Comments on

" *How Accurate are Value-at-Risk Models at Commercial Banks?*"

by Berkowitz and O'Brien

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European Central Bank

Answer: very inaccurate!

Two main concerns:

1) Estimates are too conservative

2) Exceptions tend to cluster over time

1) Conservative Estimates

Problems

- Effects on competitiveness
- Implicit penalty on firms with inaccurate risk management systems

1) Conservative Estimates (cont.d)

Causes

The authors mention three main reasons:

1) Presence of net fee income

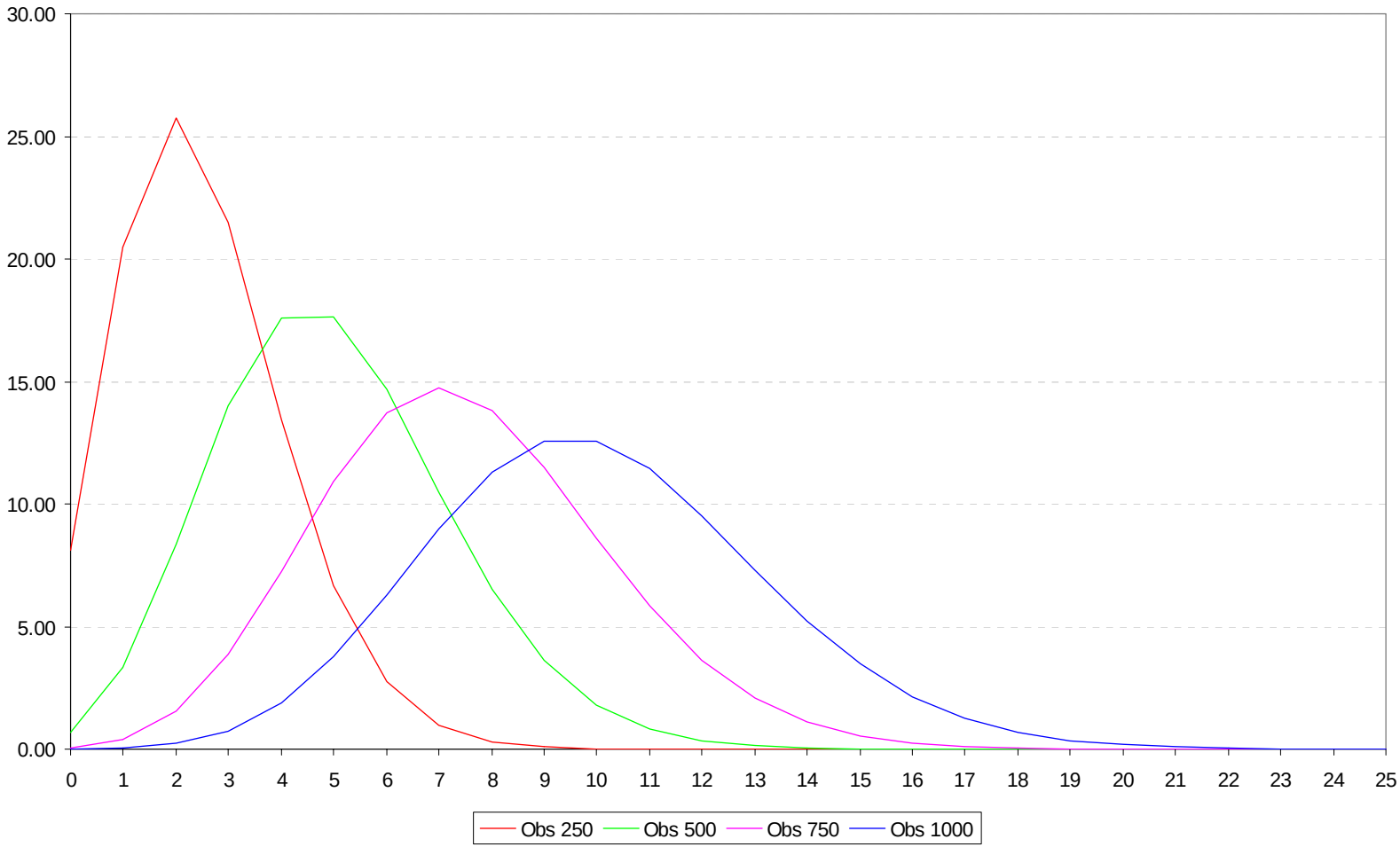
2) Aggregation under zero-correlation assumption

3) Large structural models difficult to estimate

Add a fourth:

4) Asymmetric penalties imposed by the Supervisor

		250			500			750			1000		
Exceptions	f(x)	F(x)	1-F(x)	f(x)	F(x)	1-F(x)	f(x)	F(x)	1-F(x)	f(x)	F(x)	1-F(x)
0	8.11	8.11	91.89	0.66	0.66	99.34	0.05	0.05	99.95	0.00	0.00	100.00
1	20.47	28.58	71.42	3.32	3.98	96.02	0.40	0.46	99.54	0.04	0.04	99.96
2	25.74	54.32	45.68	8.36	12.34	87.66	1.53	1.98	98.02	0.22	0.22	99.78
3	21.49	75.81	24.19	14.02	26.36	73.64	3.84	5.83	94.17	0.74	0.74	99.26
4	13.41	89.22	10.78	17.60	43.96	56.04	7.25	13.08	86.92	1.86	1.86	98.14
5	6.66	95.88	4.12	17.64	61.60	38.40	10.93	24.01	75.99	3.75	3.75	96.25
6	2.75	98.63	1.37	14.70	76.29	23.71	13.71	37.71	62.29	6.27	6.27	93.73
7	0.97	99.60	0.40	10.48	86.77	13.23	14.71	52.43	47.57	9.00	9.00	91.00
8	0.30	99.89	0.11	6.52	93.29	6.71	13.80	66.23	33.77	11.28	11.28	88.72
9	0.08	99.97	0.03	3.60	96.89	3.11	11.50	77.73	22.27	12.56	12.56	87.44
10	0.02	99.99	0.01	1.79	98.68	1.32	8.60	86.33	13.67	12.57	12.57	87.43
11	0.00	100.00	0.00	0.80	99.48	0.52	5.85	92.18	7.82	11.43	11.43	88.57
12	0.00	100.00	0.00	0.33	99.81	0.19	3.64	95.82	4.18	9.52	9.52	90.48
13	0.00	100.00	0.00	0.13	99.94	0.06	2.09	97.90	2.10	7.31	7.31	92.69
14	0.00	100.00	0.00	0.04	99.98	0.02	1.11	99.01	0.99	5.20	5.20	94.80
15	0.00	100.00	0.00	0.01	99.99	0.01	0.55	99.56	0.44	3.45	3.45	96.55
16	0.00	100.00	0.00	0.00	100.00	0.00	0.26	99.82	0.18	2.15	2.15	97.85
17	0.00	100.00	0.00	0.00	100.00	0.00	0.11	99.93	0.07	1.26	1.26	98.74
18	0.00	100.00	0.00	0.00	100.00	0.00	0.05	99.97	0.03	0.69	0.69	99.31
19	0.00	100.00	0.00	0.00	100.00	0.00	0.02	99.99	0.01	0.36	0.36	99.64
20	0.00	100.00	0.00	0.00	100.00	0.00	0.01	100.00	0.00	0.18	0.18	99.82
21	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.08	0.08	99.92
22	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.04	0.04	99.96
23	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.02	0.02	99.98
24	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.01	0.01	99.99
25	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00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Obs 250
Obs 500
Obs 750
Obs 1000

2) Clustering of Exception

Problem many exceptions clustered together can affect the soundness of a financial institution

Causes - bank VaR models do not adapt quickly to changes in volatility

- Supervisor backtest has *zero power* against this kind of misspecification

Conclusions

Increase the power of the backtest by:

1) Increasing the number of observations (e.g., 2 or 3 years)

2) Adopt a test that guarantees a conditional coverage and base performance assessment on p-values