Moderating "Cry Wolf" Events with Excess MAD

in Benford's Law Research and Practice

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Abstract

False positives or "Type I errors," wherein test results indicate fraud where none actually exists, have been described as a costly "cry wolf problem" in auditing practice. Benford's Law, used in screening for financial statement manipulation, is especially prone to false positives when applied to small and moderately sized data sets. Relying in part on Monte Carlo simulations, we describe with greater precision than extant literature the mathematical correlation between N and mean absolute deviation (MAD), a statistic increasingly used for assessing deviation from Benford's Law. We recommend replacing MAD with an alternative, Excess MAD, that explicitly adjusts for N in estimating deviation from Benford's Law. Applying non-parametric, generalized additive modelling to public company financial statement numbers, we demonstrate the differing outcomes expected from Excess MAD and MAD and produce evidence suggesting that, despite Sarbanes Oxley and Dodd Frank legislation, Benford's Law conformity of public company financial statement numbers remained relatively stable across four decades beginning in 1970.