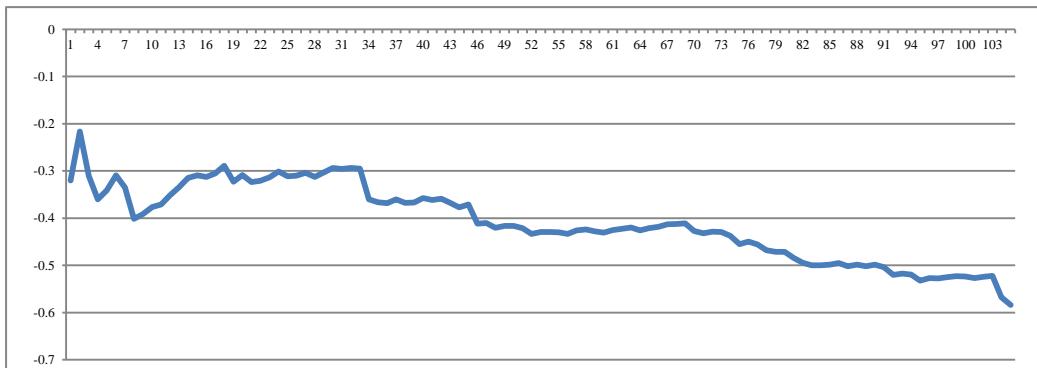


Figura 191: Hill – plot da Carteira B.M.I.U. ($K_h = -21,65\% ; q = 3$).

CARTEIRA B.M.O.L. = 0%

Período de 90 dias:

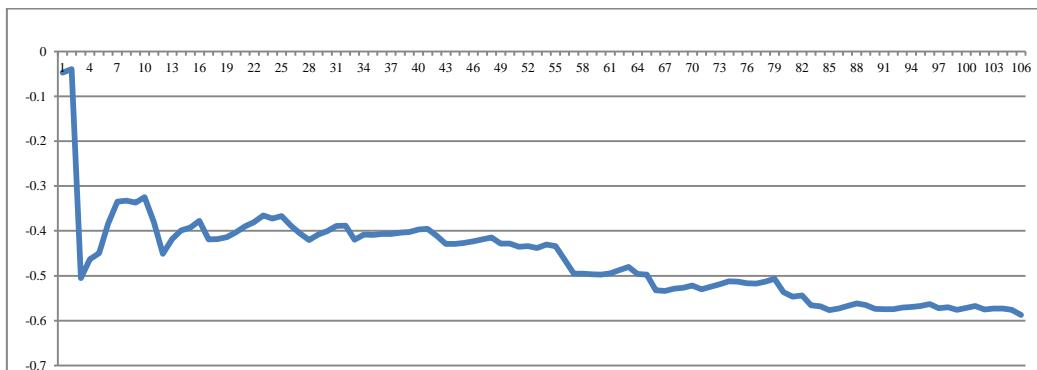


Figura 192: Hill – plot da Carteira B.M.O.L.=0% ($K_h = -3,87\% ; q = 2$).

Para o período de 180 dias:

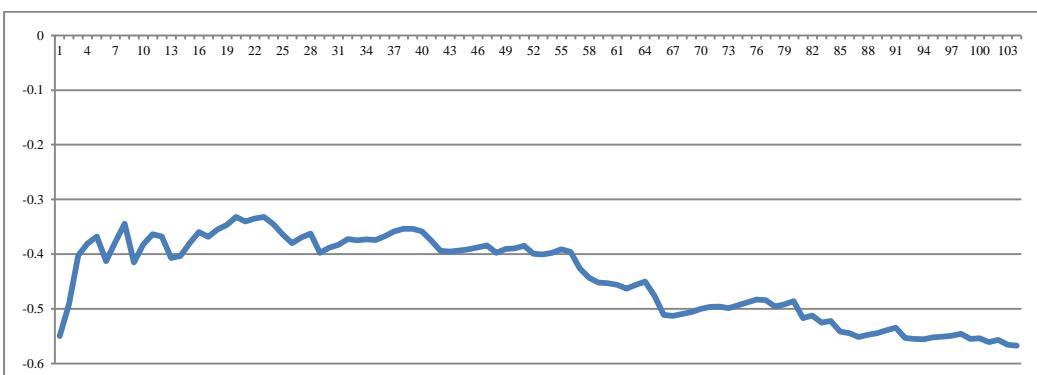


Figura 193: Hill – plot da Carteira B.M.O.L.=0% ($K_h = -33,20\% ; q = 23$).

Para o período de 270 dias:

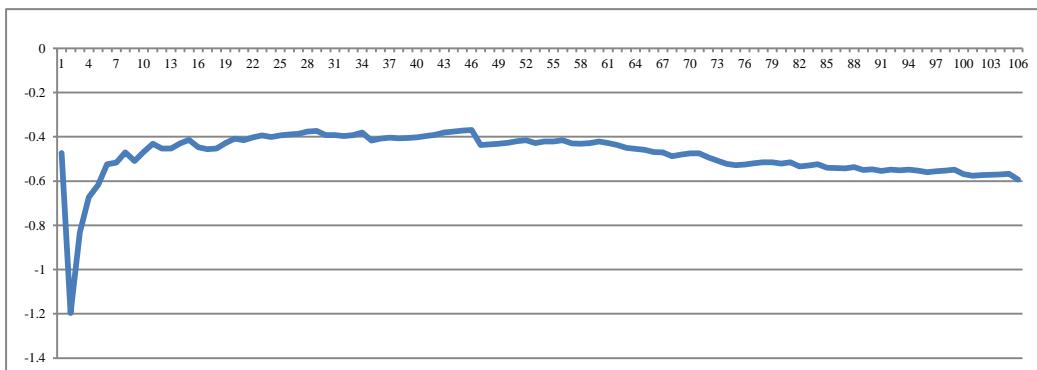


Figura 194: Hill – plot da Carteira B.M.O.L.=0% ($K_h = -37,28\%$; $q = 45$).

Para o período de 360 dias:

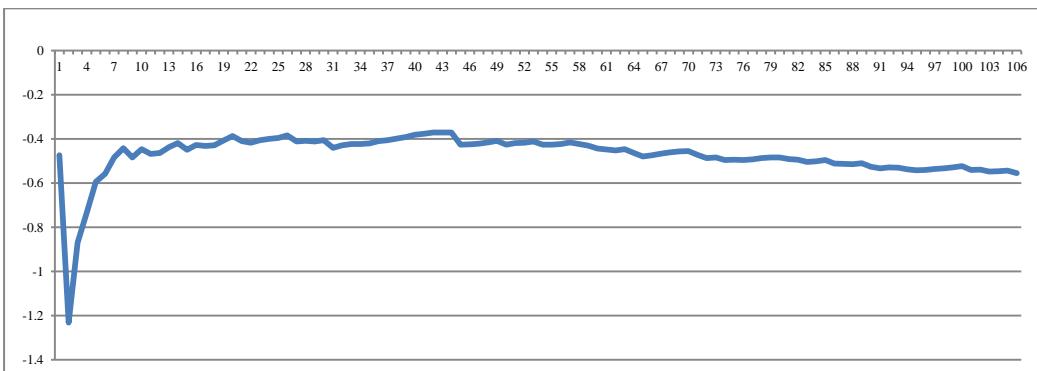


Figura 195: Hill – plot da Carteira B.M.O.L.=0% ($K_h = -37,09\%$; $q = 44$).

Para o período de 450 dias:

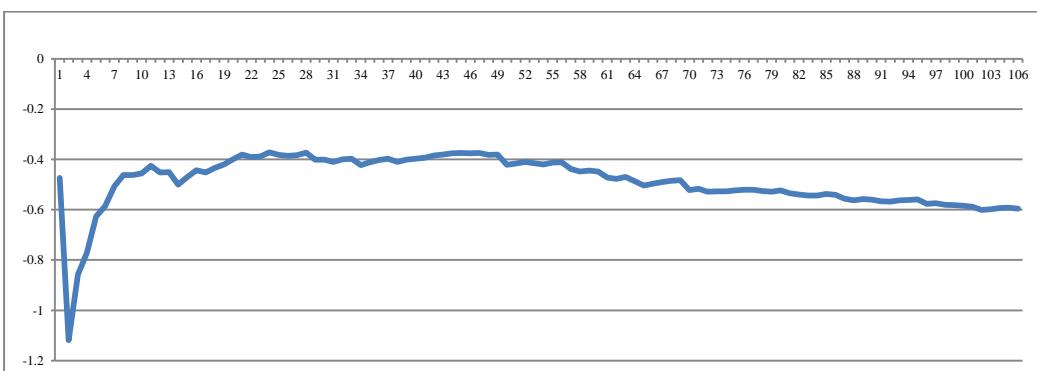


Figura 196: Hill – plot da Carteira B.M.O.L.=0% ($K_h = -37,47\%$; $q = 47$).

CARTEIRA B.M.O.L. = 2,5%

Período de 90 dias:

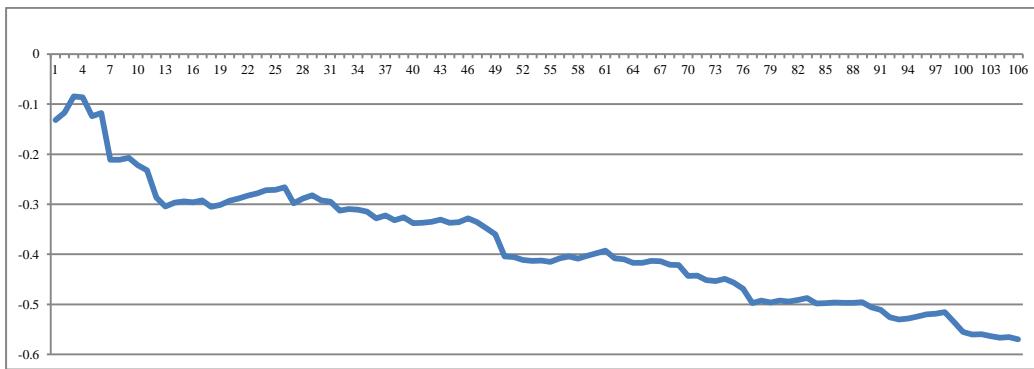


Figura 197: Hill – plot da Carteira B.M.O.L.=2,5% ($K_h = -8,44\% ; q = 3$).

Para o período de 180 dias:

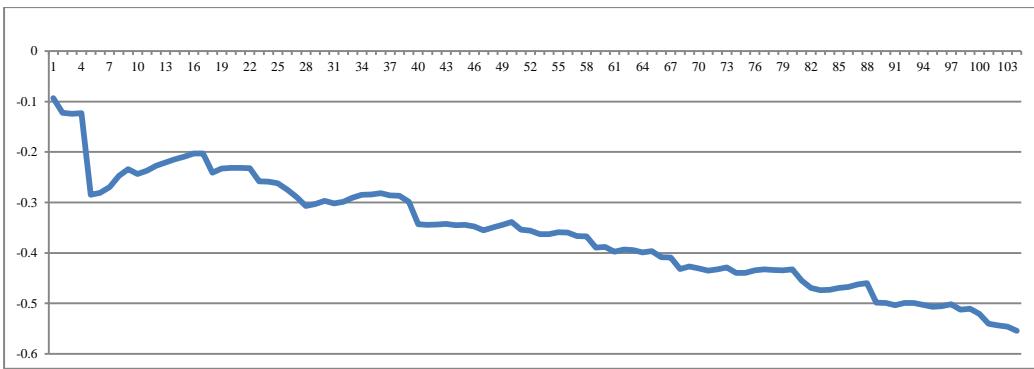


Figura 198: Hill – plot da Carteira B.M.O.L.=2,5% ($K_h = -9,33\% ; q = 1$).

Para o período de 270 dias:

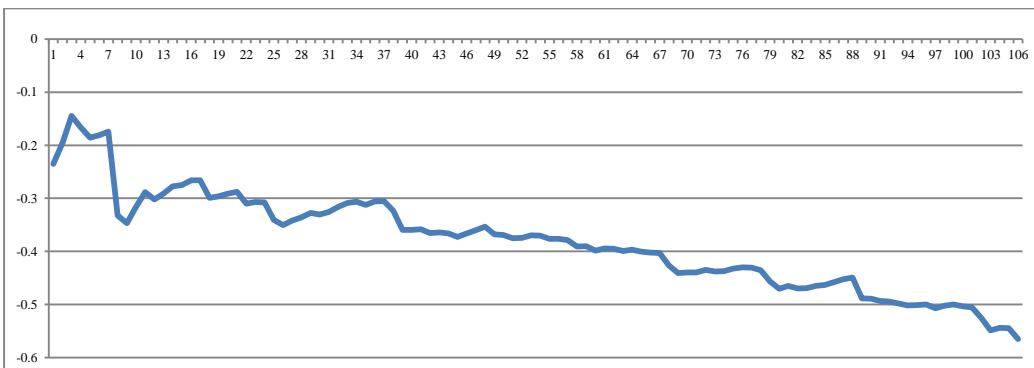


Figura 199: Hill – plot da Carteira B.M.O.L.=2,5% ($K_h = -14,49\% ; q = 3$).

Para o período de 360 dias:

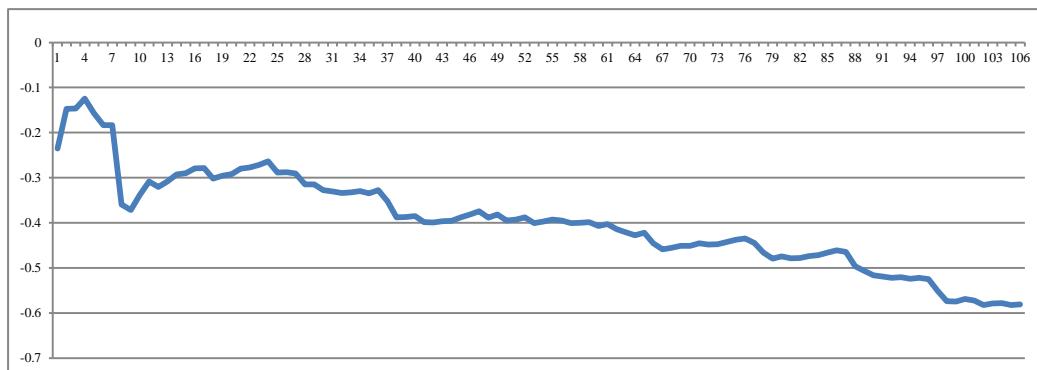


Figura 200: Hill – plot da Carteira B.M.O.L.=2,5% ($K_h = -12,44\%$; $q = 4$).

Para o período de 450 dias:

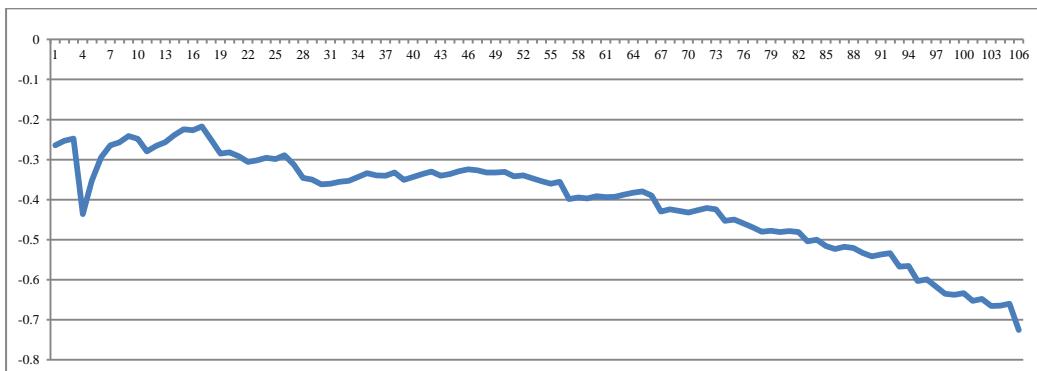


Figura 201: Hill – plot da Carteira B.M.O.L.=2,5% ($K_h = -21,72\%$; $q = 17$).

CARTEIRA B.M.O.L. = 5%

Período de 90 dias:

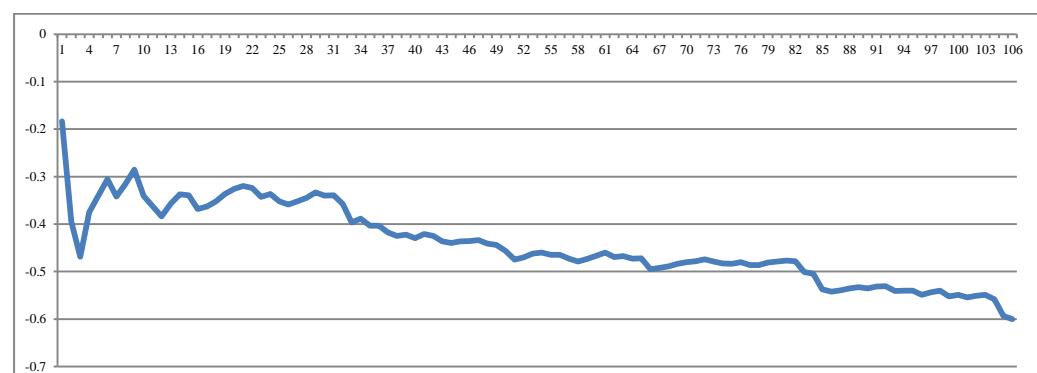


Figura 202: Hill – plot da Carteira B.M.O.L.=5% ($K_h = -18,33\%$; $q = 1$).

Para o período de 180 dias:

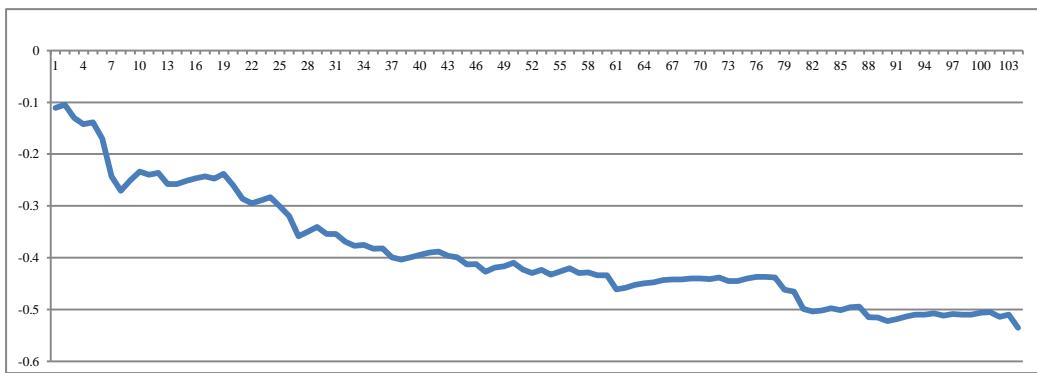


Figura 203: Hill – plot da Carteira B.M.O.L.=5% ($K_h = -10,46\%$; $q = 2$).

Para o período de 270 dias:

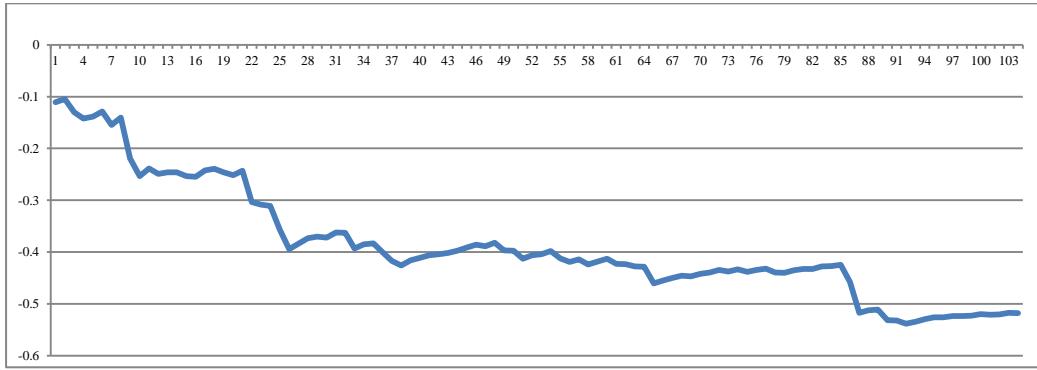


Figura 204: Hill – plot da Carteira B.M.O.L.=5% ($K_h = -10,46\%$; $q = 2$).

Para o período de 360 dias:

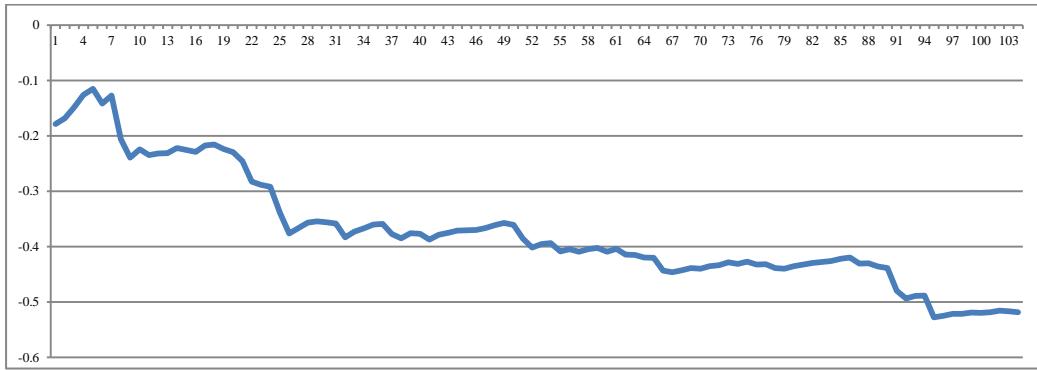


Figura 205: Hill – plot da Carteira B.M.O.L.=5% ($K_h = -16,82\%$; $q = 2$).

Para o período de 450 dias:

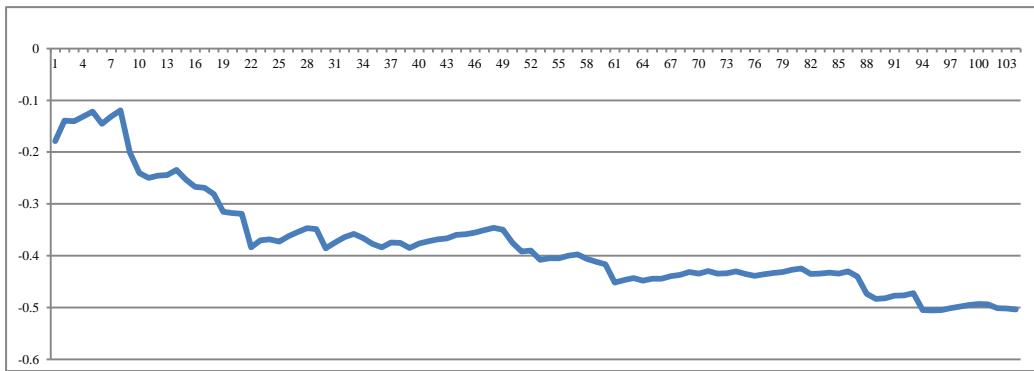


Figura 206: Hill – plot da Carteira B.M.O.L.=5% ($K_h = -12,19\%$; $q = 5$).

CARTEIRA C.M.I.U.

Para o período de 90 dias:

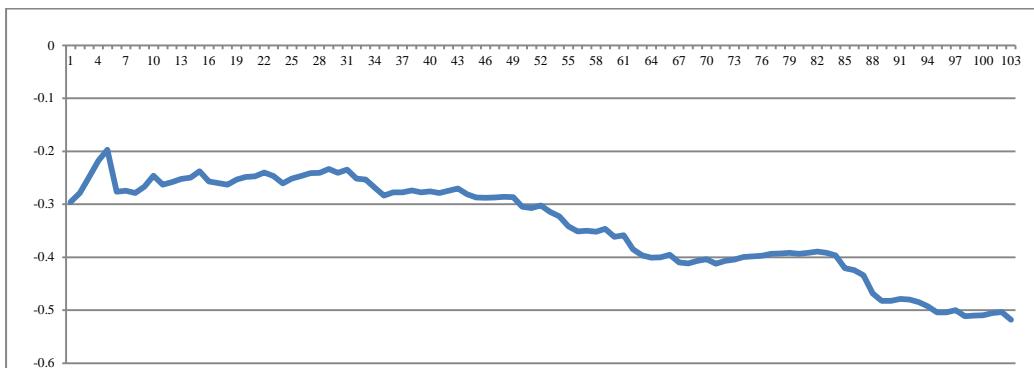


Figura 207: Hill – plot da Carteira C.M.I.U. ($K_h = -19,73\%$; $q = 5$).

Para o período de 180 dias:

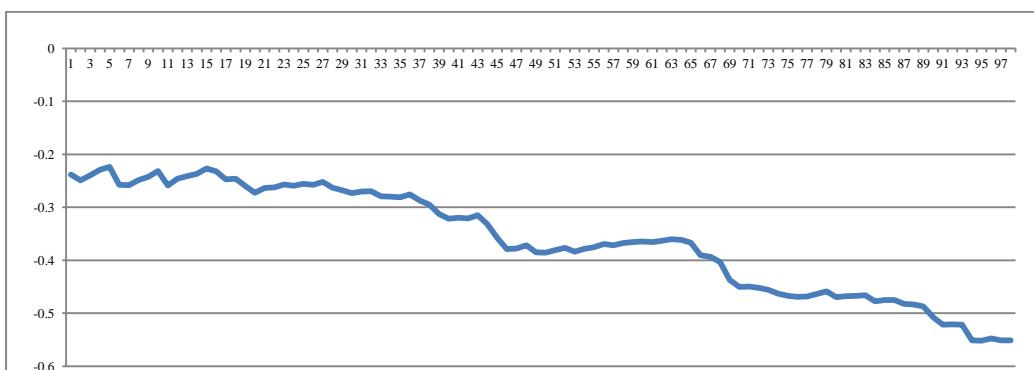


Figura 208: Hill – plot da Carteira C.M.O.L.=0% ($K_h = -22,38\%$; $q = 5$).

Para o período de 270 dias:

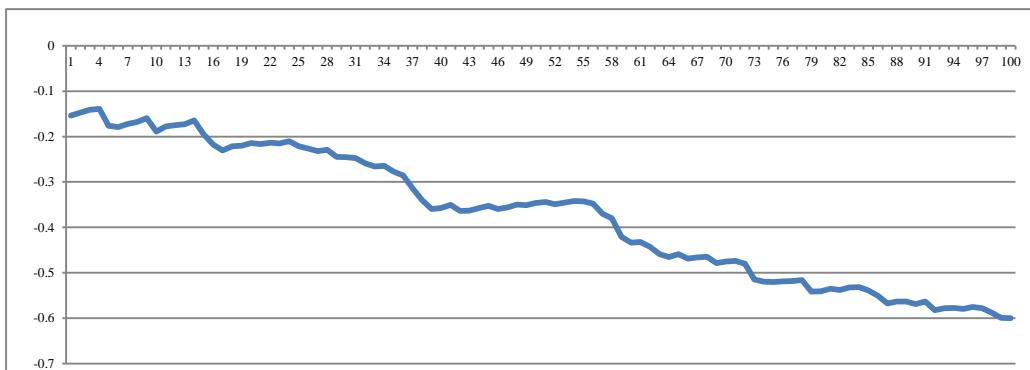


Figura 209: Hill – plot da Carteira C.M.O.L.=0% ($K_h = -13,91\%$; $q = 4$).

Para o período de 360 dias

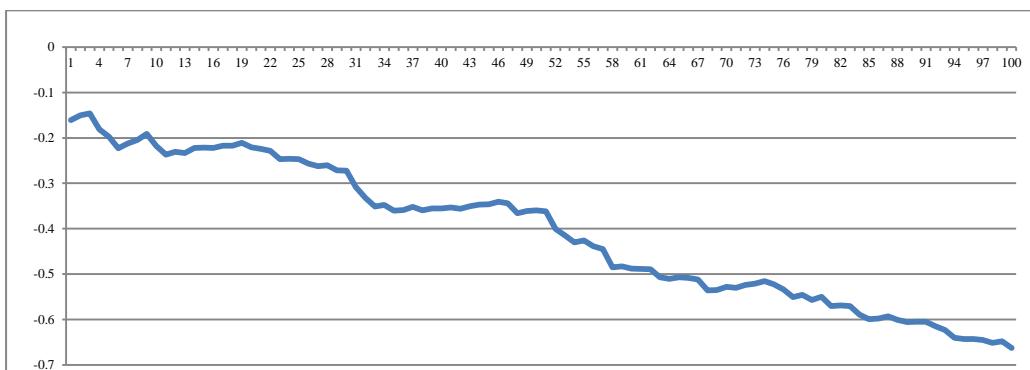


Figura 210: Hill – plot da Carteira C.M.O.L.=0% ($K_h = -14,59\%$; $q = 3$).

Para o período de 450 dias:

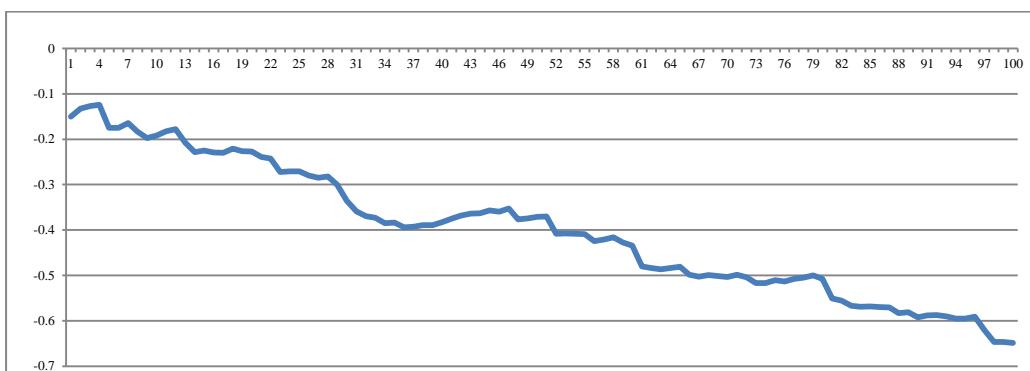


Figura 211: Hill – plot da Carteira C.M.O.L.=0% ($K_h = -12,40\%$; $q = 4$).

CARTEIRA C.M.O.L. = 0%

Período de 90 dias:

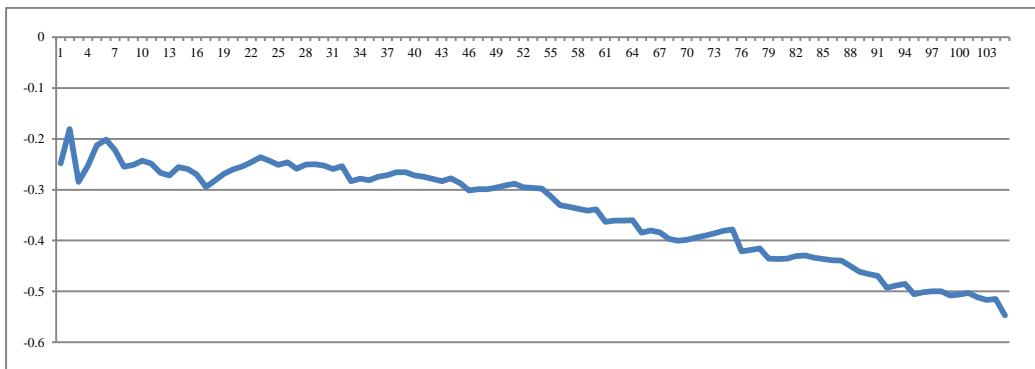


Figura 212: Hill – plot da Carteira C.M.O.L.=1% ($K_h = -18,06\%$; $q = 2$).

Para o período de 180 dias:

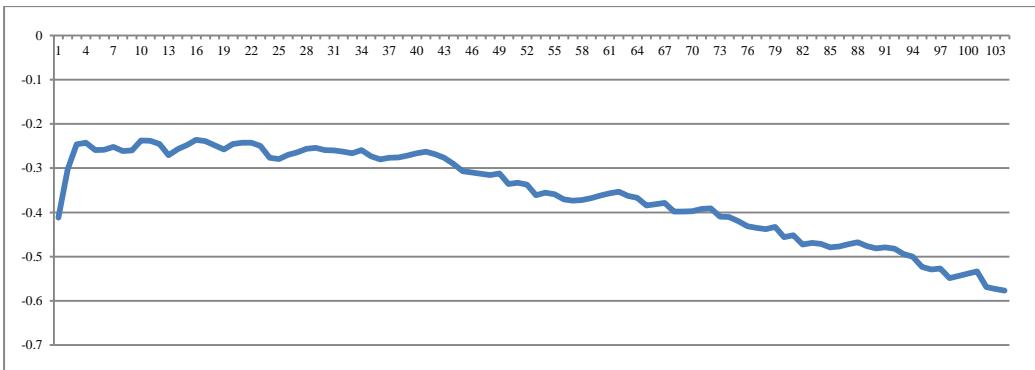


Figura 213: Hill – plot da Carteira C.M.O.L.=1% ($K_h = -23,61\%$; $q = 16$).

Para o período de 270 dias:

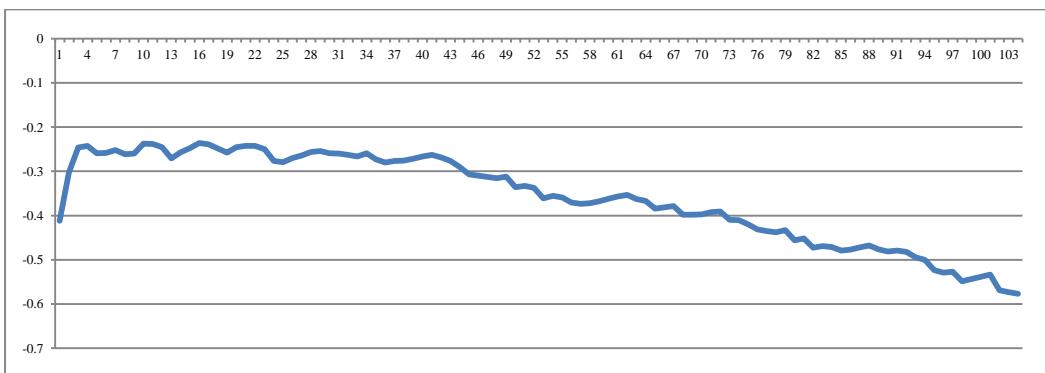


Figura 214: Hill – plot da Carteira C.M.O.L.=1% ($K_h = -26,29\%$; $q = 16$).

Para o período de 360 dias:

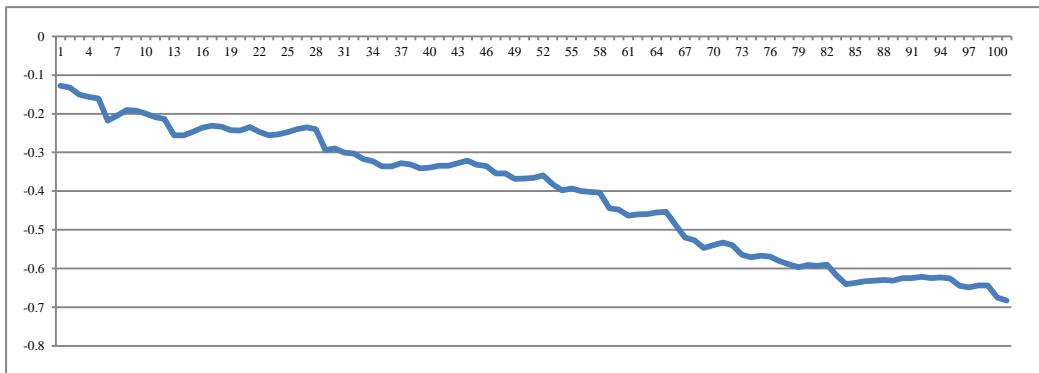


Figura 215: Hill – plot da Carteira C.M.O.L.=1% ($K_h = -12,78\%$; $q = 1$).

Para o período de 450 dias:

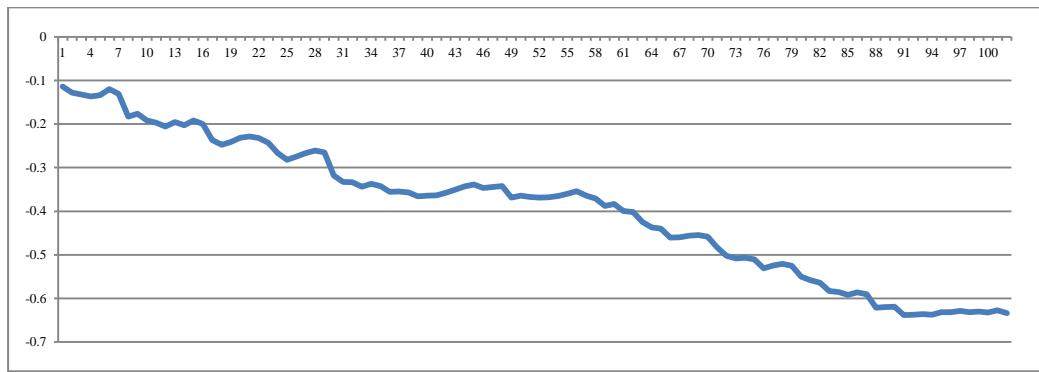


Figura 216: Hill – plot da Carteira C.M.O.L.=1% ($K_h = -11,43\%$; $q = 1$).

CARTEIRA C.M.O.L. = 2,5%

Período de 90 dias:

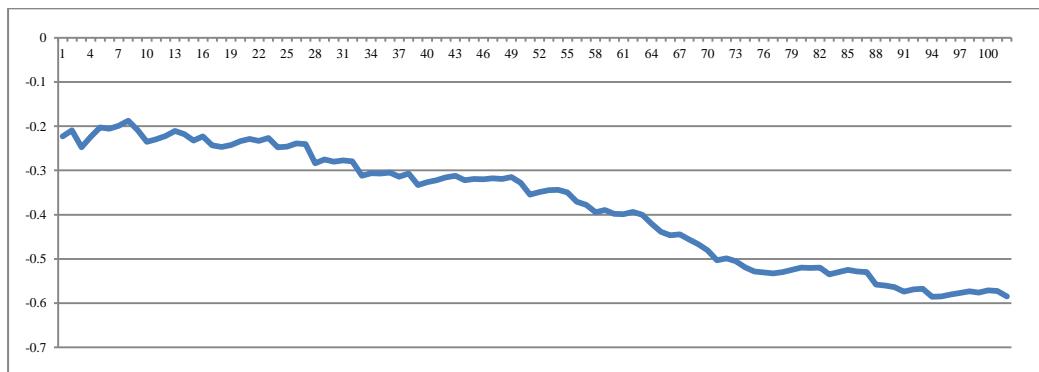


Figura 217: Hill – plot da Carteira C.M.O.L.=2,5% ($K_h = 22,35\%$; $q = 4$).

Para o período de 180 dias:

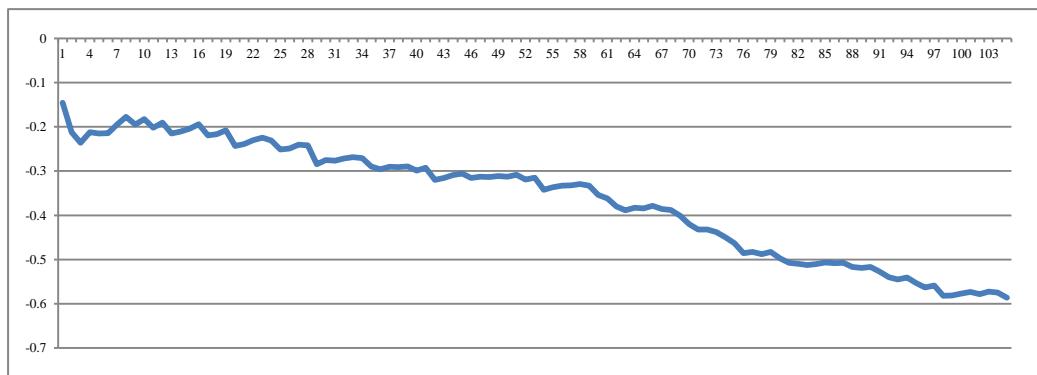


Figura 218: Hill – plot da Carteira C.M.O.L.=2,5% ($Kh = 14,54\% ; q = 1$).

Para o período de 270 dias:

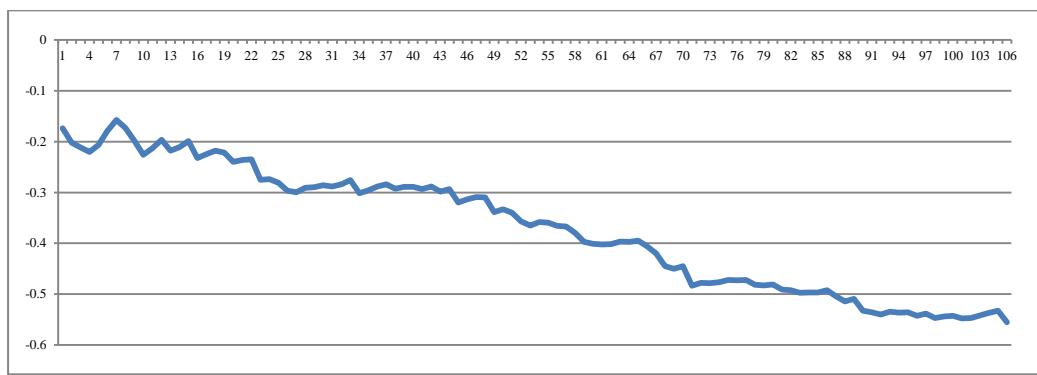


Figura 219: Hill – plot da Carteira C.M.O.L.=2,5% ($Kh = 15,75\% ; q = 7$).

Para o período de 360 dias:

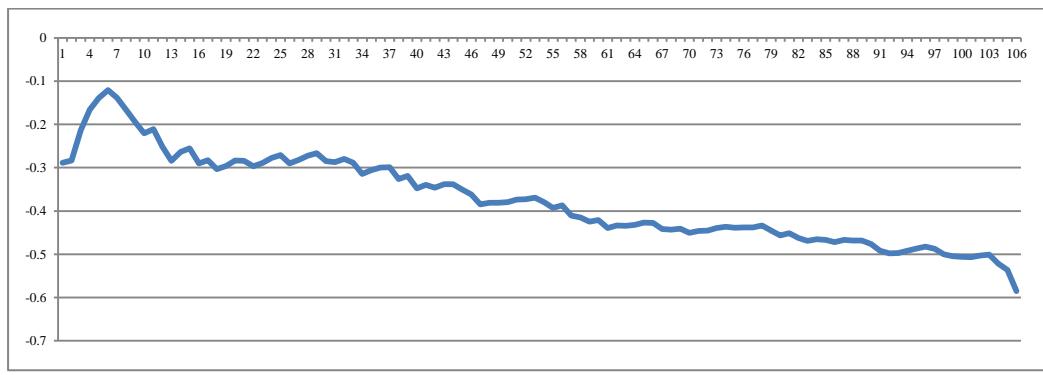


Figura 220: Hill – plot da Carteira C.M.O.L.=2,5% ($Kh = -12,05\% ; q = 6$).

Para o período de 450 dias:

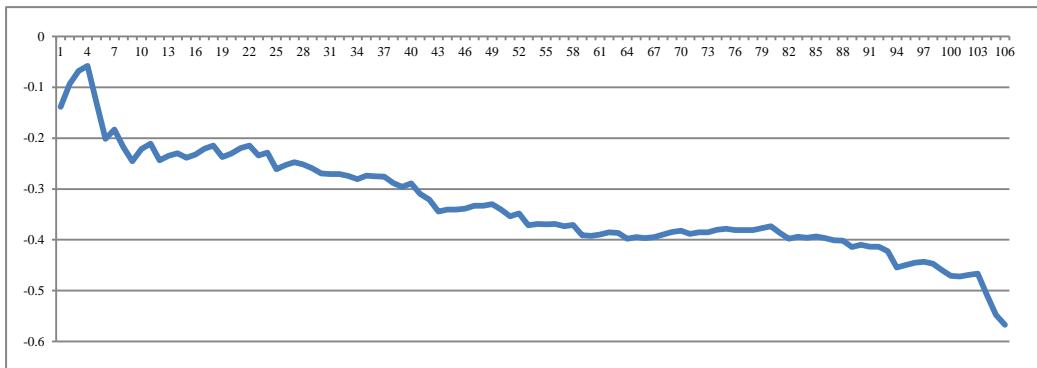


Figura 221: Hill – plot da Carteira C.M.O.L.=2,5% ($K_h = -6,82\%$; $q = 3$).

CARTEIRA C.M.O.L.=5%

Período de 90 dias:

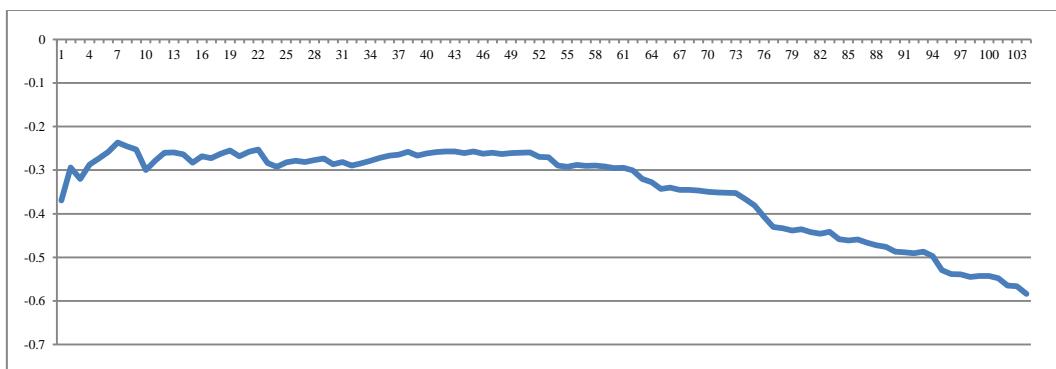


Figura 222: Hill – plot da Carteira C.M.O.L.=5% ($K_h = -23,65\%$; $q = 7$).

Para o período de 180 dias:

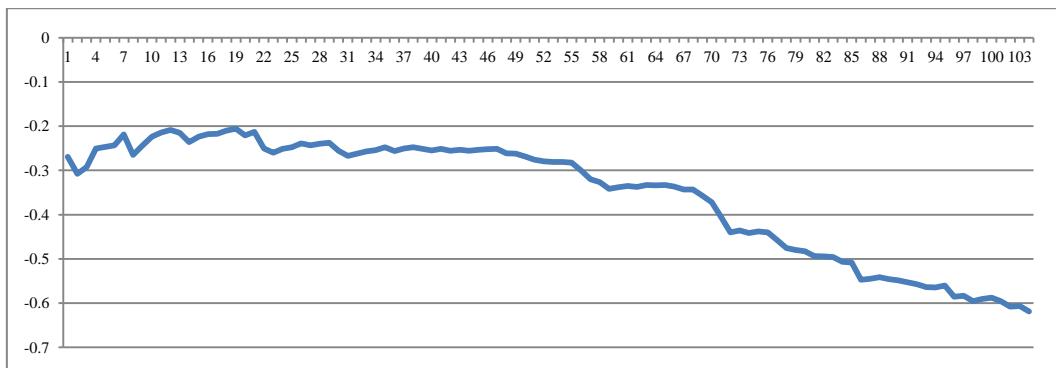


Figura 223: Hill – plot da Carteira C.M.O.L.=5% ($K_h = -20,57\%$; $q = 21$).

Para o período de 270 dias:

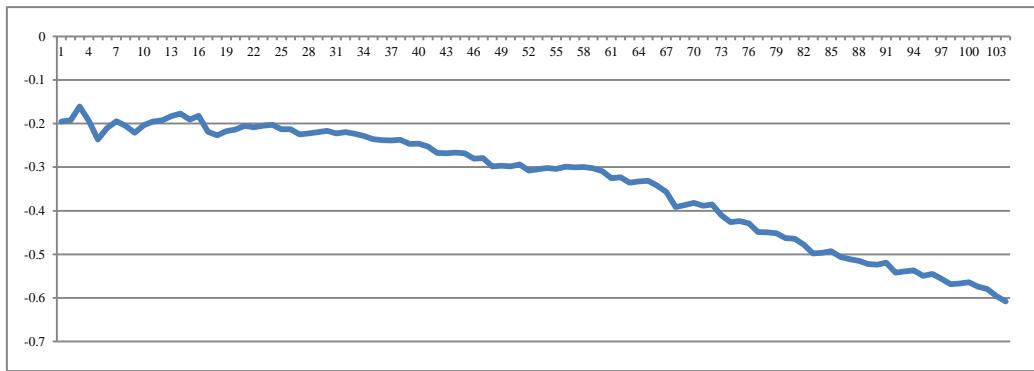


Figura 224: Hill – plot da Carteira C.M.O.L.=5% ($K_h = -13,50\%$; $q = 2$).

Para o período de 360 dias:

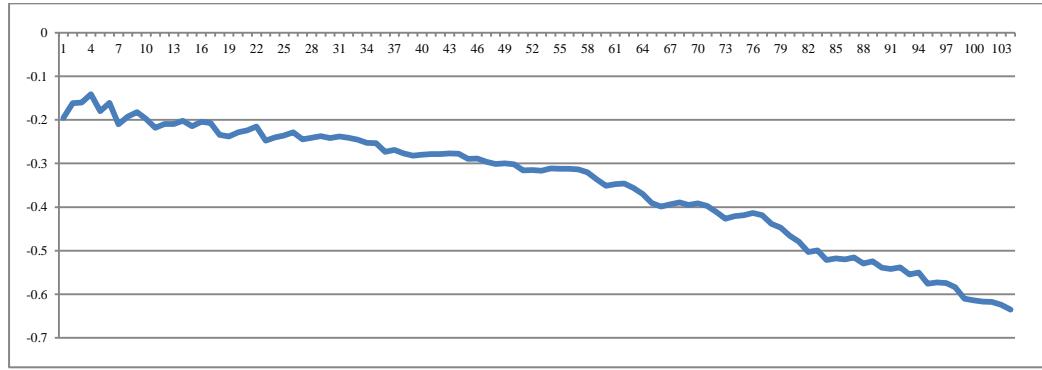


Figura 225: Hill – plot da Carteira C.M.O.L.=5% ($K_h = -13,50\%$; $q = 2$).

Para o período de 450 dias:

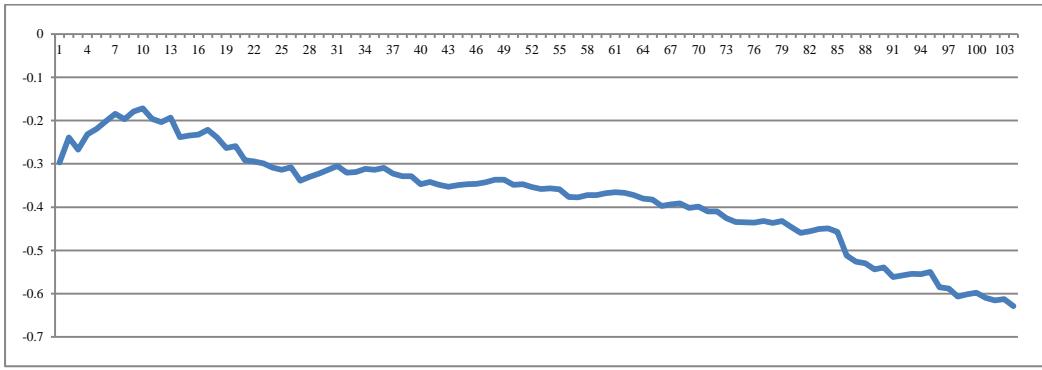


Figura 226: Hill – plot da Carteira C.M.O.L.=5% ($K_h = -17,15\%$; $q = 12$).

CARTEIRA D.M.I.U.

Para o período de 90 dias:

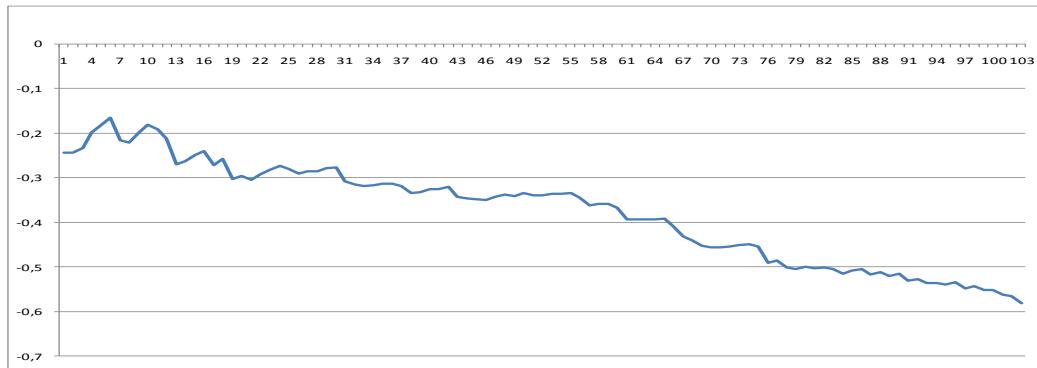


Figura 227: Hill – plot da Carteira D.M.I.U. ($Kh = -19,73\% ; q = 5$).

Para o período de 180 dias:

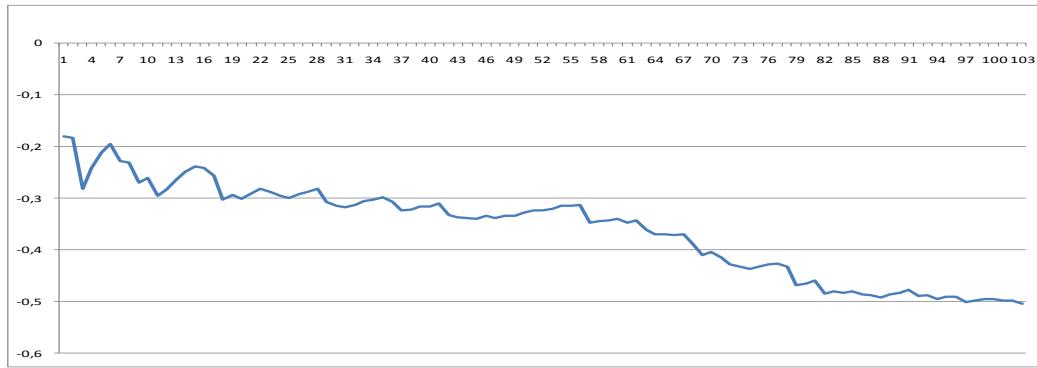


Figura 228: Hill – plot da Carteira D.M.I.U. ($Kh = -18,01\% ; q = 2$).

Para o período de 270 dias:

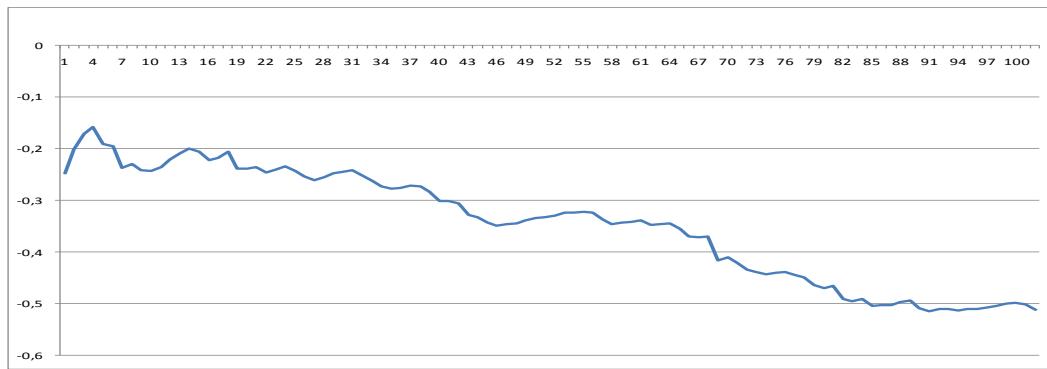


Figura 229: Hill – plot da Carteira D.M.I.U. ($Kh = -15,76\% ; q = 4$).

Para o período de 360 dias

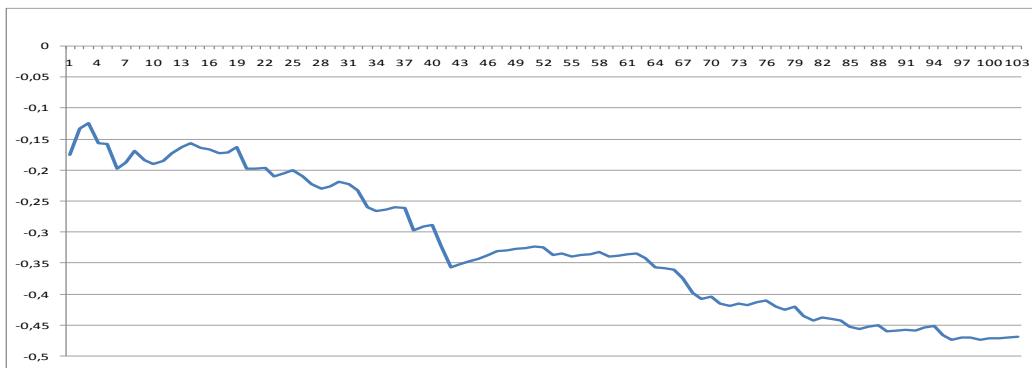


Figura 230: Hill – plot da Carteira D.M.I.U. ($K_h = -12,45\% ; q = 3$).

Para o período de 450 dias:

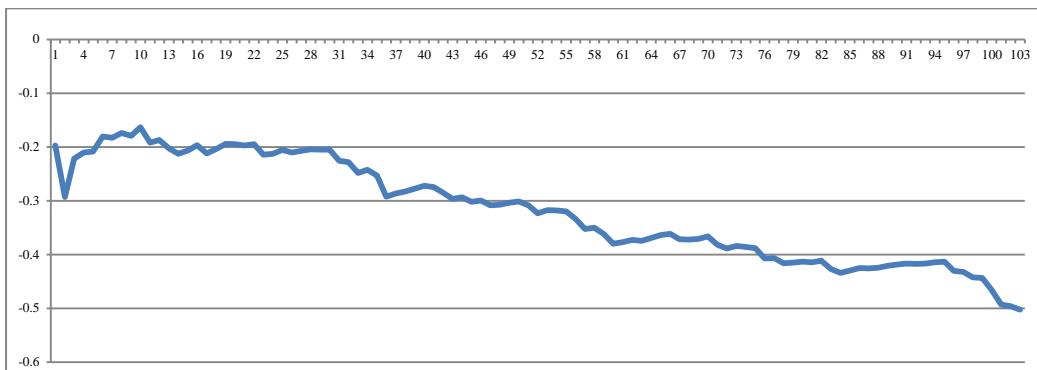


Figura 231: Hill – plot da Carteira D.M.I.U. ($K_h = -16,35\% ; q = 10$).

CARTEIRA D.M.O.L. = 0%

Período de 90 dias:

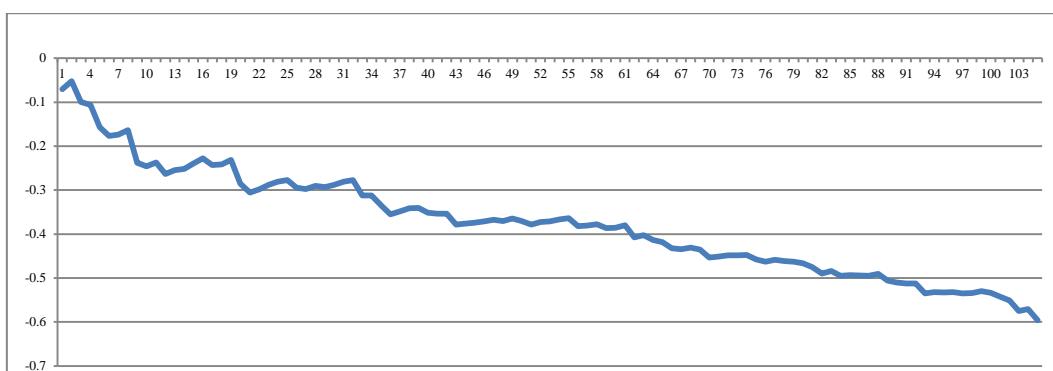


Figura 232: Hill – plot da Carteira D.M.O.L.=0% ($K_h = -16,57\% ; q = 6$).

Para o período de 180 dias:

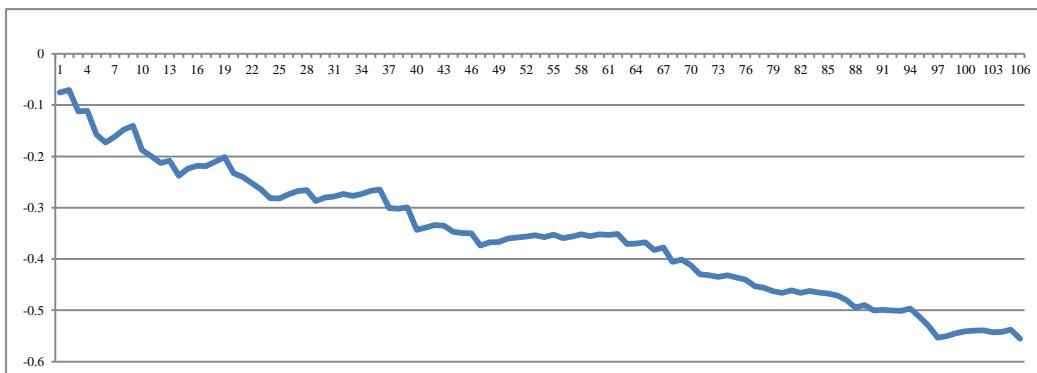


Figura 233: Hill – plot da Carteira D.M.O.L.=0% ($Kh = -18,57\%$; $q = 2$).

Para o período de 270 dias:

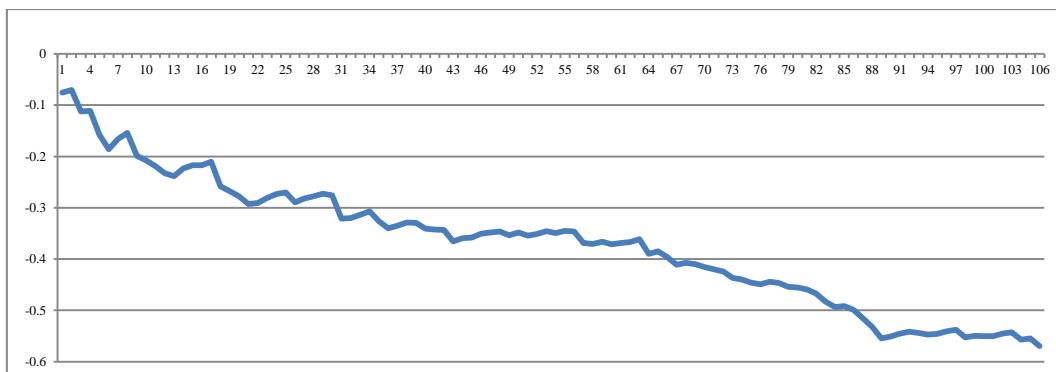


Figura 234: Hill – plot da Carteira D.M.O.L.=0% ($Kh = -15,76\%$; $q = 4$).

Para o período de 360 dias:

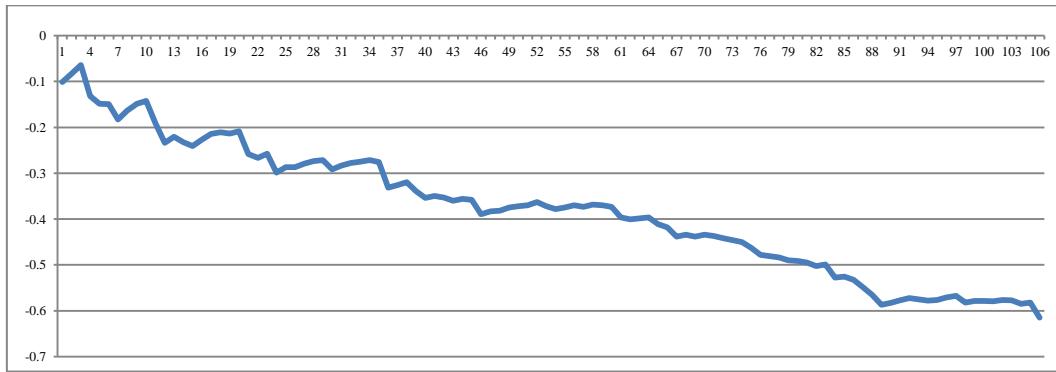


Figura 235: Hill – plot da Carteira D.M.O.L.=0% ($Kh = -12,45\%$; $q = 3$).

Para o período de 450 dias:

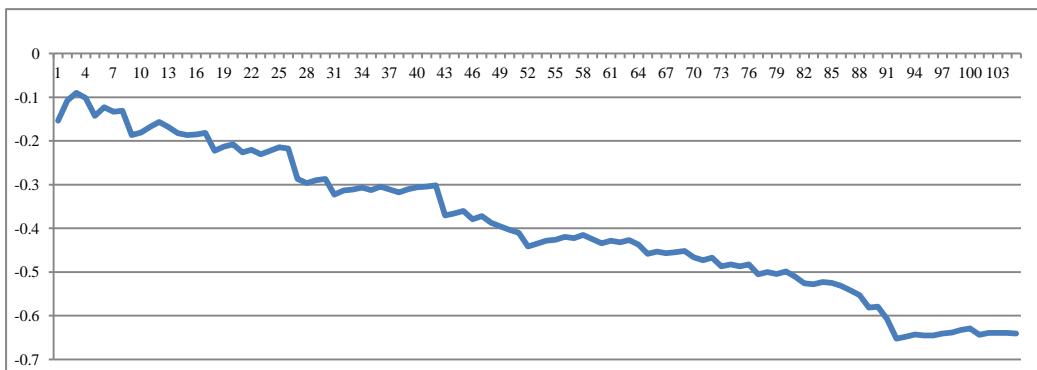


Figura 236: Hill – plot da Carteira D.M.O.L.=0% ($K_h = -16,35\%$; $q = 10$).

CARTEIRA D.M.O.L. = 2,5%

Período de 90 dias:

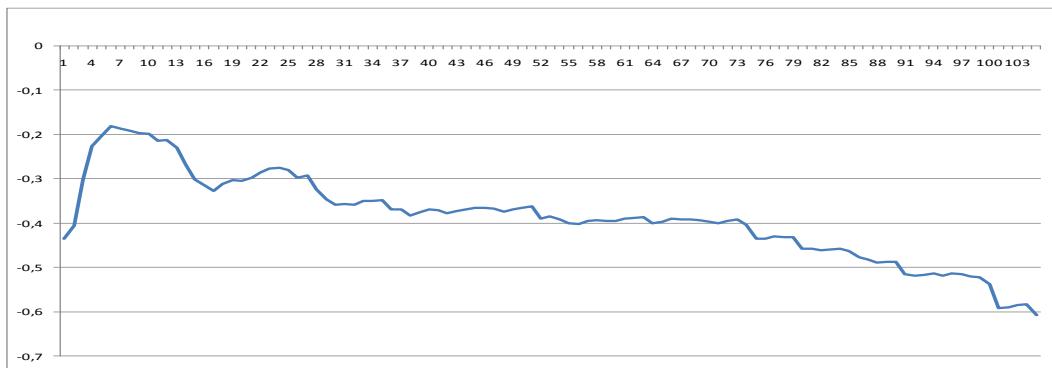


Figura 237: Hill – plot da Carteira D.M.O.L.=2,5% ($K_h = -18,16\%$; $q = 6$).

Para o período de 180 dias:

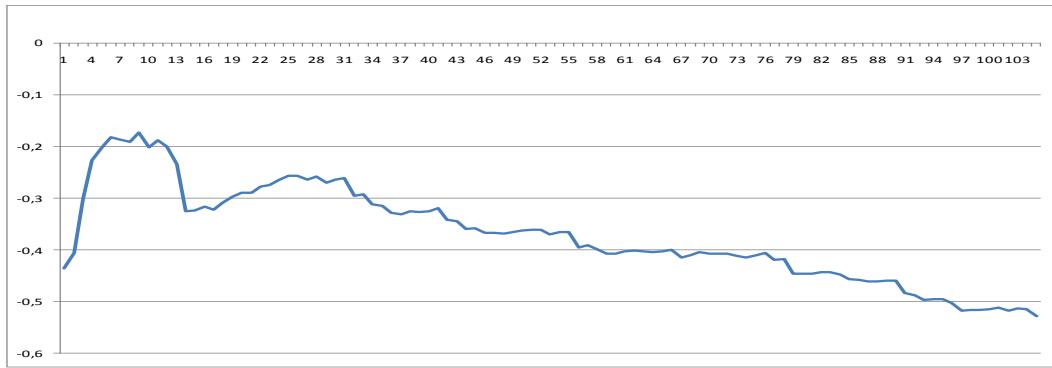


Figura 238: Hill – plot da Carteira D.M.O.L.=2,5% ($K_h = -17,28\%$; $q = 9$).

Para o período de 270 dias:

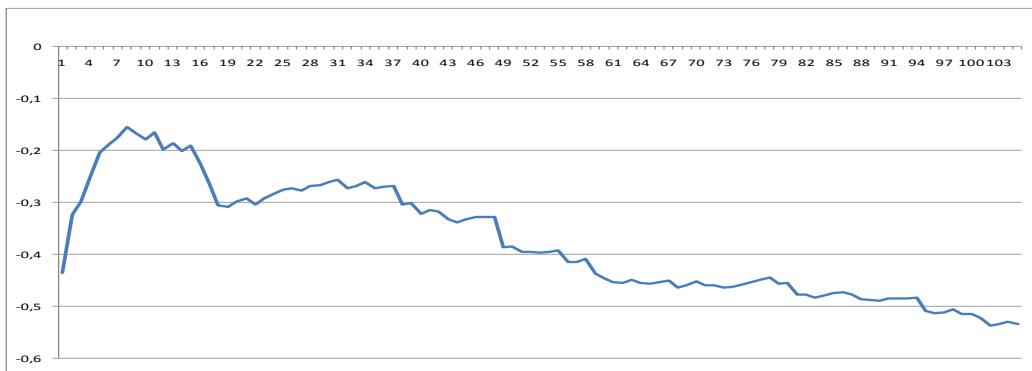


Figura 239: Hill – plot da Carteira D.M.O.L.=2,5% (Kh = -15,50%; q = 8).

Para o período de 360 dias:

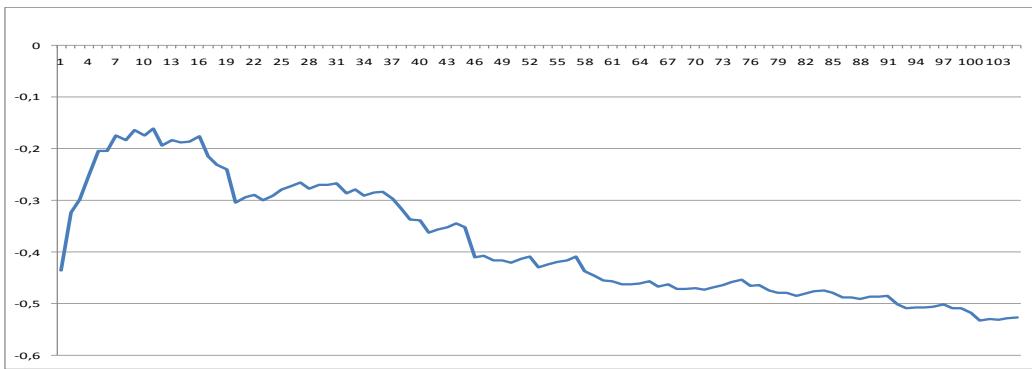


Figura 240: Hill – plot da Carteira D.M.O.L.=2,5% (Kh = -16,18%; q = 11).

Para o período de 450 dias:

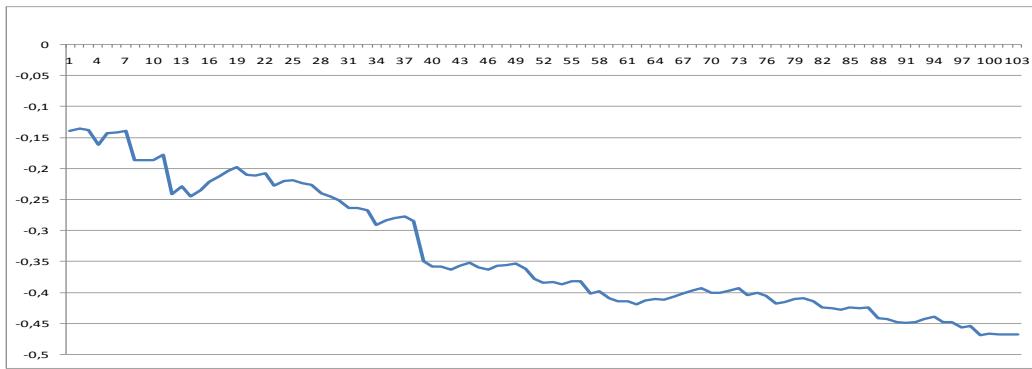


Figura 241: Hill – plot da Carteira D.M.O.L.=2,5% (Kh = -13,59%; q = 2).

CARTEIRA D.M.O.L. = 5%

Período de 90 dias:

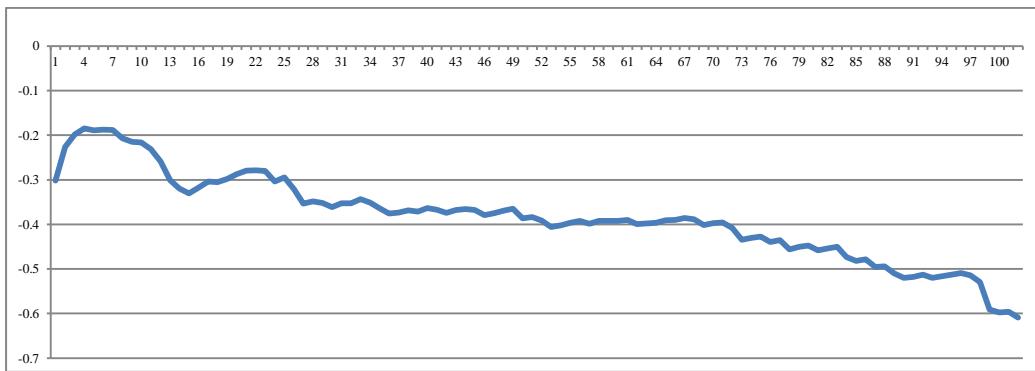


Figura 242: Hill – plot da Carteira D.M.O.L.=5% ($K_h = -18,75\%$; $q = 8$).

Para o período de 180 dias:

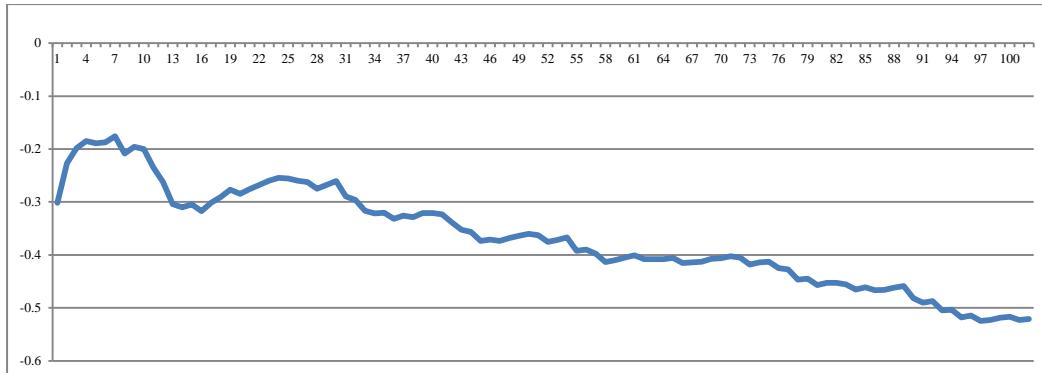


Figura 243: Hill – plot da Carteira D.M.O.L.=5% ($K_h = -17,59\%$; $q = 9$).

Para o período de 270 dias:

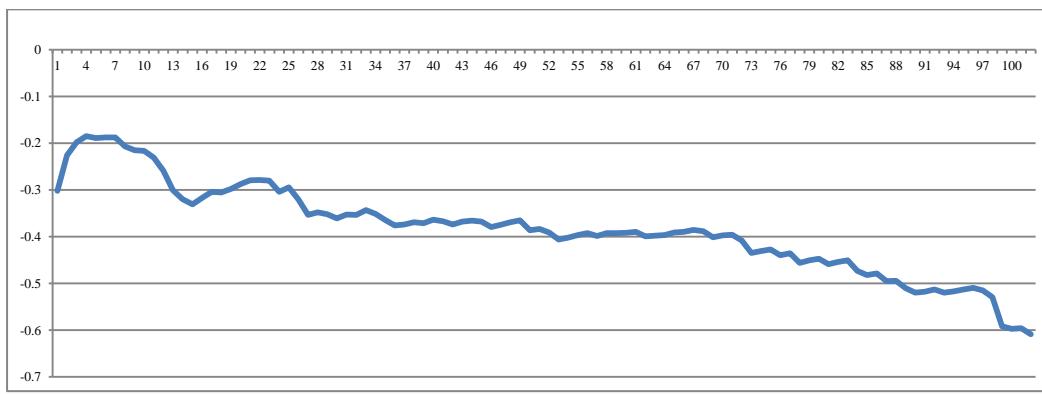


Figura 244: Hill – plot da Carteira D.M.O.L.=5% ($K_h = -16,03\%$; $q = 8$).

Para o período de 360 dias:

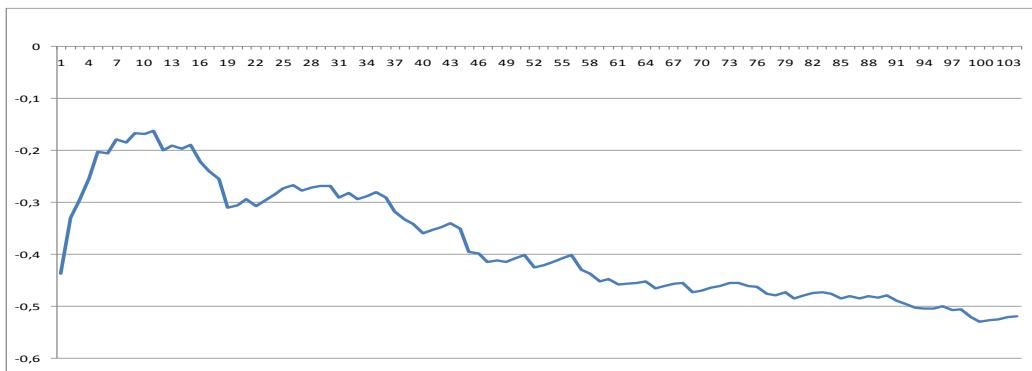


Figura 245: Hill – plot da Carteira D.M.O.L.=5% ($K_h = -16,93\%$; $q = 10$).

Para o período de 450 dias:

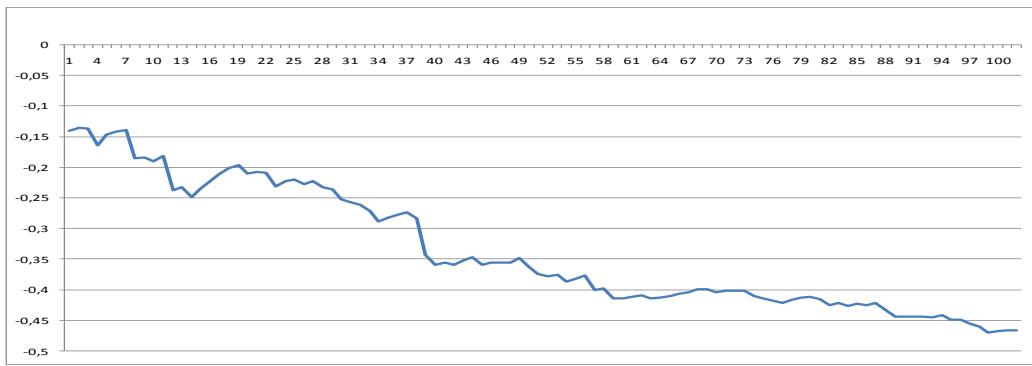


Figura 246: Hill – plot da Carteira D.M.O.L.=5% ($K_h = -13,23\%$; $q = 2$).

CARTEIRA E.M.I.U.

Para o período de 90 dias:

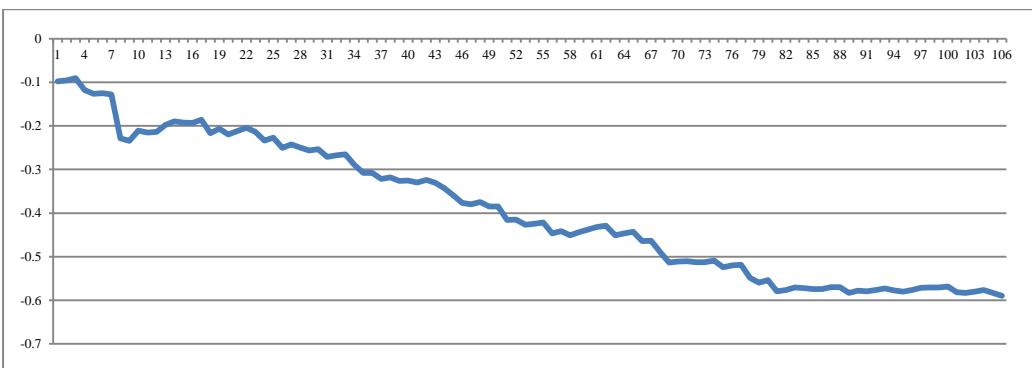


Figura 247: Hill – plot da Carteira E.M.I.U. ($K_h = -9,03\%$; $q = 3$).

Para o período de 180 dias:

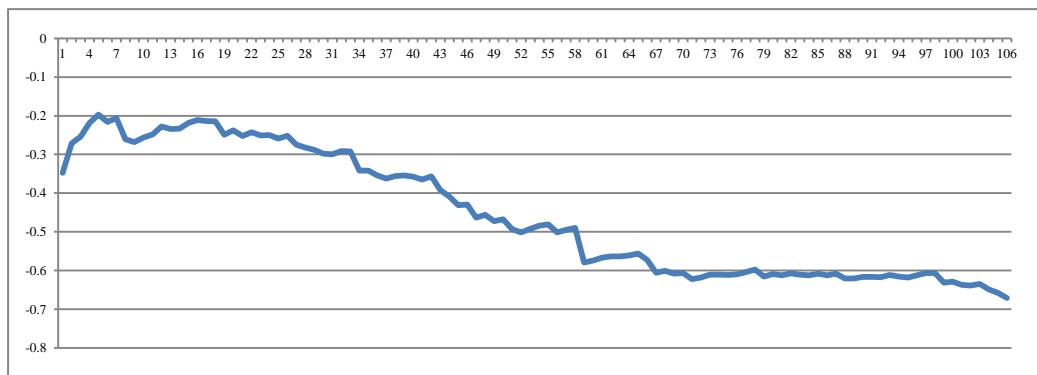


Figura 248: Hill – plot da Carteira E.M.I.U. ($K_h = -19,72\%$; $q = 5$).

Para o período de 270 dias:

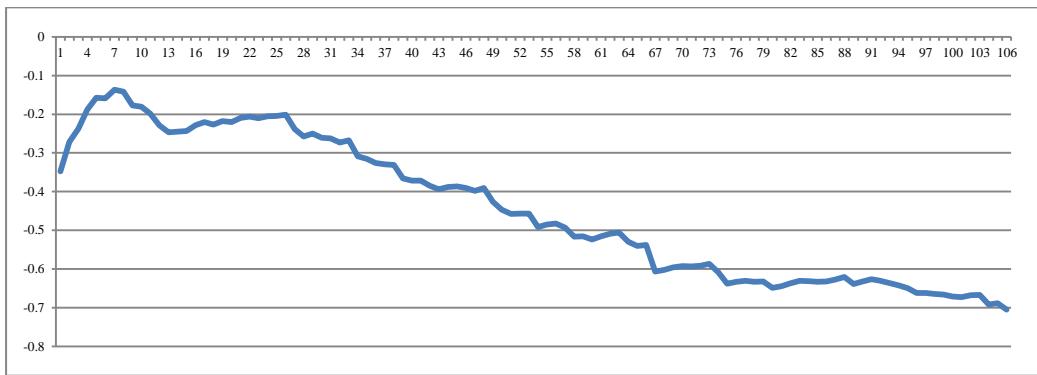


Figura 249: Hill – plot da Carteira E.M.I.U. ($K_h = -13,66\%$; $q = 7$).

Para o período de 360 dias

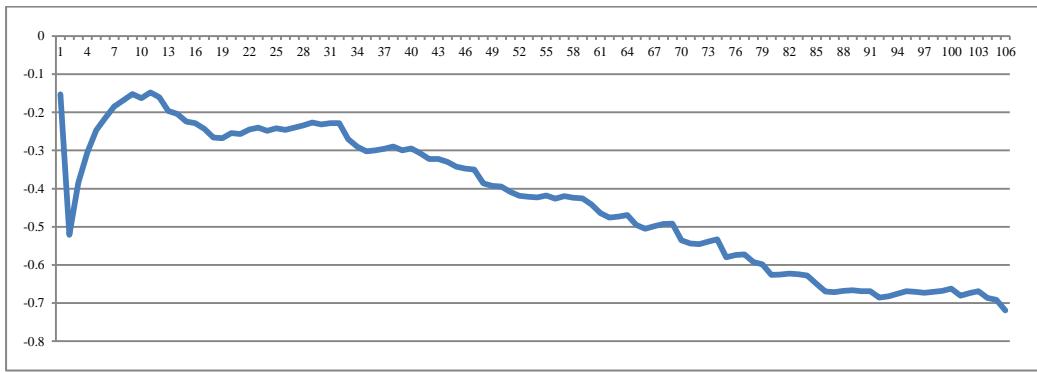


Figura 250: Hill – plot da Carteira E.M.I.U. ($K_h = -14,81\%$; $q = 11$).

Para o período de 450 dias:

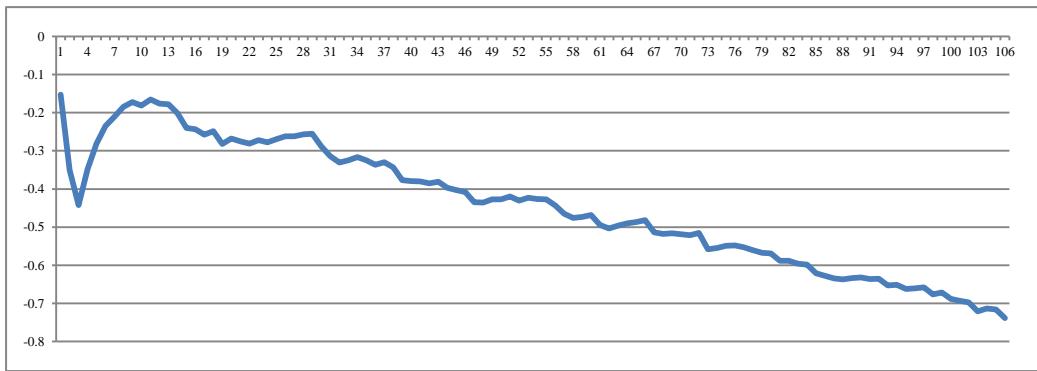


Figura 251: Hill – plot da Carteira E.M.I.U. ($K_h = -15,27\%$; $q = 1$).

CARTEIRA E.M.O.L. = 0%

Período de 90 dias:

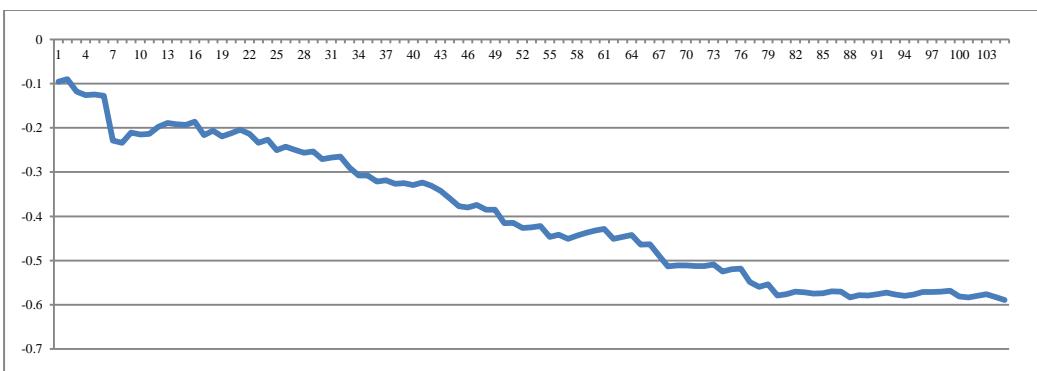


Figura 252: Hill – plot da Carteira E.M.O.L. = 0% ($K_h = -9,03\%$; $q = 3$)

Para o período de 180 dias:

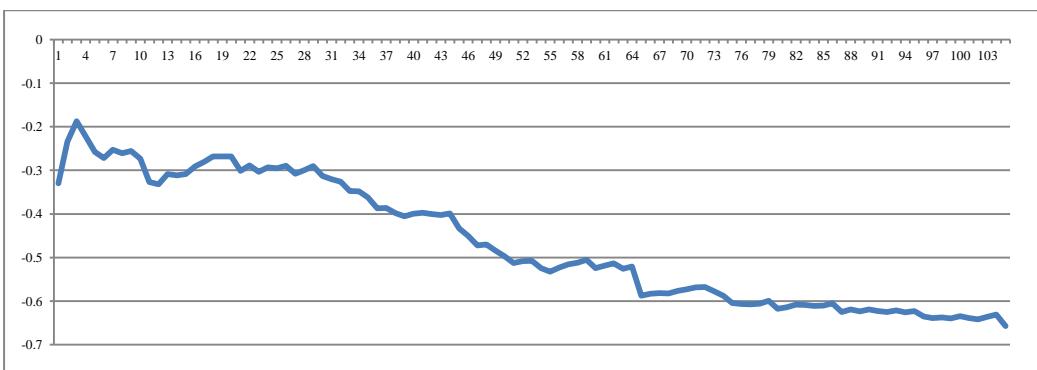


Figura 253: Hill – plot da Carteira E.M.O.L. = 0% ($K_h = -18,73\%$; $q = 4$)

Para o período de 270 dias:

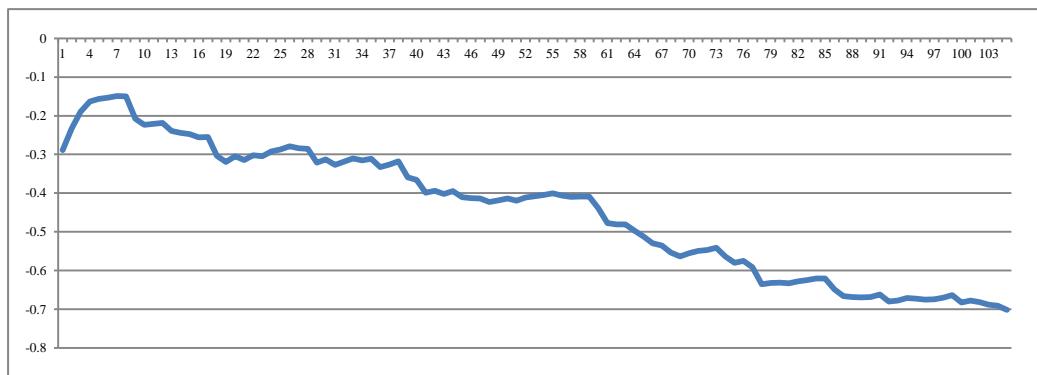


Figura 254: Hill – plot da Carteira E.M.O.L. = 0% ($K_h = -15,0\%$; $q = 9$)

Para o período de 360 dias:

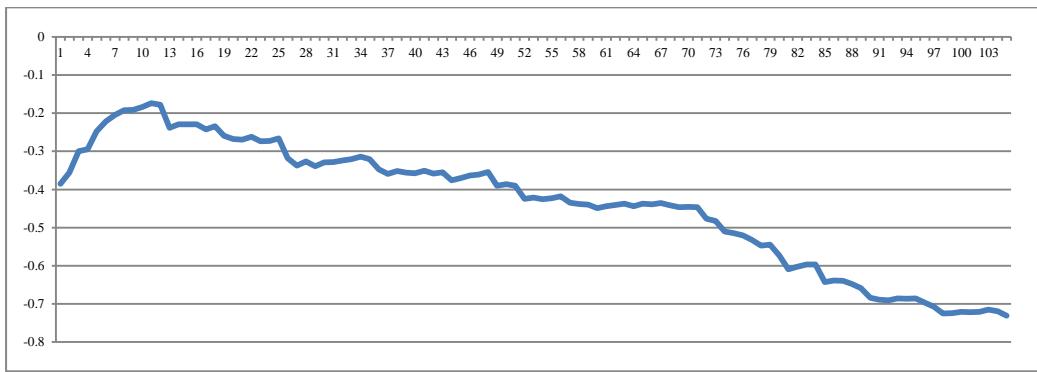


Figura 255: Hill – plot da Carteira E.M.O.L. = 0% ($K_h = -17,42\%$; $q = 10$)

Para o período de 450 dias:

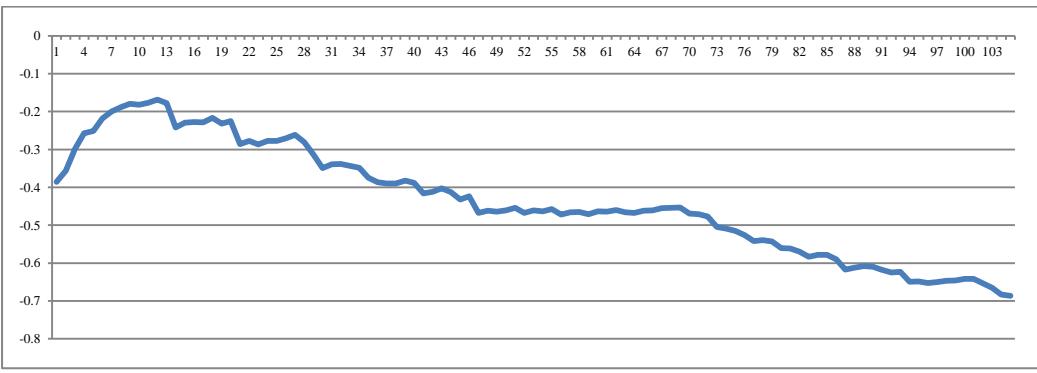


Figura 256: Hill – plot da Carteira E.M.O.L. = 0% ($K_h = -16,87\%$; $q = 12$)

CARTEIRA E.M.O.L. = 2,5%

Período de 90 dias:

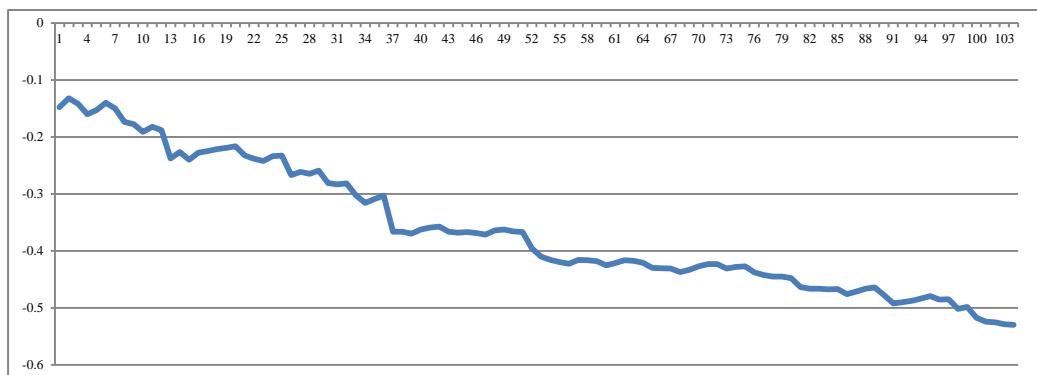


Figura 257: Hill – plot da Carteira E.M.O.L. = 2,5% (Kh = -2,12; q = 2)

Para o período de 180 dias:

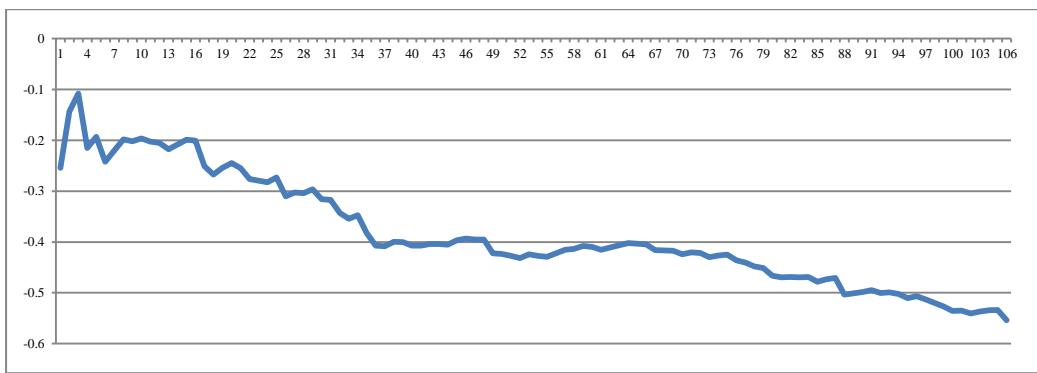


Figura 258: Hill – plot da Carteira E.M.O.L. = 2,5% (Kh = -10,87%; q = 3)

Para o período de 270 dias:

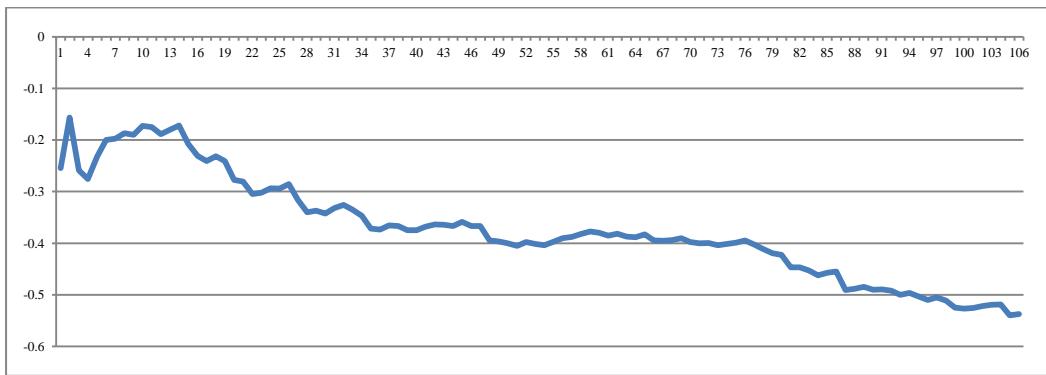


Figura 259: Hill – plot da Carteira E.M.O.L. = 2,5% (Kh = -15,65%; q = 2)

Para o período de 360 dias:

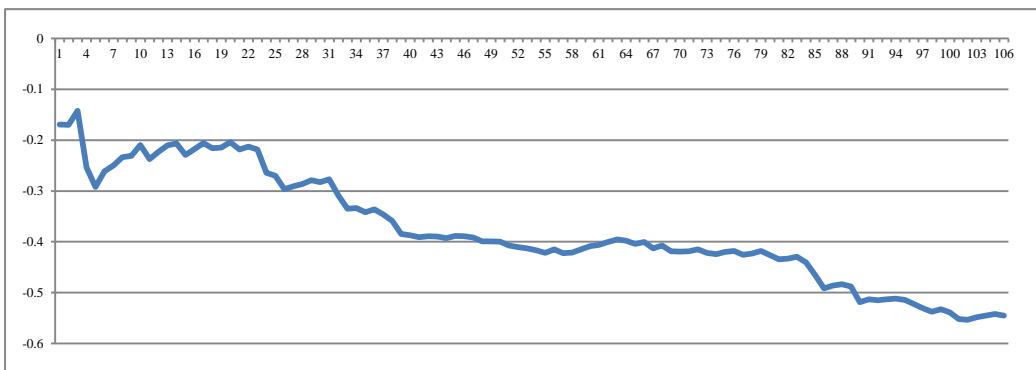


Figura 260: Hill – plot da Carteira E.M.O.L. = 2,5% % ($K_h = -14,24\%$; $q = 3$)

Para o período de 450 dias:

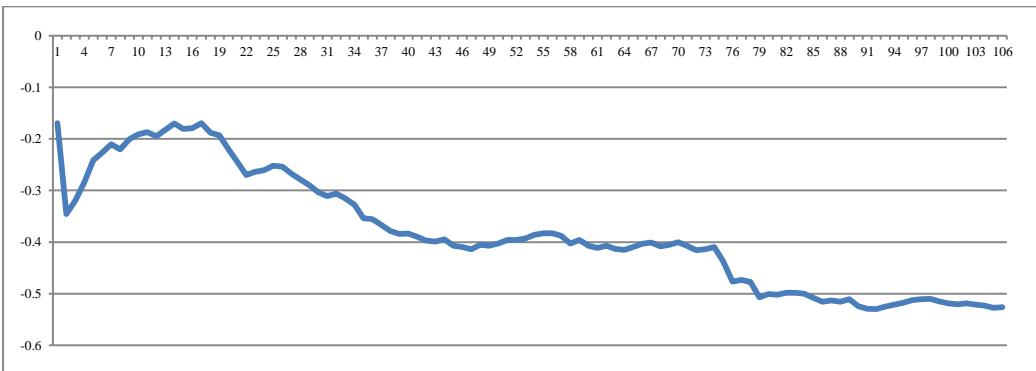


Figura 261: Hill – plot da Carteira E.M.O.L. = 2,5% % ($K_h = -16,94\%$; $q = 17$)

CARTEIRA E.M.O.L. = 5%

Período de 90 dias:

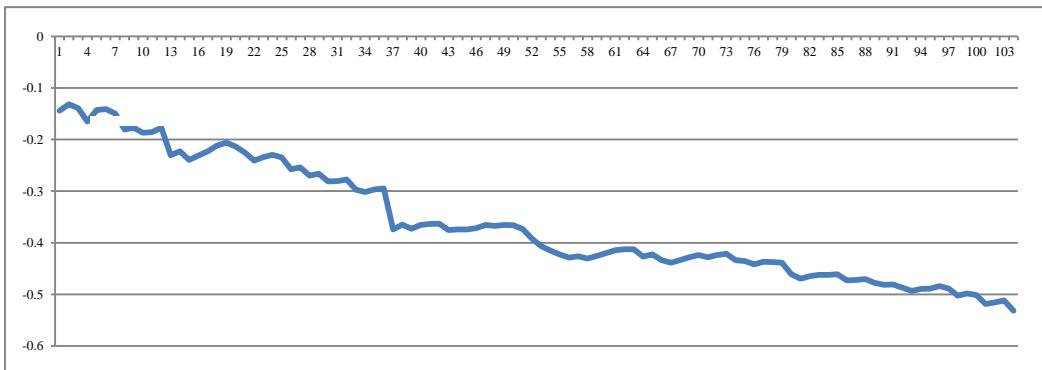


Figura 262: Hill – plot da Carteira E.M.O.L. = 5% % ($K_h = -13,20\%$; $q = 2$)

Para o período de 180 dias:

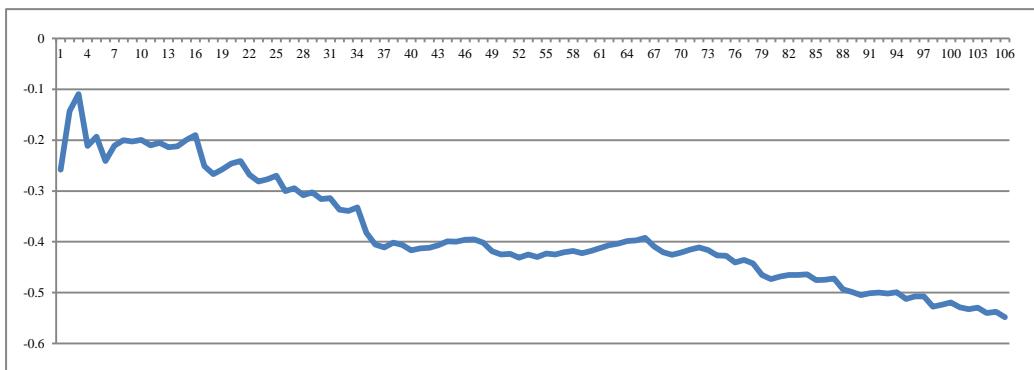


Figura 263: Hill – plot da Carteira E.M.O.L. = 5% ($K_h = -14,29\%$; $q = 2$)

Para o período de 270 dias:

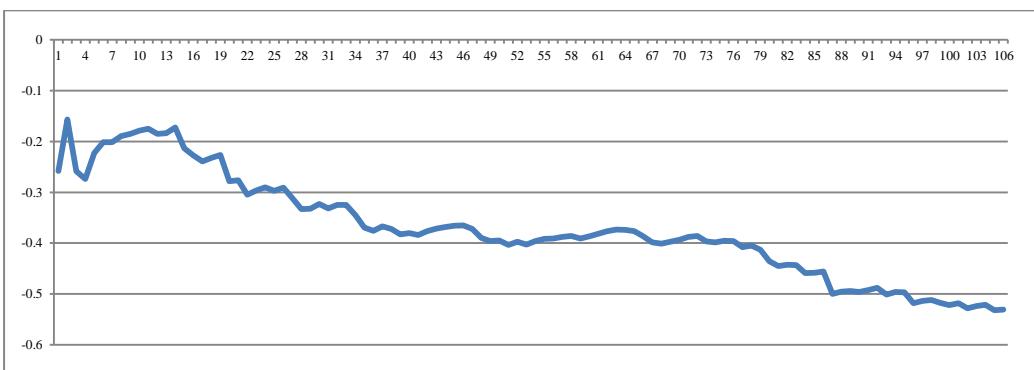


Figura 264: Hill – plot da Carteira E.M.O.L. = 5% ($K_h = -15,71\%$; $q = 2$)

Para o período de 360 dias:

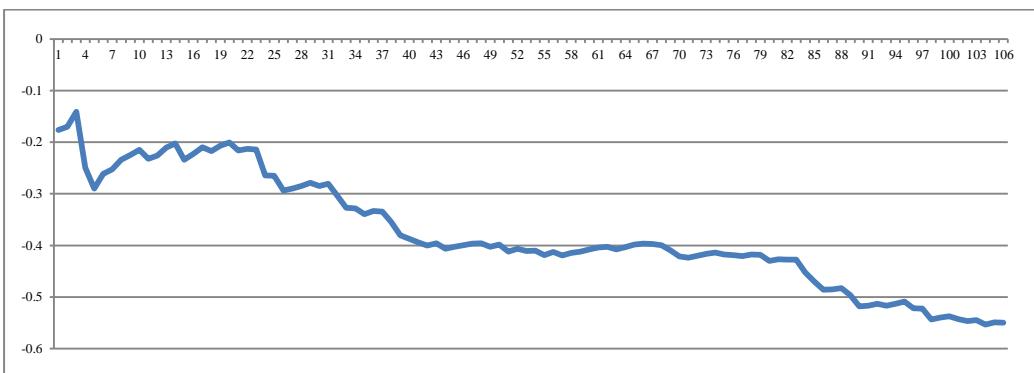


Figura 265: Hill – plot da Carteira E.M.O.L. = 5% ($K_h = -14,13\%$; $q = 3$)

Para o período de 450 dias:

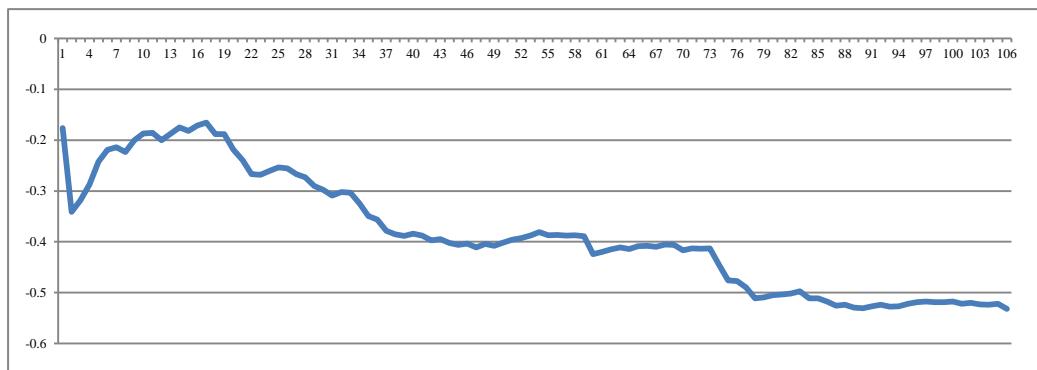


Figura 266: Hill – plot da Carteira E.M.O.L. = 5% ($K_h = -17,14\%$; $q = 16$)