Comparing BL and Markowitz

Input Summary

Covariance Matrix 2	0,0019	0,0003	0,0006
	0,0003	0,0011	0,0002
	0,0006	0,0002	0,0014

Benchmark Asset returns	0,01
	0,01
	0,01

Risk aversion	15

Tau	0,91

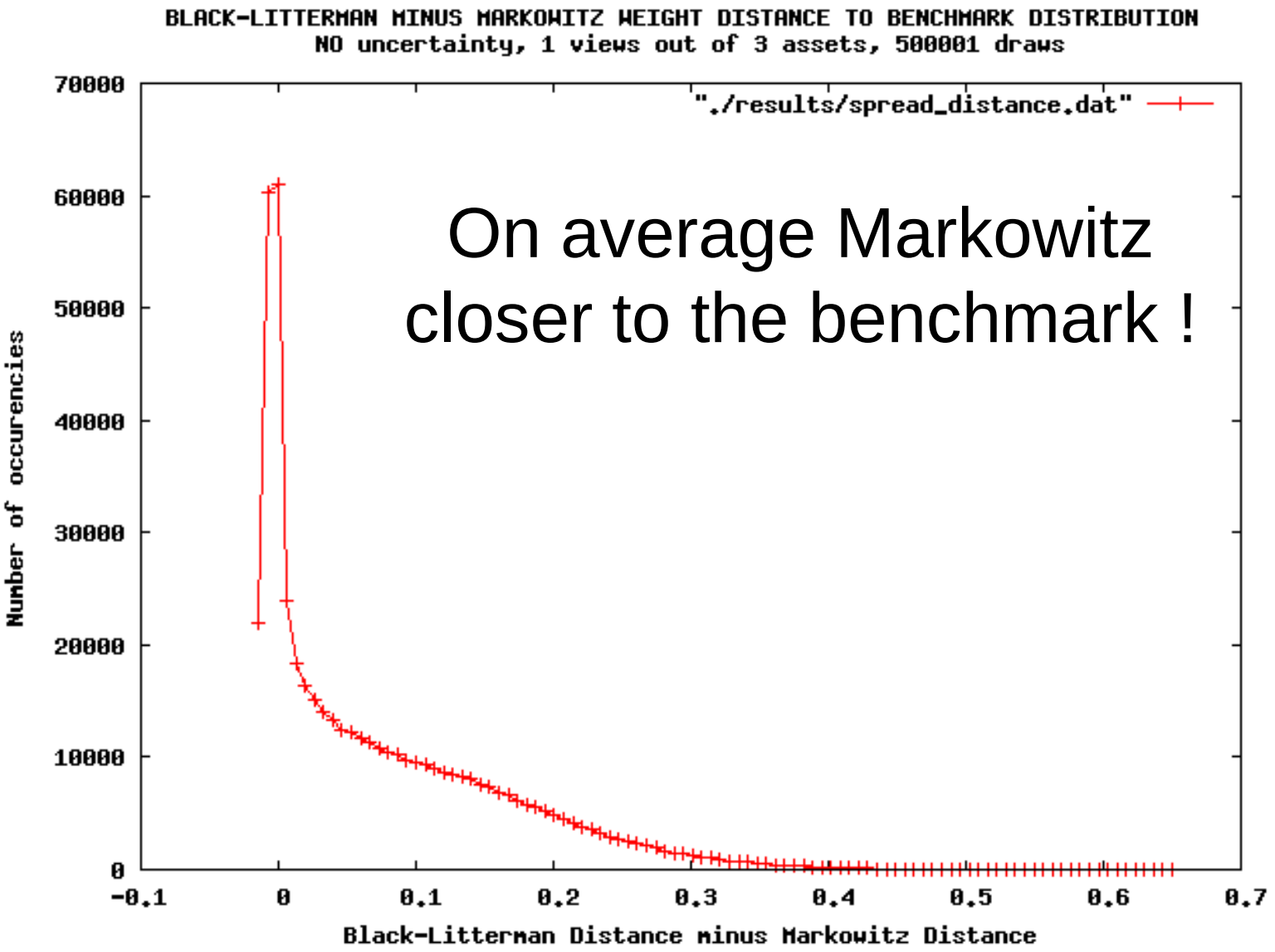
Benchmark weights	0,16666667	A
	0,5	B
	0,33333334	C
wf	0	Rf
Sum	1,00000001	

Monte Carlo Approach

500 000 views are generated through random draws from normal distributions of mean 1% (Π) and volatilities 4.4%, 3.3% and 3.7% (Σ)

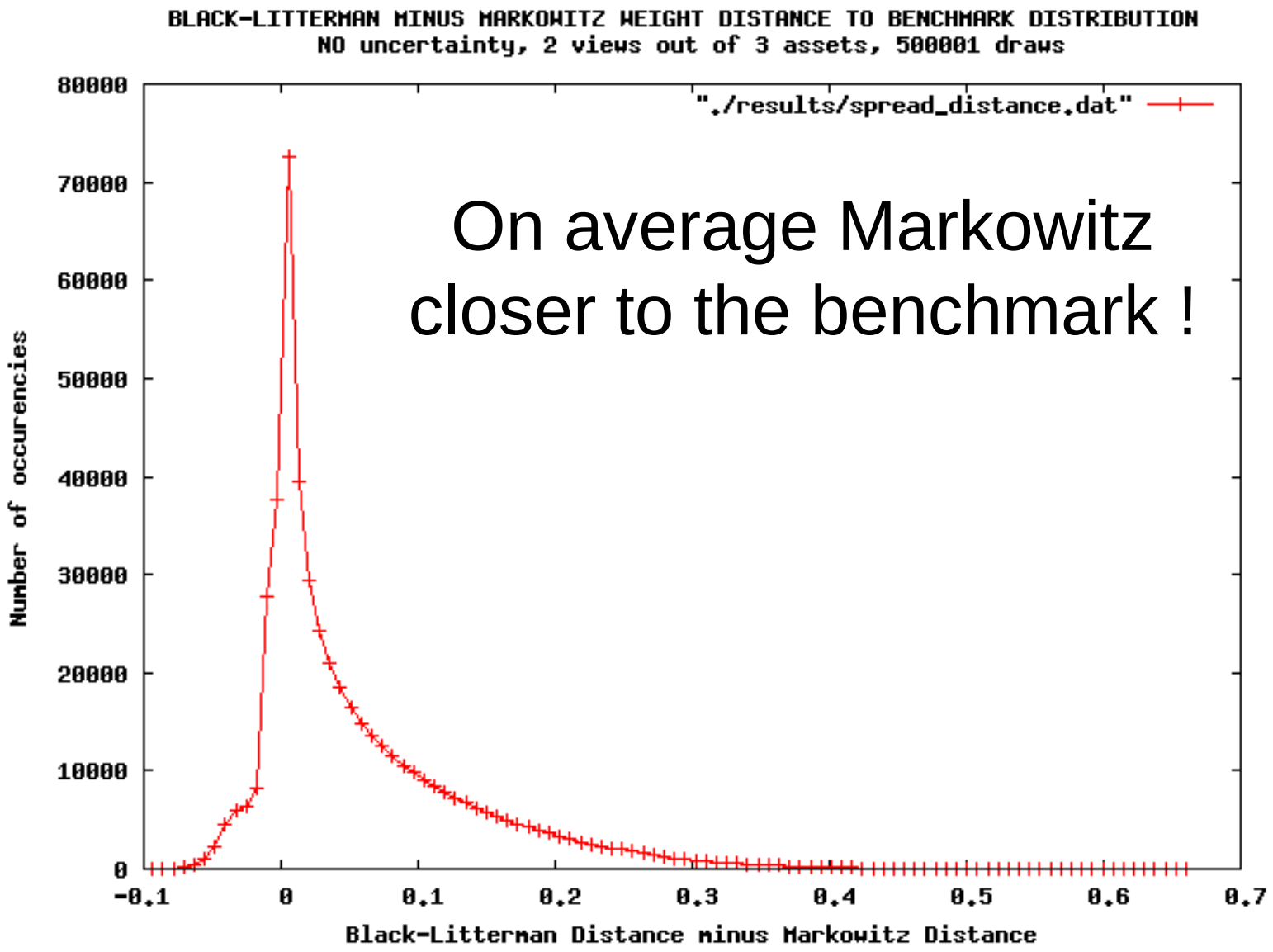
for A, B and C, pairs (A,B), (B,C) and (A,C), and triplet (A,B,C) with and without uncertainty

Monte Carlo Approach



On average Markowitz closer to the benchmark !

Monte Carlo Approach



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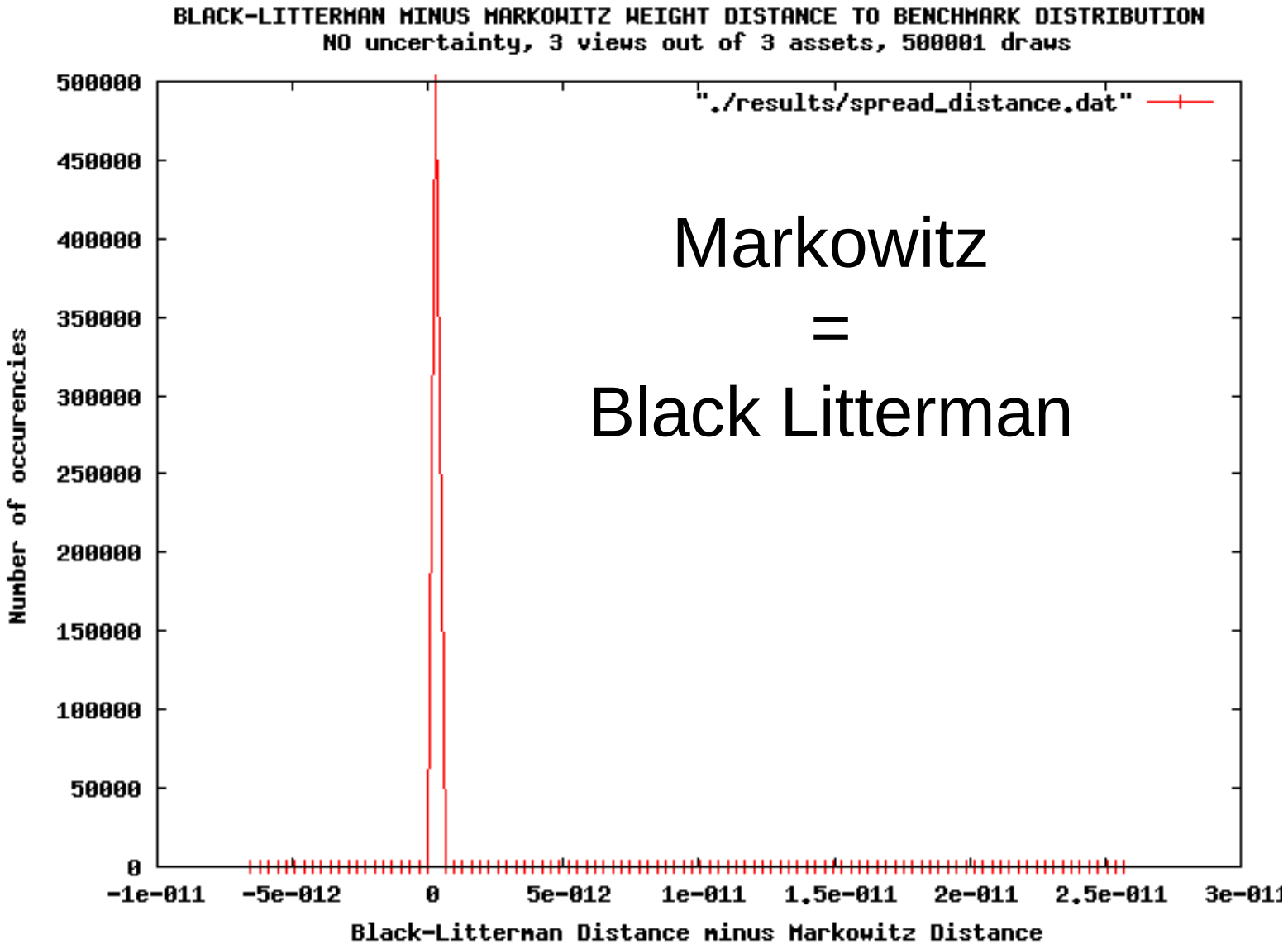

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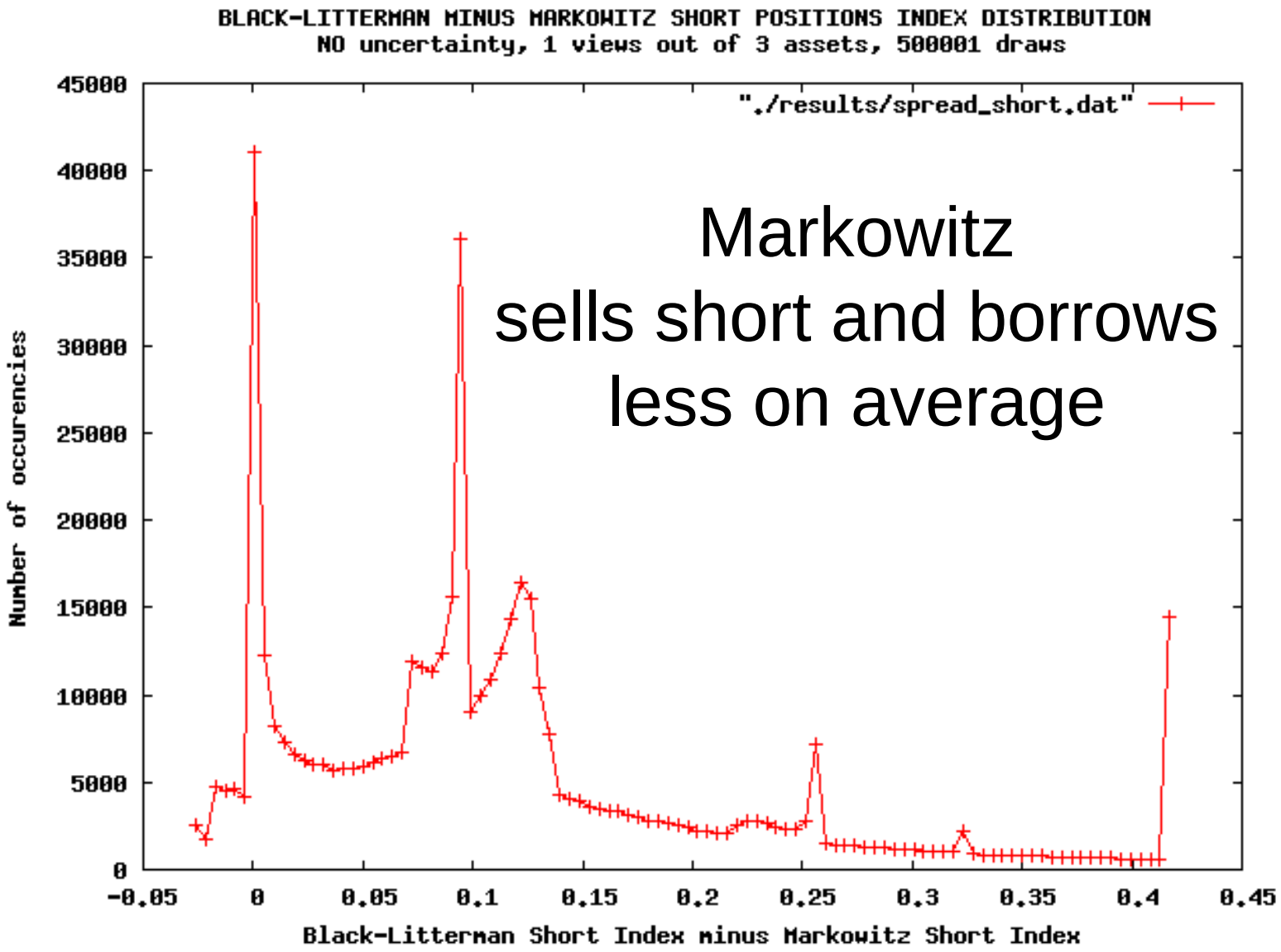
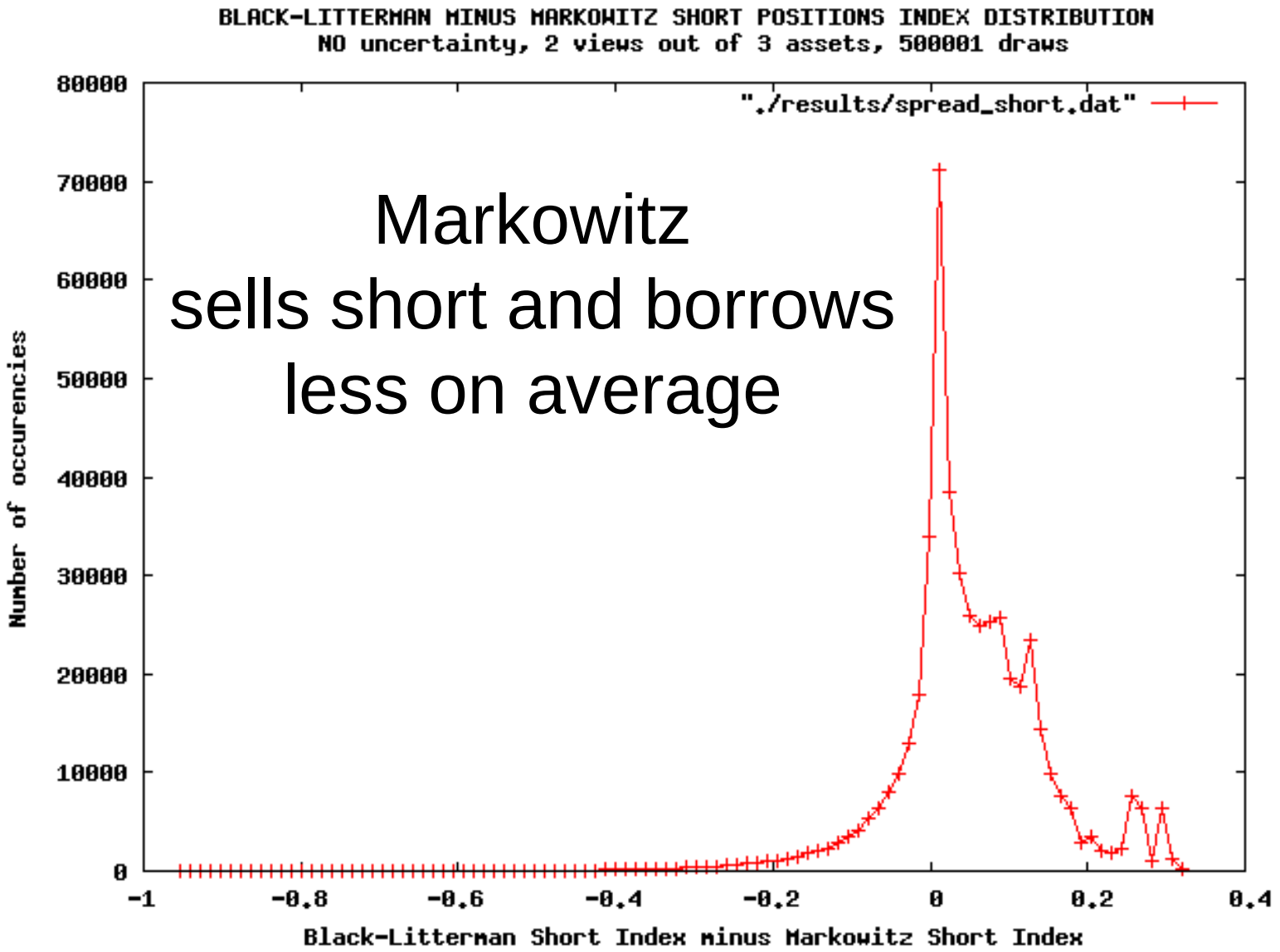


Markowitz
sells short and borrows
less on average

Monte Carlo Approach



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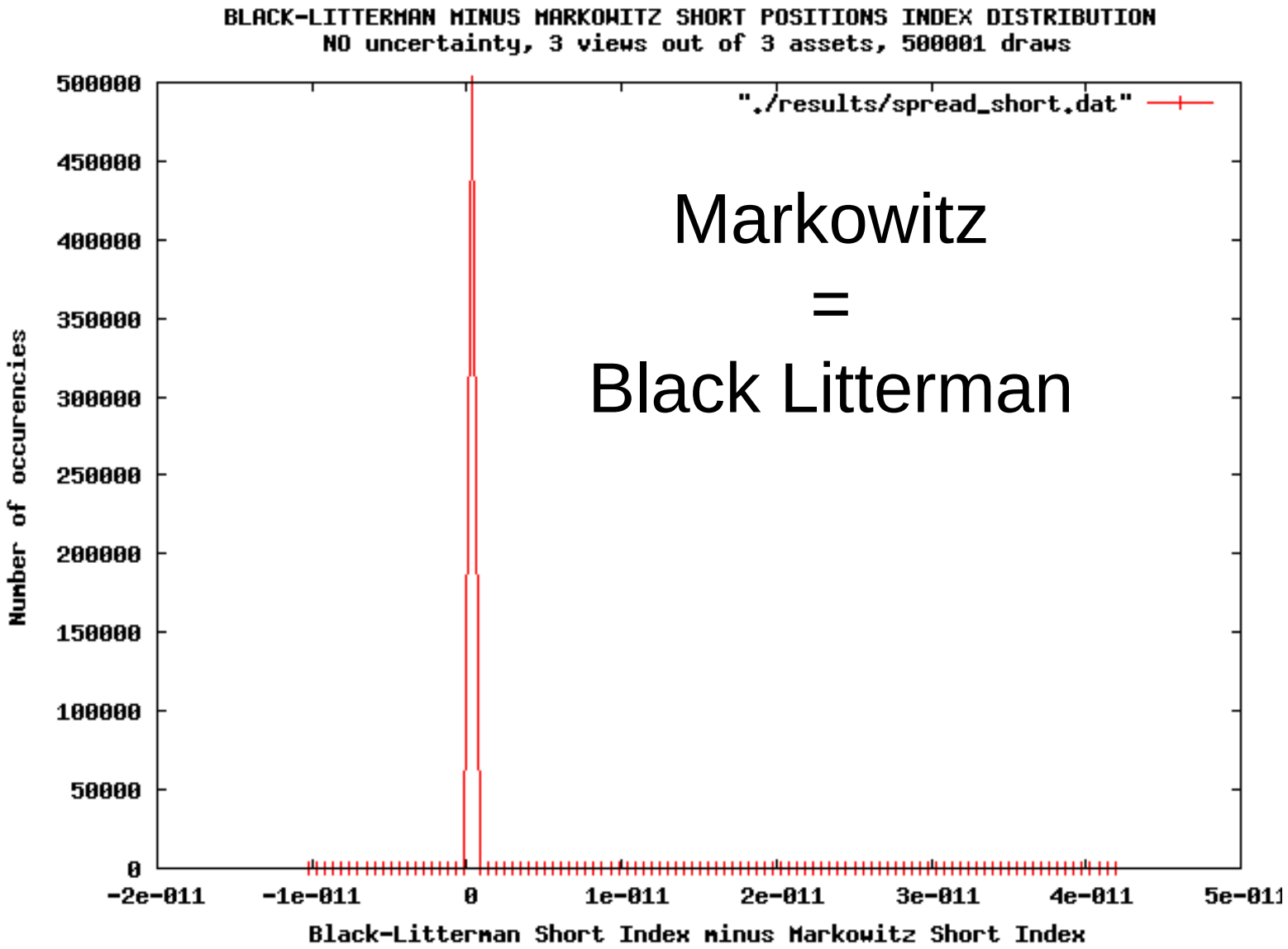

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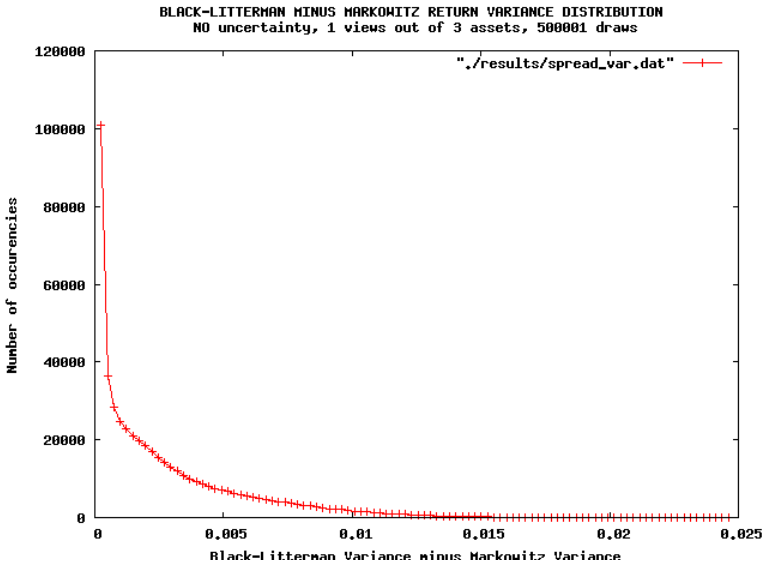
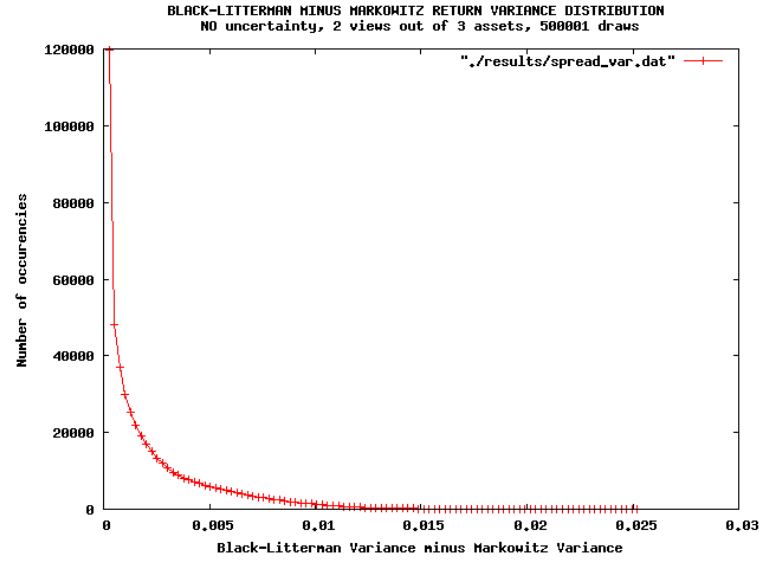
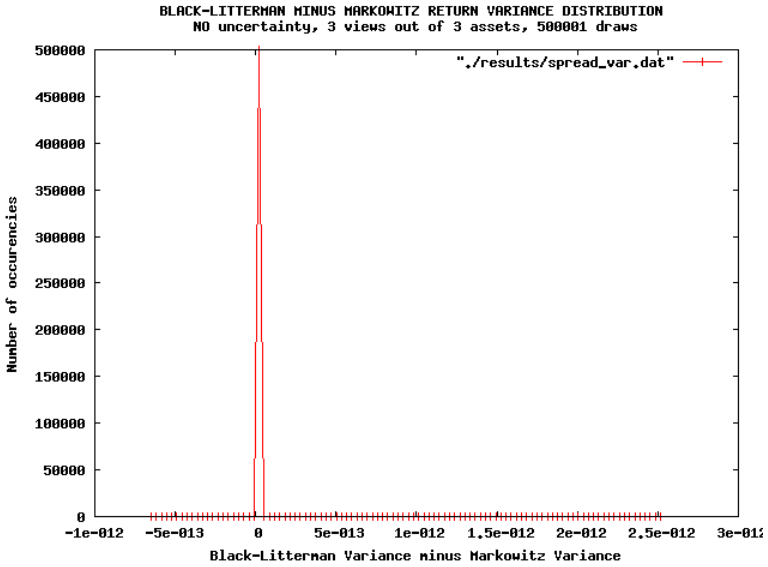




Return variance: Markowitz dominates Black-Litterman



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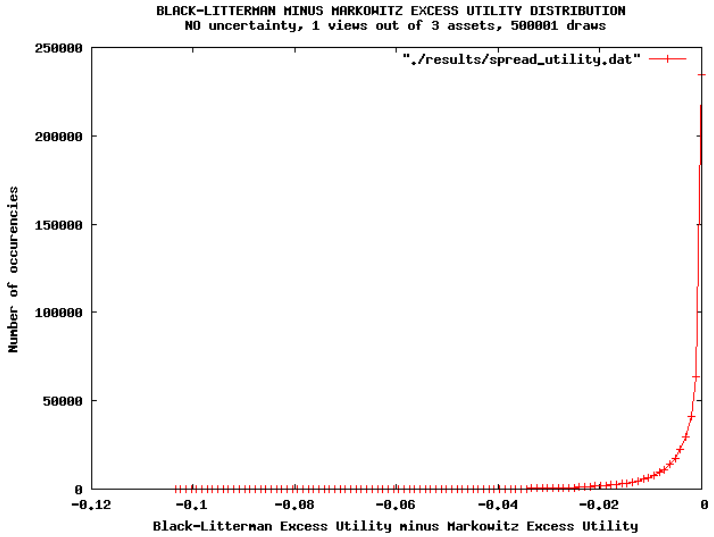
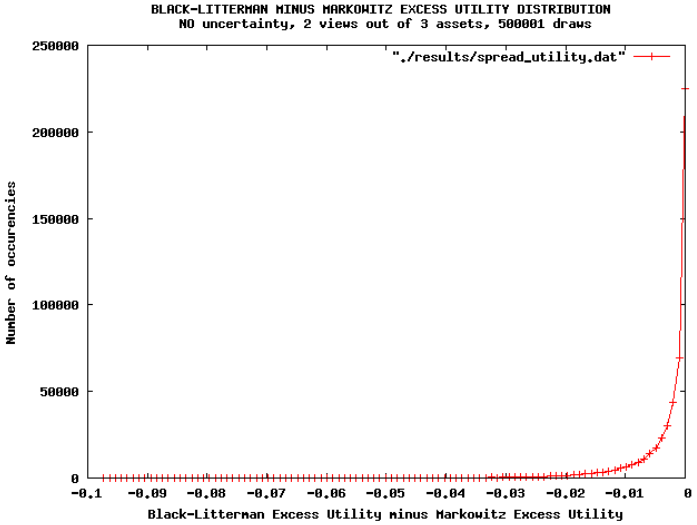
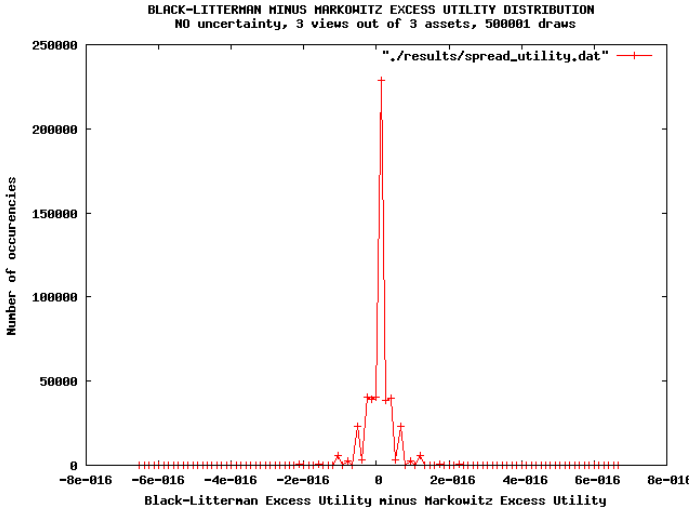
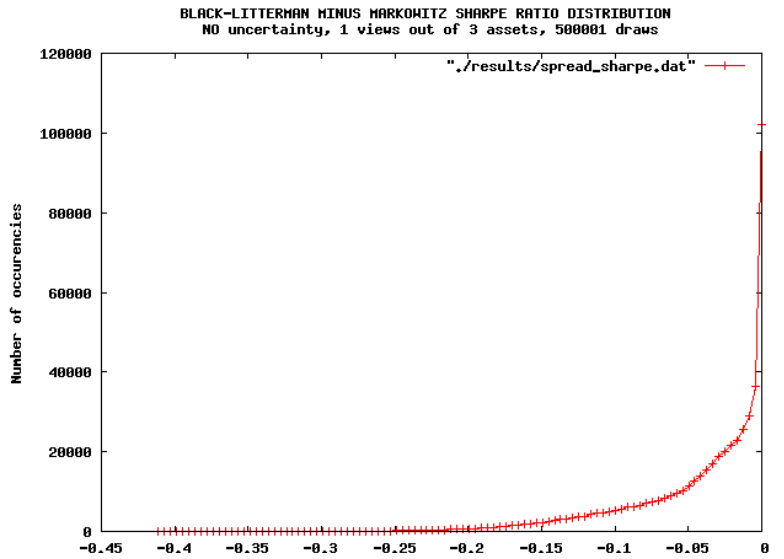


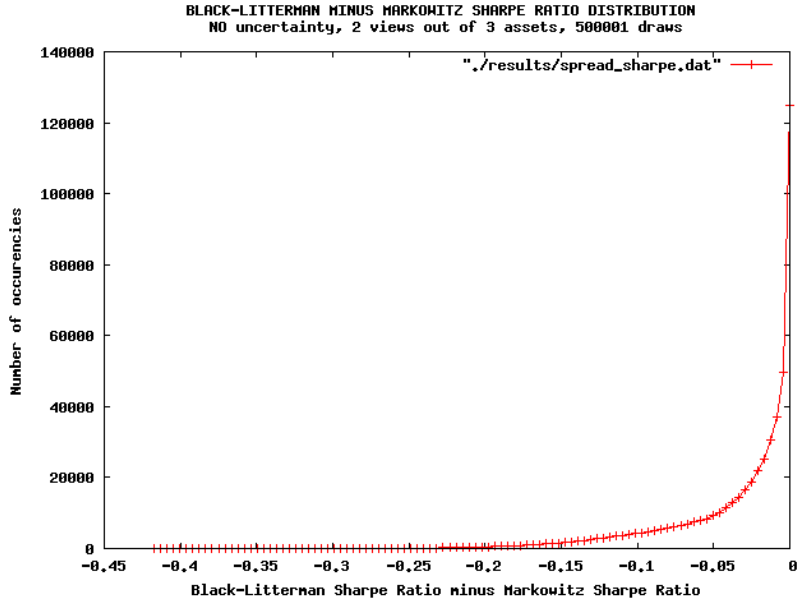


Utility: Markowitz dominates Black-Litterman

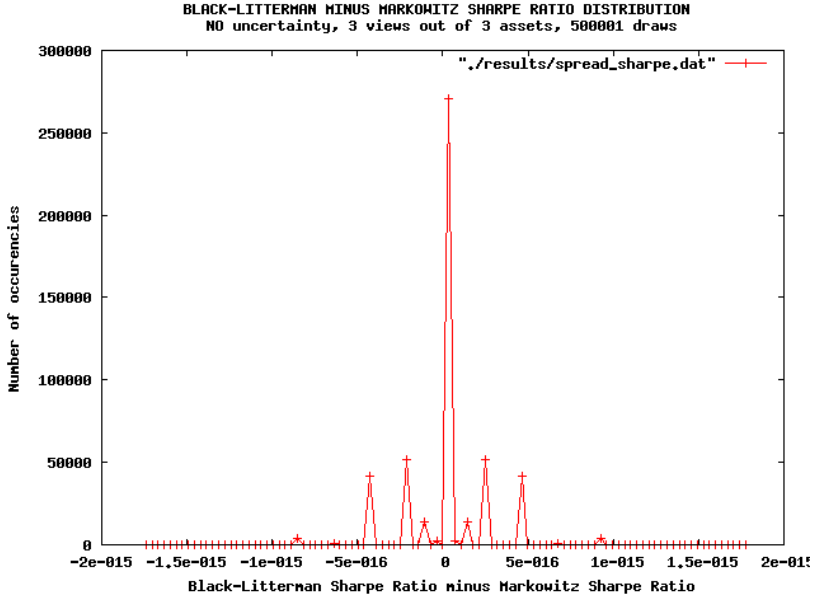


Monte Carlo Approach

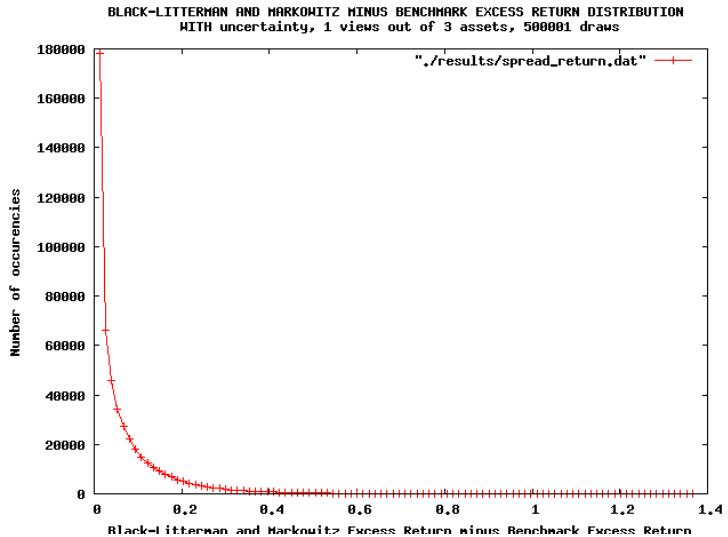




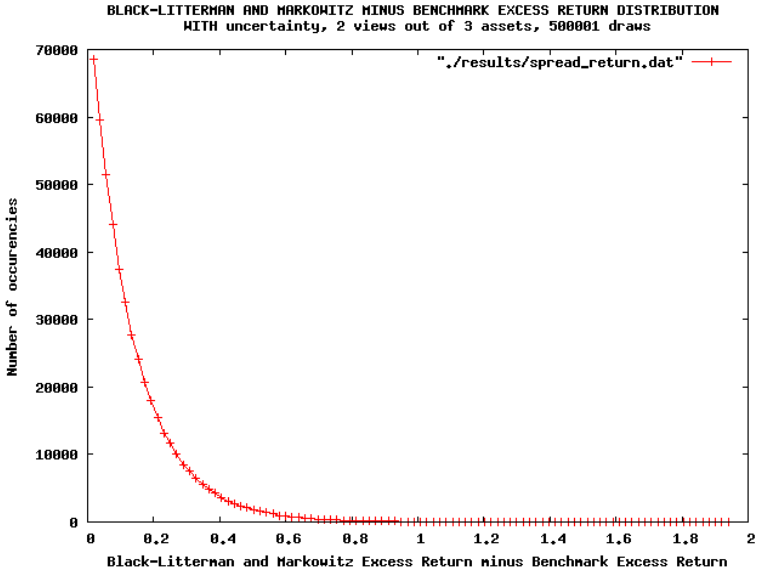
Sharpe ratio: Markowitz dominates Black-Litterman

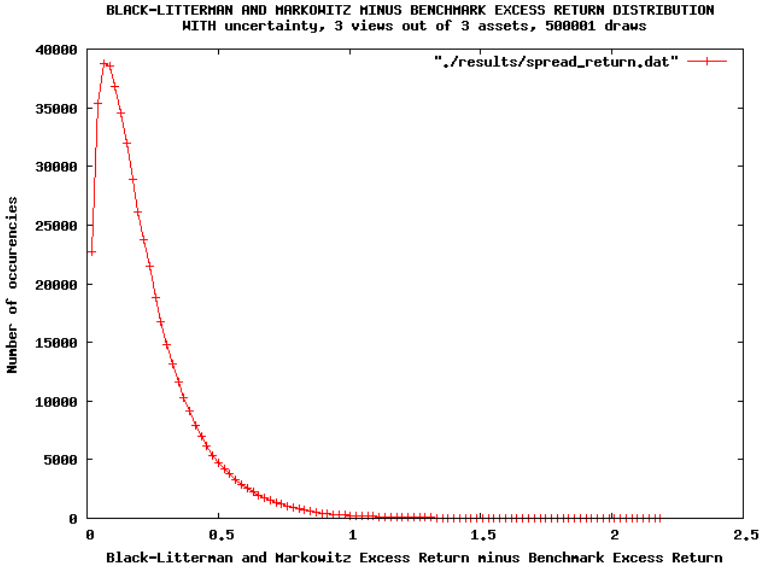


Monte Carlo Approach



Now with uncertainty in views:
Same dominance





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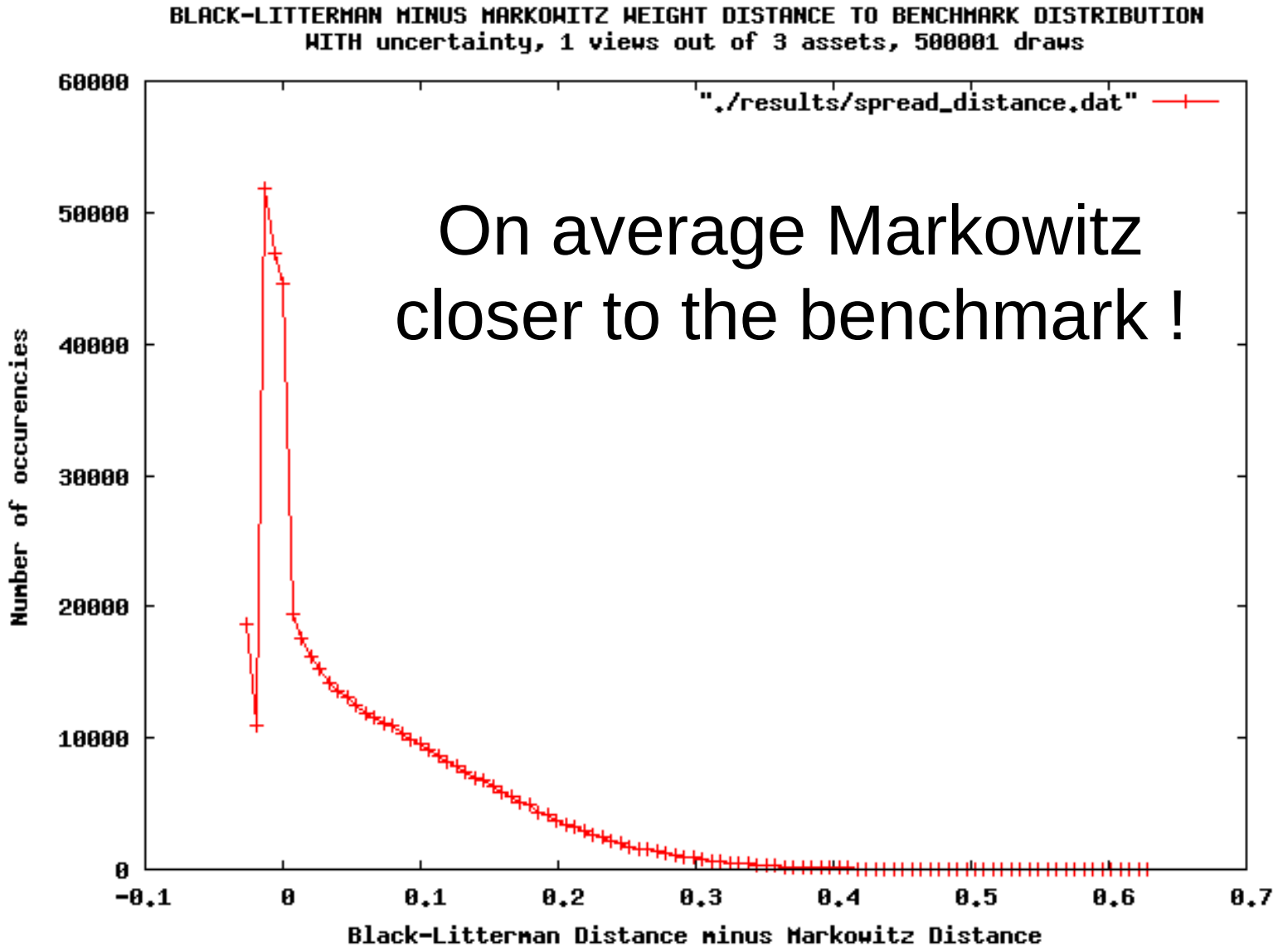

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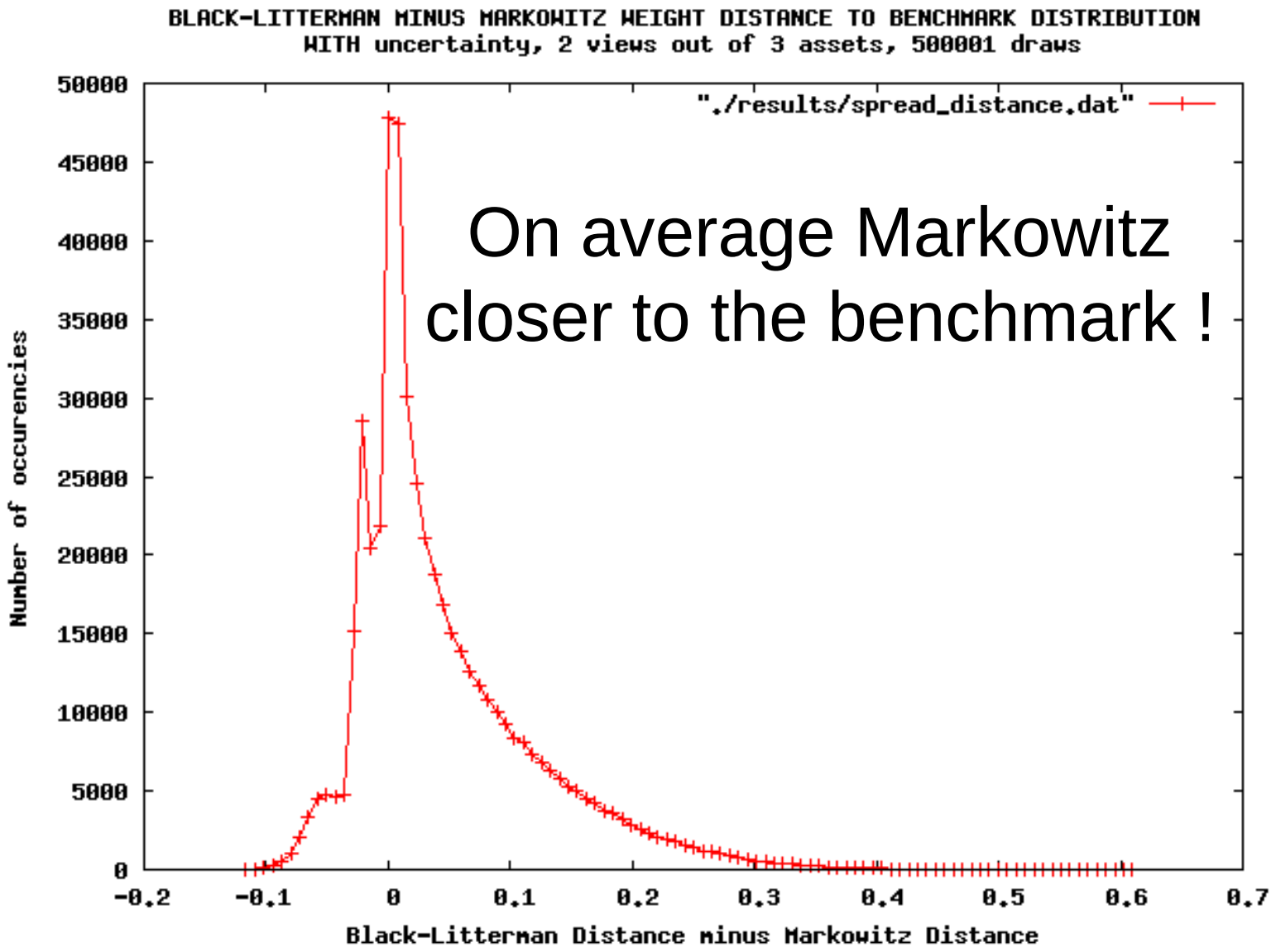

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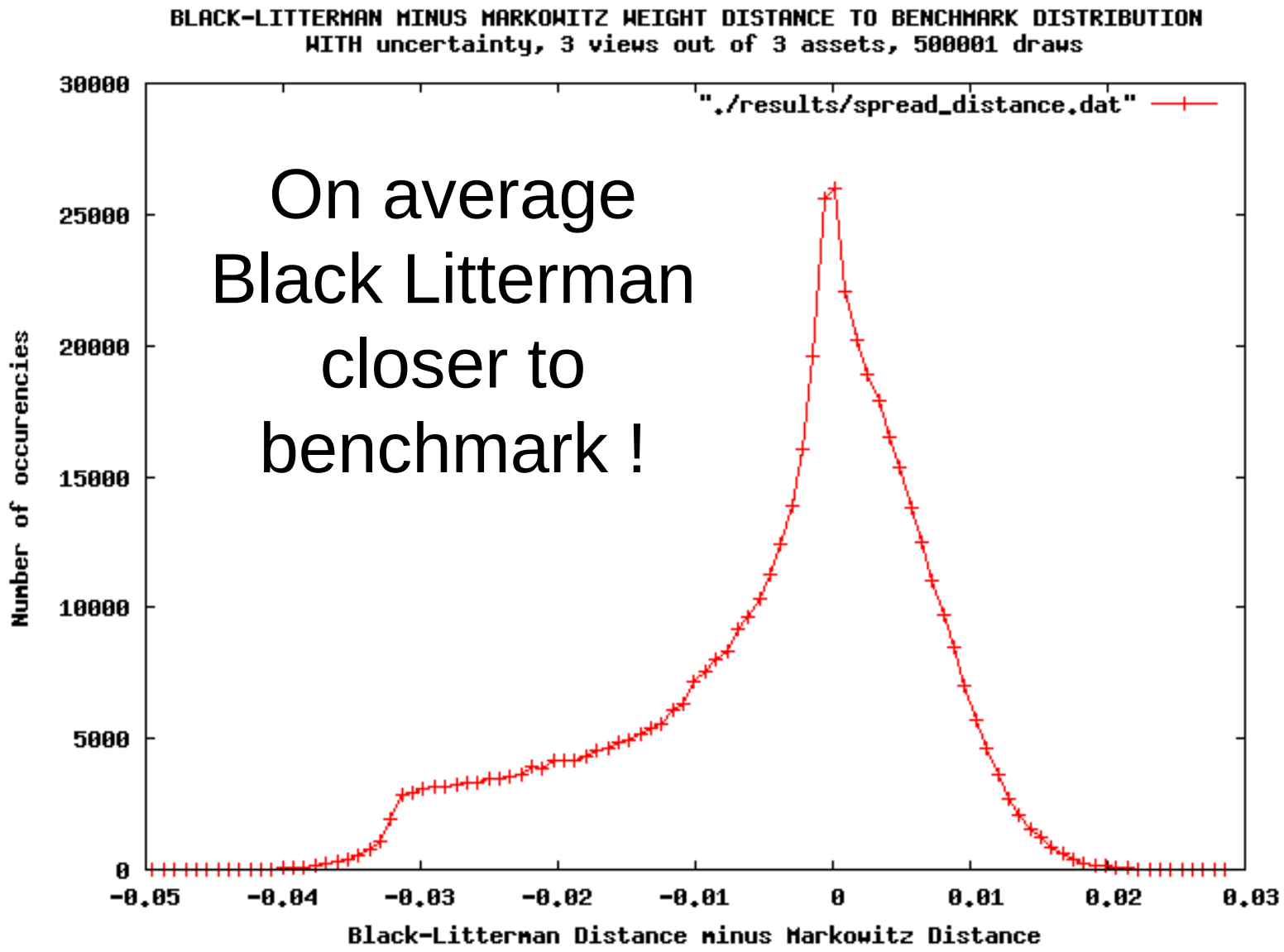
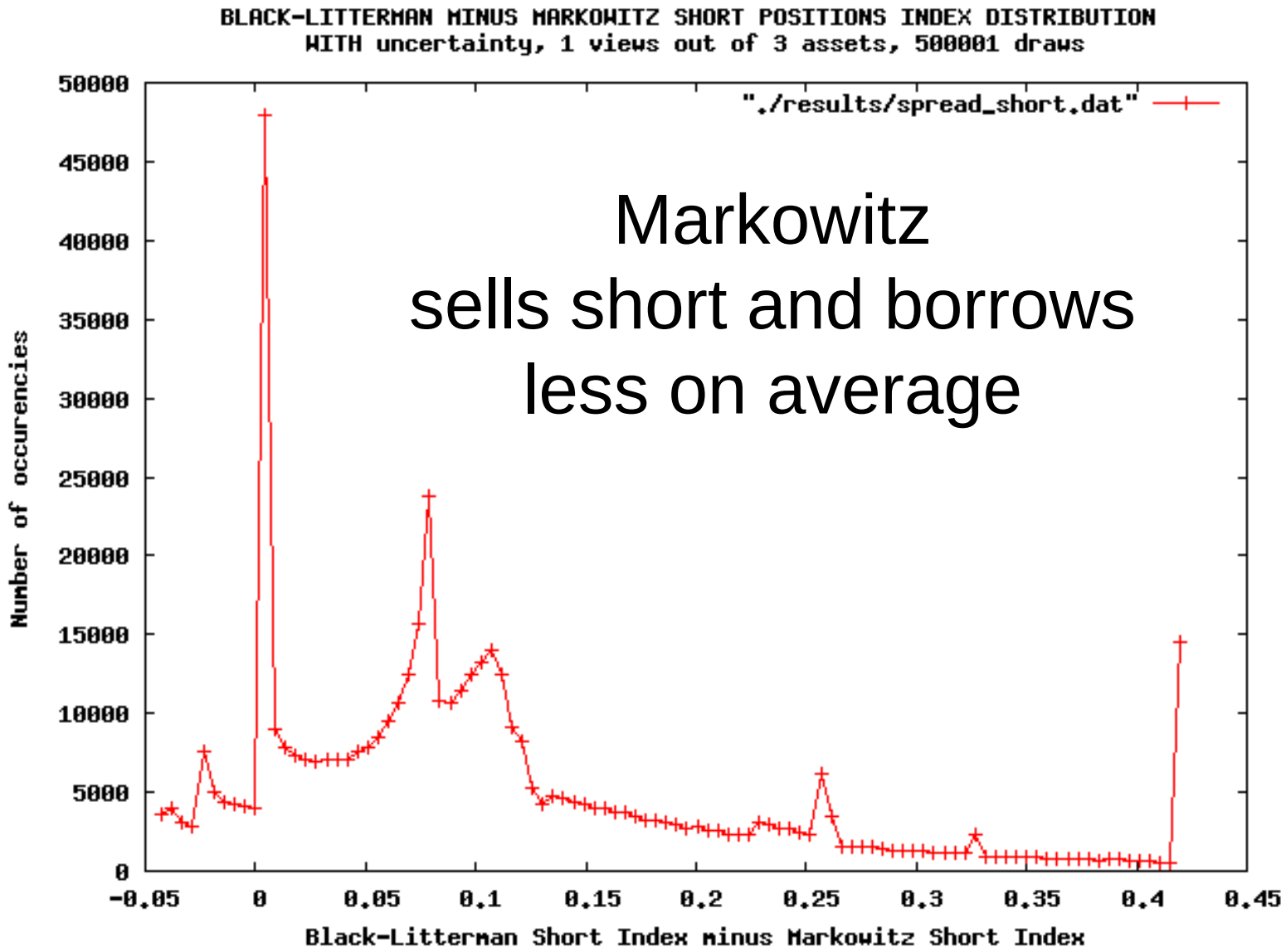


On average Black Litterman closer to benchmark !

Monte Carlo Approach



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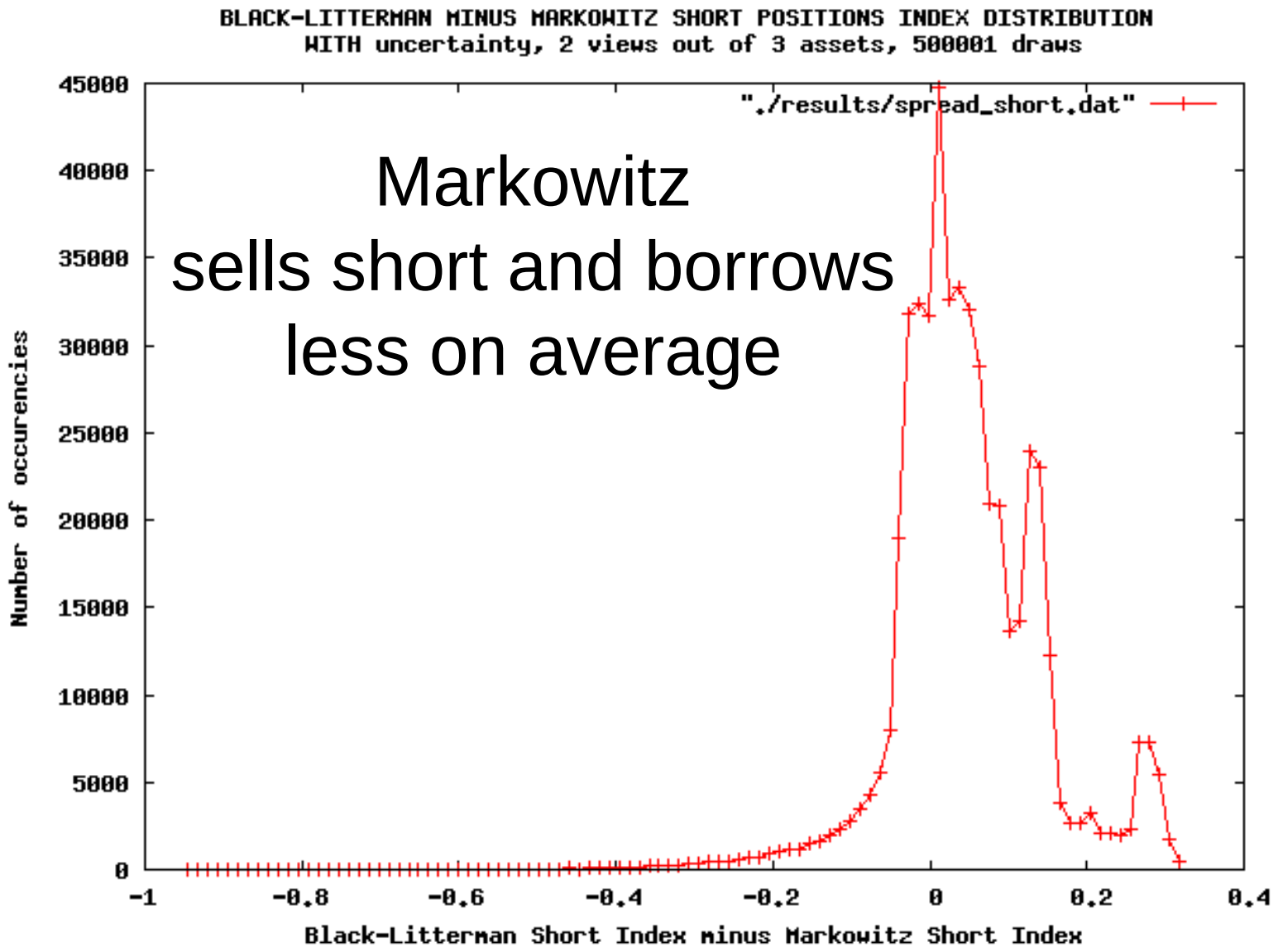

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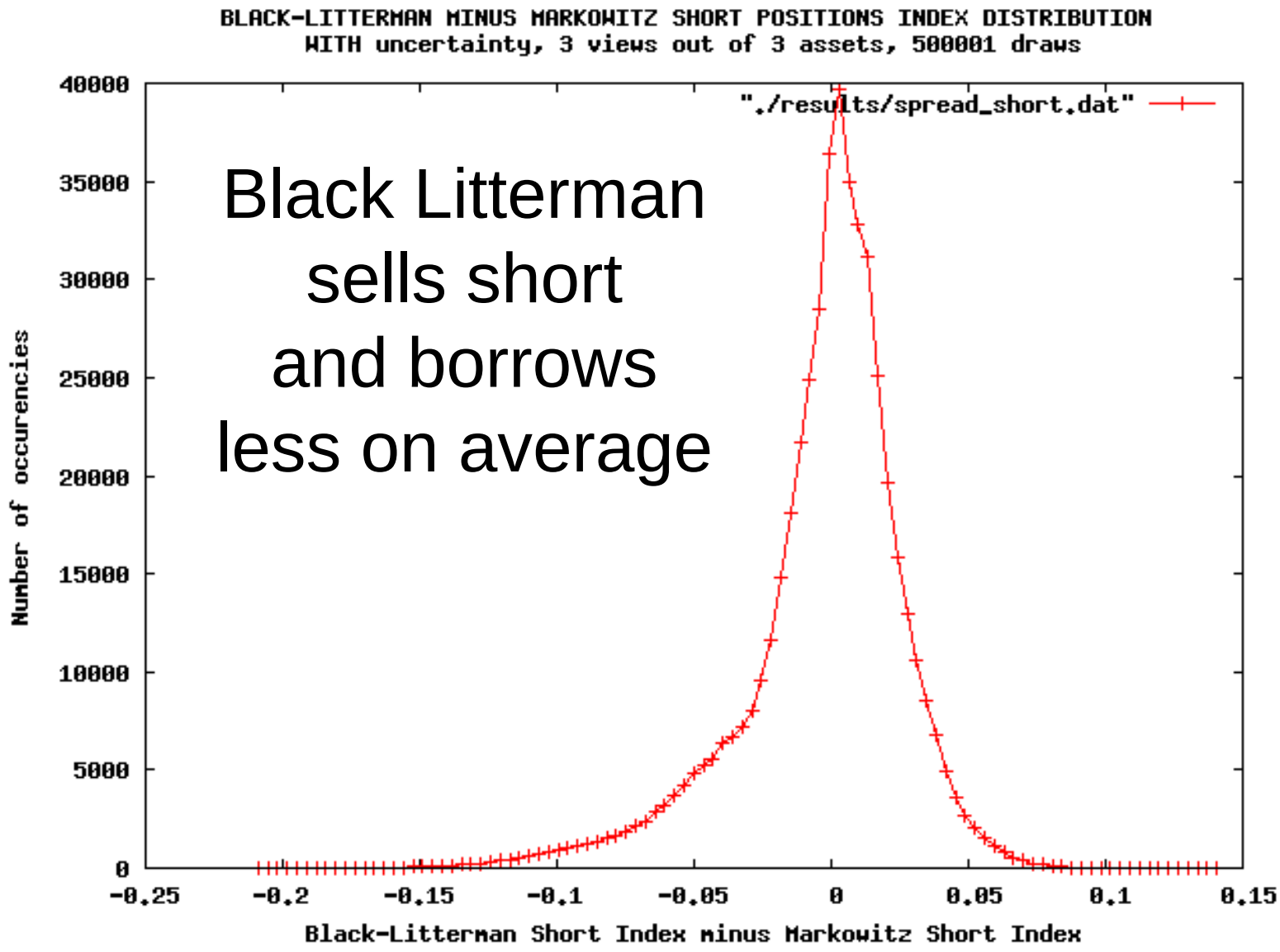

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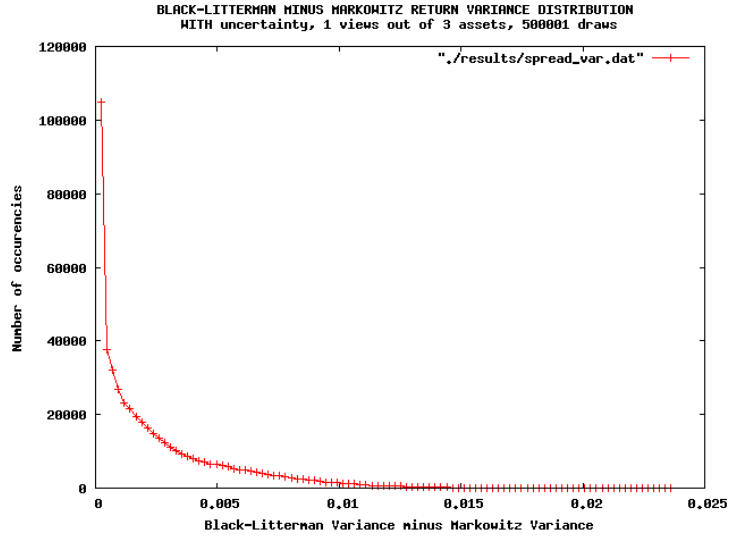

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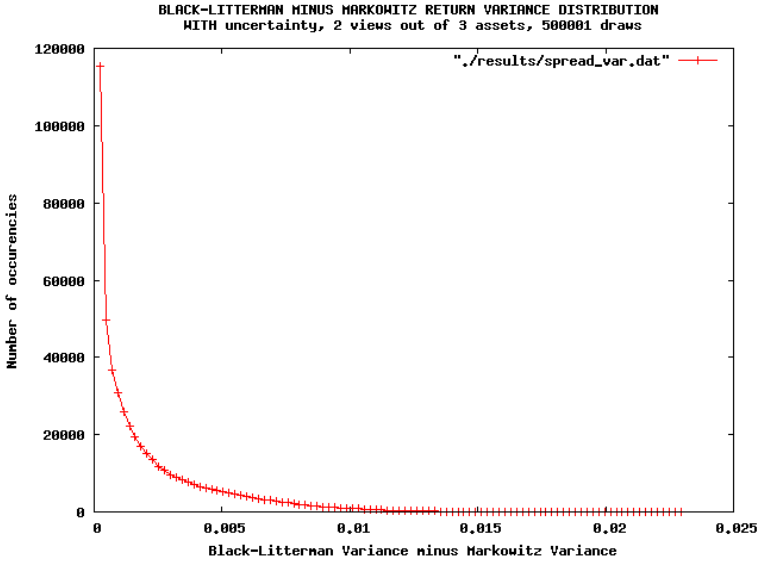
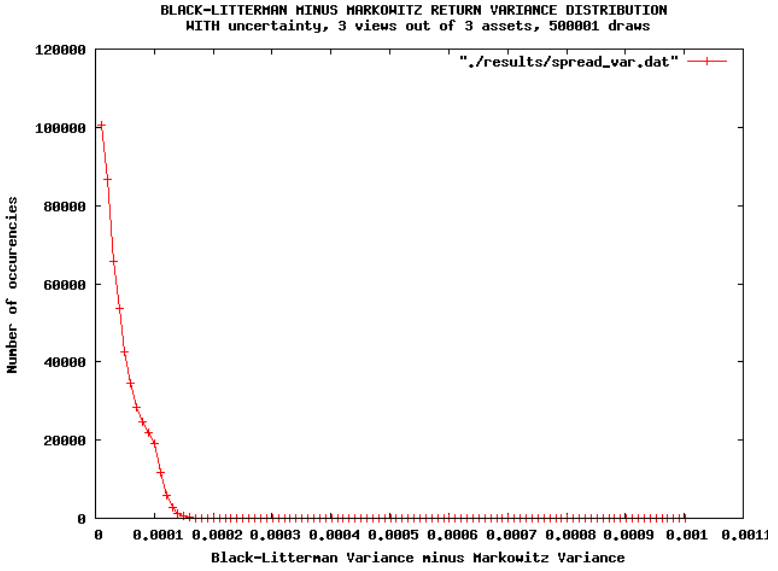
Same dominance





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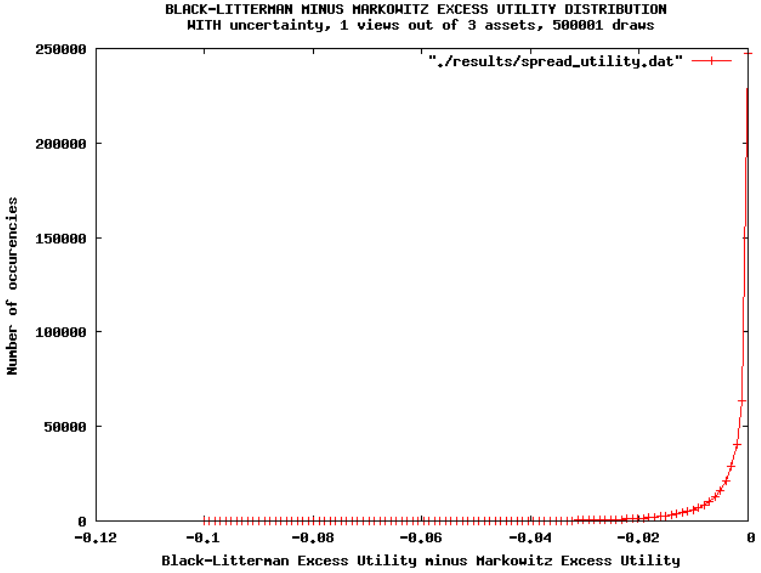

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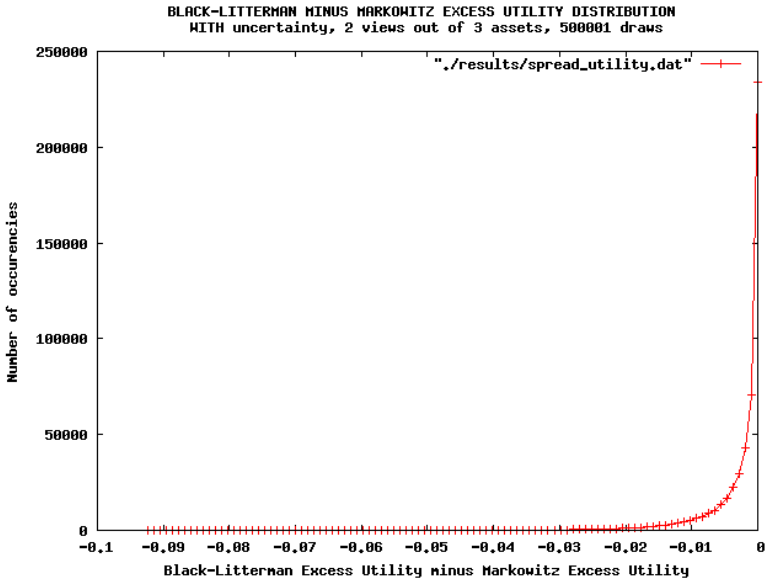

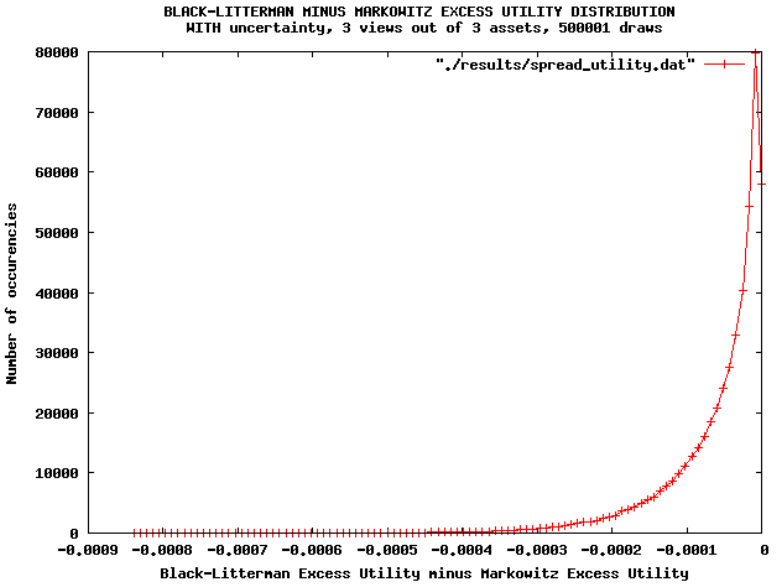

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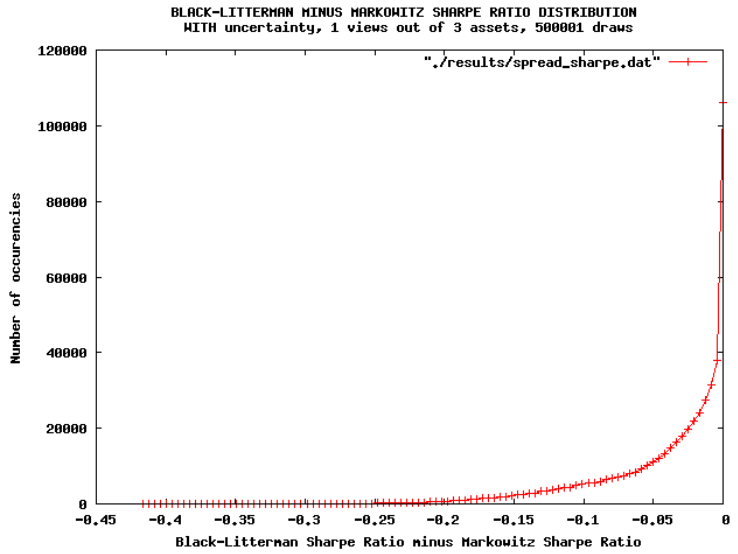

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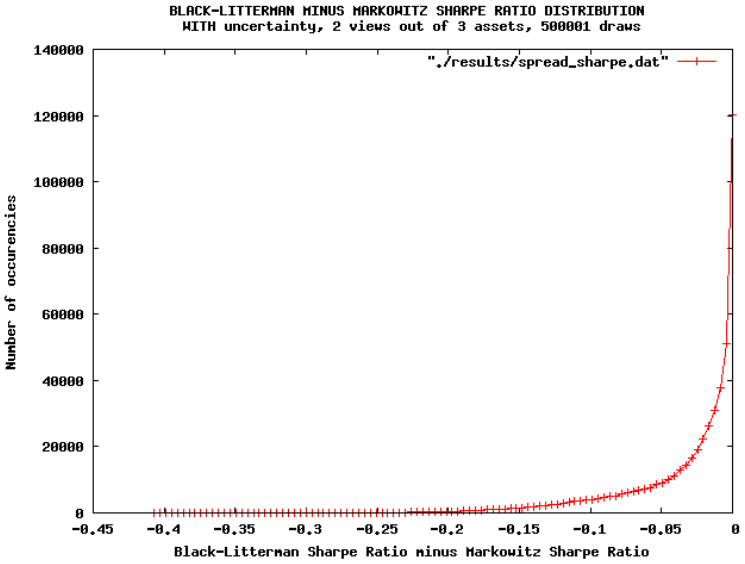

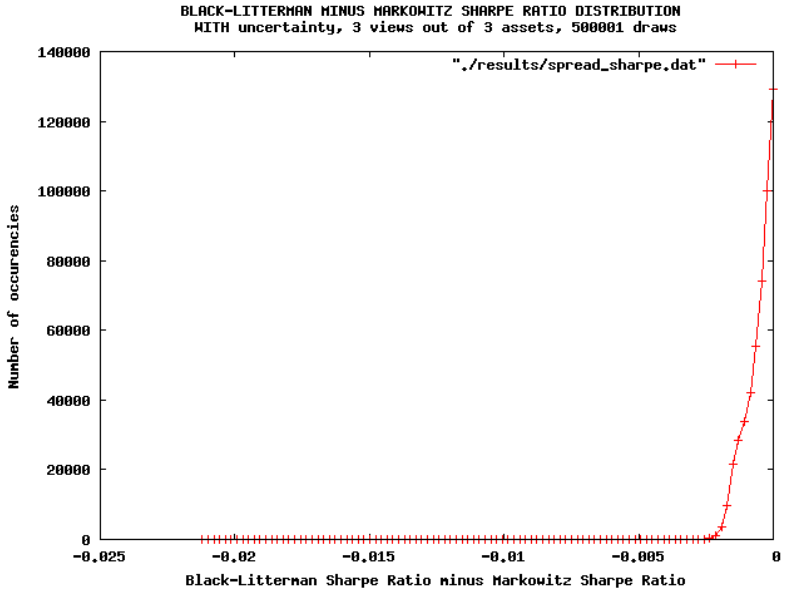

Conclusion

- Big surprise: on average Black Litterman beaten by Markowitz from weigthing stability standpoint !

  despite favorable δ (= 15)

- Has only average modest advantage when all assets are forecasted

- In all cases risk, Sharpe and utility deterministic dominance by Markowitz

Further Research

Heuristic analysis of the performance of the risky component of BL solution portfolio