Cosmetic Earnings Management in the Post-SOX Period: An Analysis of Entity Size

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Cosmetic earnings management (CEM) takes place when income lies just beneath a benchmark (e.g., $2.98 billion) and management modestly enhances earnings to reach the goal (e.g., $3.00 billion). U.S. studies show that CEM occurred prior to SOX but vanished afterward. Research on CEM after SOX, though, largely ignores the relationship between entity size and earnings management. This study tests for CEM post SOX but does so by separating the sample into quintiles based on entity size. While no evidence of CEM appears for the largest 80 percent of the company-years, significant CEM emerges within the quintile containing the smallest entities.

INTRODUCTION

As Kinnunen and Koskela (2003) note, earnings management represents one of the most frequently researched topics in accounting. For example, a recent search of the Business Source Complete database within the EBSCOhost platform revealed a total of 1,444 articles with the keywords "earnings management" in the title. Jackson and Pitman (2001, p. 39) state that earnings management embodies "an intentional structuring of reporting or production/investment decisions around the bottom line impact."

Actually, two broad forms of earnings management exist. Discretionary or accruals earnings management results from manipulating the estimates and judgments inherent in financial reporting. For example, to boost income in the current period, management could lower the estimated rate at which they expense expected warranty costs. On the other hand, real earnings management involves operating decisions to bring about desired effects on income. As an example, to lower expenses and enhance profit in the current period, management might cut back on research and development expenditures or postpone maintenance procedures. Financial statement preparers and users generally view real earnings management as less egregious or more ethical than discretionary earnings management. Indeed, Graham et al. (2005) show in a survey of chief financial officers that a significant majority (78 percent) of the respondents would engage in real earnings management to avoid reporting bumpy results.

Numerous studies reveal that earnings management decreased markedly after the Sarbanes-Oxley Act of 2002 (SOX). Crucial among these is research by Cohen et al. (2008) demonstrating that the incidence of accruals earnings management dropped noticeably in the post-SOX era even though the occurrence of real earnings management actually expanded precipitously after SOX. Bartov and Cohen (2009) and Aubert and Grudnitski (2014) show that earnings management to beat or meet analysts' predictions declined significantly post SOX. Other studies finding significant decreases in earnings management in the post-SOX period relative to the pre-SOX era include those by Chen and Huang (2013), Hossain et al. (2011), G. Krishnan et al. (2011), J. Krishnan et al. (2011), Kalelkar and Nwaeze (2011), and Rutledge et al. (2014).

The current research examines a particular brand of discretionary earnings management known as cosmetic earnings management (CEM), which involves an entity's "tendency to do small upward rounding of reported net income, when such rounding yields an earnings number that seems abnormally larger than would be the case otherwise (Kinnunen & Koskela, 2003, p. 40)." For example, unmanipulated income of $4.94 million might be increased through discretionary accruals until it just reaches $5.00 million. Management boosts income by this small amount because, as noted by Brenner and Brenner (1982), people often retain only the most meaningful digit in a number, which is the first or left-most digit. Thus, in the case above, management would prefer investors recall the entity's income as being in the $5 million range rather than the $4 million range.

Recent research shows that CEM regularly occurred in the U.S. prior to SOX but disappeared after SOX (e.g., see Aono & Guan, 2008; Jordan & Clark, 2011; Lin & Wu, 2014). Yet, these post-SOX studies of CEM do not consider the association between company size and the aggressiveness at which earnings management is practiced, when indeed significant research indicates that, in general, smaller companies exhibit a stronger potential for earnings management than larger entities (e.g., see Aharony et al., 1993; Gu et al., 2005; Johnson, 2009; Sevin & Schroeder, 2005). The current study tests for the presence of CEM in post-SOX samples segregated by entity size and finds evidence that managers of small companies still engage in this form of manipulative behavior.

The next section provides a review of the literature relative to CEM and the association between company size and earnings management in general; this section leads to the research question for the project. The following segment explains the methodology and data collection, while the last two sections provide the results and conclusions derived from the current study.

LITERATURE REVIEW

CEM occurs when the second-from-the-left digital position of the income number is large (i.e., a nine) and management boosts earnings just enough so that the second digit increases to zero, thereby simultaneously raising the first (left-most) digit by one. Thomas (1989) notes that managers have two incentives for making these small, yet judicial, upward manipulations of earnings. The first reason relates to firm valuation. In particular, Thomas (1989, p. 774) suggests that these "small changes in reported earnings near user reference points have disproportionately large effects on firm value." The second motivation stems from the use of accounting numbers, and in particular net income, in a variety of contracts. As Thomas (1989) indicates, loan documents and compensation agreements frequently contain stipulations in round income figures. Thus, diminutive changes in earnings close to these contractual benchmarks could produce significant cash flow consequences.

Kinnunen and Koskela (2003) note that the existence of CEM would be indicated in a sample of companies when a significantly lower rate of nines and greater frequency of zeros than anticipated materialize for the second digit of the earnings figure. The remaining numbers (i.e., one to eight) should occur in the second position of income at their normal frequencies. Several studies document the existence of CEM in the U.S. and abroad on a continuing basis prior to the turn of the millennium (e.g., Carslaw, 1988; Cox et al., 2006; Guan et al., 2006; Kinnunen & Koskela, 2003; Niskanen & Keloharju, 2000; Skousen et al., 2004; Thomas, 1989; Van Caneghem, 2002). Van Caneghem (2004) demonstrates

that management uses discretionary accruals to accomplish the earnings enhancements required to effect CEM.

Following the colossal financial debacles that rocked the U.S. in the early 2000s and the ensuing passage of SOX in 2002, studies indicate that CEM no longer exists in this country. For example, Wilson (2012) examines 2009 data for public companies in the U.S. and finds no evidence of CEM as all numbers (i.e., zero to nine) emerge in the second digital position of earnings at their normal frequencies. Three projects (Aono & Guan, 2008; Jordan & Clark, 2011; Lin & Wu, 2014) test for CEM in the U.S. by examining unique pre- and post-SOX samples. Each study finds clear signs of CEM in the pre-SOX era (i.e., decidedly more zeros and less nines than conventionally predicted as the second digit of the income number). Conversely, the studies find virtually no evidence of CEM in the post-SOX period.

Jordan and Clark (2015) test for CEM over an extended period in the U.S. by examining data for each decade from the 1920s through the 2000s. For each unique decade prior to SOX's implementation, the classic pattern of CEM appears (i.e., abnormally high rates of zeros and low frequencies of nines as the second digit of the earnings figure). In their sample covering the decade after SOX's passage, however, all evidence of CEM vanishes. Whether its disappearance is due to SOX's harsh disciplinary actions for deceitful reporting, changed attitudes by management and/or auditors relative to the ethicality of earnings management following the major cases of financial fraud discovered after the turn of the century, or some other (unknown) reason, the post-SOX literature seems to draw a consensus conclusion that, indeed, CEM no longer exists in the U.S.

Significant research indicates that managers of smaller companies engage in earnings management more extensively than managers of larger entities. For example, Aharony et al. (1993) test whether managers select accounting methods that enhance reported income in the year prior to taking their entities public. They find that, on average, smaller entities are more susceptible to this type of earnings management than larger companies. In examining earnings management to avert net losses, declines in earnings, and earnings below analysts' forecasts, Glaum et al. (2004) discover that in the U.S., smaller companies manage earnings more aggressively than larger ones. The researchers speculate that earnings management may be less pronounced for larger entities because they are monitored more intensely than smaller companies, thus making earnings management for larger entities more onerous to accomplish. Furthermore, Glaum et al. (2004) posit that smaller companies may practice earnings management more extensively to enhance their somewhat limited ability to obtain financing in the capital markets.

Gu et al. (2005) test for the variability of accruals as it relates to different company characteristics and discover that the variability increases as entity size decreases. The increased variability of discretionary accruals among smaller entities makes it easier for them to manage earnings, compared to larger companies with less operating volatility. Johnson (2009) uses data analytics to examine the reporting of income and earnings per share numbers for large market capitalization (above $45 billion) and small market capitalization (below $45 billion) entities. His results suggest that small market capitalization entities are more apt to engage in earnings management than large market capitalization companies. Johnson (2009, p. 51) speculates that "large market companies are often more scrutinized by the SEC, media, financial analysts, and investors and may, therefore, be more careful in how earnings are reported." Sevin and Schroeder (2005) study the propensity of companies to use goodwill impairments as a means of effecting "big bath" earnings management and find that smaller companies are much more inclined to take these "big bath" write-downs than larger entities.

Despite the considerable body of literature suggesting that the likelihood of managers engaging in earnings management, in general, increases as company size decreases, only one post-SOX study of CEM considers whether entity size affects this particular form of earnings management. Jordan et al. (2008) examine the potential effects of various company characteristics (i.e., operating performance, debt leverage, and company size) on CEM, but do so with a rather limited sample. That is, their sample comprises only 749 companies from one post-SOX year (2006).

To examine the effects of entity size, Jordan et al. (2008) split their sample into two groups based on asset size and test for CEM within each subsample. Not surprisingly based on the post-SOX studies discussed previously, Jordan et al. (2008) find no evidence of CEM for the subsample of larger entities.

For the 375 smaller companies, though, they discover some signs of CEM, albeit not in the classic pattern (i.e., abnormally less nines and more zeros than predicted as the second digit of the earnings figure). Instead, for the smaller entities, zeros appear as the second digit of the income number at their conventional (i.e., expected) rate, while ones occur in this position more often than anticipated. This higher than expected frequency of ones could simply be a data anomaly associated with the researchers' limited sample and may not necessarily reflect CEM behavior.

These somewhat inconclusive findings leave a void in the literature concerning CEM in the post-SOX era and lead to the research question for the present study. That is, given the aggressiveness at which smaller entities have been shown to practice earnings management in general, has CEM truly been eradicated in the post-SOX era or is this form of earnings management inversely related to entity size and still practiced by the managers of smaller companies?

METHODOLOGY AND DATA COLLECTION

As noted earlier, the primary indicator of CEM for a sample of companies is an underrepresentation of nines and overabundance of zeros as the second digit from the left in the earnings figure. The remaining numbers (one to eight) should occur as the second digit at their anticipated frequencies. Thus, a key question for CEM research is what are the expected distributions for the numbers zero to nine appearing as the second digit of unmanipulated data?

In the early 1930s, Frank Benford (a GE physicist) discovered that for naturally occurring data, the numbers one to nine do not occur in the first (left-most) digital position at identical rates. Similarly, the numbers zero to nine do not appear in the second-from-the-left position at equal rates. Rather, small numbers (e.g., zeros, ones, or twos) appear in these first two digital positions at noticeably higher frequencies than large numbers (e.g., eights or nines). Naturally occurring data simply means numbers not generated by a computer or contrived (i.e., made up) by man.

Benford (1938) developed mathematical formulas for estimating the proportions at which the numbers zero to nine should occur in each digital position of naturally occurring data. He then compared his mathematically derived digital proportions to the real-world digital frequencies found in several large databases (e.g., drainage basins of rivers, population parameters, etc.) and discovered that his formulas accurately computed or emulated the digital proportions appearing in nature. Table 1 shows the frequencies at which Benford's theorems indicate the numbers zero to nine would be expected to appear in the three left-most digital positions of real world data. These digital rates are often cited merely as Benford's Law.

TABLE 1
BENFORD'S EXPECTED DIGITAL FREQUENCIES

	Position of digit in number		
Digit	First	Second	Third
0		11.97%	10.18%
1	30.10%	11.39	10.14
2	17.61	10.88	10.10
3	12.49	10.43	10.06
4	9.69	10.03	10.02
5	7.92	9.67	9.98
6	6.70	9.34	9.94
7	5.80	9.04	9.90
8	5.12	8.76	9.86
9	4.58	8.50	9.83

Source: Nigrini & Mittermaier (1997).

Interpreting Benford's Law is reasonably straightforward. For example, Table 1 shows that ones would be expected to occur as the first (left-most) digit of real-world data at the rate of 30.10 percent, while nines should emerge in the first digital position at the frequency of 4.58 percent. Zeros would be expected as the second digit 11.97 percent of the time, while nines would be anticipated in the second position only 8.50 percent of the time. Notice in the third-from-the-left digital position that the discrepancy in the expected rates of the numbers zero to nine varies little, and each number possesses an almost proportional (i.e., about 10 percent) likelihood of emerging as the third digit. To the right of the third digit, these discrepancies become even less pronounced as the expected frequency for each number (zero to nine) converges on 10 percent.

Nigrini (1996) notes that while adherence of a set of financial numbers to Benford's Law does not prove definitively the numbers are not contrived or managed to desired outcomes, lack of conformity signals serious doubt about the naturalness of the data. All previous research testing for CEM uses Benford's rates for evaluating the observed percentages of the numbers zero to nine occurring as the second digit of the income number. As such, the present study uses Benford's Law as well.

The objective of the current study is to test for CEM in the post-SOX era using samples segregated by entity size. SOX's first full year of implementation was 2003; thus, the sample period covers the years 2003 through 2014 and comprises all U.S. company-years with positive income contained in the Annuals Fundamental files of the COMPUSTAT database. The sample excludes company-years with negative income because, as Thomas (1989) shows, companies with negative income are less prone to engage in CEM than are entities with positive earnings. Income before extraordinary items represents the earnings figure examined. To ensure the second position of the income number was not rounded when incorporated into the COMPUSTAT database, only company-years with a minimum of three digits in the earnings figure comprise the sample.

First, the full data set is examined for the presence of CEM in the post-SOX era in general. Then, to evaluate the effect of entity size, this overall sample is segregated based on asset size into five subsamples, with each one containing one-fifth of the total company-years. The first subsample, or quintile one, comprises the largest entities, with each succeeding quintile containing companies smaller in size than the preceding quintile.

Intuitively, simple growth over time can create noise in a sample spanning 12 years. For example, a large entity in 2003 might be only average sized compared to 2014 companies. To maintain the relative size of the companies within each year, the overall sample is separated by year and the size quintiles within each year are determined. Then, the corresponding quintiles for each year are combined. For example, the final subsample for quintile one includes the largest entities from each year, while the final subsample for quintile five comprises the smallest companies from each year.

Tests are then performed on each of the five quintiles to ascertain whether entity size affects the practice of CEM in the post-SOX era. Two-tailed proportions tests along with their Z-statistics are used for evaluating the statistical significance of the disparity between the actual and expected proportions for each number zero to nine appearing as the second digit of the earnings figure. A stringent alpha level of .01 is used to minimize the likelihood that differences between the observed and expected frequencies occurring due to random chance are mistakenly identified as management manipulation. For example, testing at a less rigorous alpha level (i.e., .05) means there exists a 50 percent probability that at least one of the ten numbers (zero to nine) should materialize at a significantly different rate than expected simply due to random occurrence.

RESULTS

Table 2 provides the results for the full sample including all 48,001 company-years with positive income for the period 2003 through 2014. The first two rows of data comprise the observed count and frequency at which each number zero to nine shows up as the second digit of the earnings figure. As an example, zeros occur as the second digit 5,838 times, which represents 12.16 percent of the total company-years. The next row provides Benford's rate at which each number would be expected to

materialize in the second position of naturally occurring data. For instance, absent intentional interference by man, zeros would be expected as the second digit of the income number 11.97 percent of the time. The last two rows contain the statistical parameters of the two-tailed proportions tests used for evaluating the discrepancy between the observed and expected frequencies of each number zero to nine occurring as the second digit of the income figure. Again using zeros as an example, Table 2 shows a Z statistic and p-level of 1.291 and .197, respectively, for the disparity between the actual and conventional (or expected) rates of zeros in the second position.

TABLE 2
RATES FOR SECOND DIGITAL POSITION OF INCOME (2003-2014 FULL SAMPLE)

N = 48,001; Median total assets = $1,046 million; Median ROA = 4.32%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	5,838	5,536	5,237	5,082	4,760	4,622	4,456	4,347	4,181	3,942
Observed rate (%)	12.16	11.53	10.91	10.59	9.92	9.63	9.28	9.06	8.71	8.21
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	1.291	.980	.205	1.120	-.821	-.297	-.420	.115	-.378	-2.252
p-level	.197	.327	.838	.263	.412	.767	.674	.909	.706	.024

Testing at a .01 significance level, the results in Table 2 reveal no evidence of CEM in the post-SOX period for the overall sample of company-years since the actual rate for every number (zero to nine) appearing as the second digit of the earnings figure conforms to its expected frequency. This finding comes as no surprise given the results of the prior research testing for CEM in the post-SOX era using general samples comprised of companies of varying sizes (e.g., see Aono & Guan, 2008; Jordan & Clark, 2015; Lin & Wu, 2014; Wilson, 2012). However, the primary purpose of the current study is ascertaining whether entity size impacts the propensity of managers to engage in CEM in the post-SOX era and, accordingly, if smaller companies still practice CEM.

Panels A through E of Table 3 provide the findings for the five post-SOX subsamples segregated by entity size. Panel A contains the results for quintile one, comprising the 9,600 largest company-years in the post-SOX period. Notice the median total assets of the company-years in this subsample is about $19.91 billion. Again testing at a .01 significance level, the results in Panel A suggest the largest companies in the post-SOX era do not engage in CEM since the observed percentages of all numbers zero to nine emerging as the second digit of the earnings figure square with their conventional rates.

Panels B, C, and D present the findings for quintiles two, three, and four, respectively. Similar to quintile one, no evidence of CEM exists for these three quintiles since all numbers zero to nine occur as the second digit of the earnings figure at their normal rates. Thus, for the largest 80 percent of the company-years, it seems that CEM has been eradicated in the post-SOX era.

The results in Panel E for quintile five paint a markedly different picture though. This quintile comprises the 9,601 smallest company-years in the post-SOX era and demonstrates the traditional pattern of CEM that prevailed in the pre-SOX studies. More specifically, nines emerge as the second digit of the income number significantly less frequently than expected (i.e., p-level of .006), while zeros occur as the second digit at a significantly higher rate than anticipated (i.e., p-level of .008). The remaining numbers (i.e., one to eight) materialize as the second digit of the earnings figure at their normal rates.

These results add to the earnings management literature in two important ways. First, they indicate that, like other forms of earnings management in general, management's propensity to round earnings up to key benchmarks (i.e., CEM) seems to be inversely related to entity size. Managers of the smallest publicly-traded companies appear much more prone to engage in CEM than managers of large or even medium-sized entities. Second, and more importantly, the findings in the current study indicate that while CEM seems to have been eliminated for a significant portion of U.S. companies, it still exists for a specific segment of the market (i.e., for smaller entities). Thus, the present study shows that CEM remains

a continuing issue, despite the findings of the prior CEM studies whose analyses of general post-SOX samples suggest this type of earnings management no longer occurs.

TABLE 3
RATES FOR SECOND DIGITAL POSITION OF INCOME (2003-2014 BY SIZE QUINTILE)

Panel A: Quintile one; N = 9,600; Median total assets = $19,908 million; Median ROA = 3.23%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	1,126	1,114	1,072	1,047	960	956	881	805	888	751
Observed rate (%)	11.73	11.60	11.17	10.91	10.00	9.96	9.18	8.39	9.25	7.82
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	-.711	.645	.886	1.510	-.081	.939	-.531	-2.219	1.680	-2.361
p-level	.477	.519	.376	.131	.936	.348	.595	.026	.093	.018
Panel B: Quintile two; N = 9,600; Median total assets = $3,264 million; Median ROA = 3.70%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	1,145	1,067	1,067	1,064	961	926	853	886	827	804
Observed rate (%)	11.93	11.11	11.11	11.08	10.01	9.65	8.89	9.23	8.61	8.38
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	-.114	-.833	.722	2.078	-.047	-.063	-1.513	.629	-.486	-.421
p-level	.909	.405	.470	.038	.963	.950	.130	.530	.627	.674
Panel C: Quintile three; N = 9,600; Median total assets = $1,057 million; Median ROA = 3.77%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	1,161	1,132	1,033	1,019	946	936	864	891	808	810
Observed rate (%)	12.09	11.79	10.76	10.61	9.85	9.75	9.00	9.28	8.42	8.44
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	.358	1.223	-.360	.575	-.557	.248	-1.127	.807	-1.172	-.201
p-level	.720	.221	.719	.565	.578	.804	.260	.420	.241	.840
Panel D: Quintile four; N = 9,600; Median total assets = $354 million; Median ROA = 4.54%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	1,172	1,092	1,020	985	916	903	950	884	841	837
Observed rate (%)	12.21	11.38	10.63	10.26	9.54	9.41	9.90	9.21	8.76	8.72
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	.704	-.030	-.786	-.527	-1.576	-.857	1.854	.557	-.017	.750
p-level	.482	.976	.432	.598	.115	.391	.064	.577	.987	.453
Panel E: Quintile five; N = 9,601; Median total assets = $54.06 million; Median ROA = 7.54%										
Second income digit	0	1	2	3	4	5	6	7	8	9
Observed count (n)	1,234	1,131	1,045	967	977	901	908	881	817	740
Observed rate (%)	12.85	11.78	10.88	10.07	10.18	9.38	9.46	9.18	8.51	7.71
Expected rate (%)	11.97	11.39	10.88	10.43	10.03	9.67	9.34	9.04	8.76	8.50
Z statistic	2.649	1.187	-.003	-1.131	.459	-.930	.378	.447	-.850	-2.766
p-level	.008*	.235	.998	.258	.646	.353	.706	.655	.395	.006*

*Significant at .01 level.

Of course, there exists a chance that some factor besides entity size could be driving the results in the current study. That is, perhaps the CEM appearing in quintile five is caused by an unknown factor, which merely corresponds with entity size. For example, concerning the practice of earnings management in

general, Yoon and Miller (2002, p. 395) demonstrate that "when operating performance is poor, firms tend to choose income increasing strategies."

Thus, if the company-years in quintile five (i.e., the smallest entities) also happen to suffer from the poorest operating performance of the five quintiles, this could explain why this group continues to increase income to user reference points in the post-SOX era. However, examining return on assets (ROA) as a measure of operating performance reveals this is not the case. More specifically, Table 3 shows that the companies in quintile five use their assets remarkably well to generate profits as the median ROA of 7.54 percent for this quintile exceeds the median ROA for all the other quintiles. Based on the operating performance motive, the entities in quintile five would have less incentive to practice CEM than the companies in the other four quintiles.

Research in the U.S. suggests that Big N (i.e., 8, 7, 6, 5, or 4) auditors constrain their clients' discretionary accruals and limit their ability to manipulate earnings more aggressively than non-Big N auditors (e.g., see Becker et al., 1998; Francis & Krishnan, 1999; Francis et al., 1999; Krishnan, 2003). Obviously, of the five size-based quintiles examined in the current study, quintile five would have the heaviest concentration of company-years audited by non-Big N CPA firms, which could explain why entities in this quintile continue to practice CEM in the post-SOX era (i.e., perhaps their auditors just do not constrain the earnings rounding as aggressively as the auditors of the entities in the other four quintiles). Research by Jordan et al. (2011) dispels this notion, though, as they explicitly test for CEM in the post-SOX era for samples of companies delineated by their audit firms (i.e., entities with Big N auditors versus entities with non-Big N auditors). Their results reveal that the Big N/non-Big N dichotomy appears unrelated to the practice of CEM in the post-SOX period as the clients of neither group employ this type of earnings management.

While some unknown factor could be driving the results in the present study, the most likely answer is probably explained by Occam's razor or the law of parsimony, which states that the simplest hypothesis requiring the least number of assumptions typically represents the correct conclusion (Bogle & Nolan, 2015). That is, CEM continues to be practiced in the post-SOX era for the companies in quintile five simply because smaller entities are more prone to earnings management than are larger companies.

SUMMARY AND CONCLUSION

In the pre-SOX period, CEM represented a common and longstanding form of earnings management as ample research documents its occurrence in the U.S. throughout much of the 1900s (e.g., see Jordan & Clark, 2015; Thomas, 1989). The consensus of most research on CEM after SOX, though, is that this form of manipulative behavior has been eradicated for publicly-traded entities (e.g., see Aono & Guan, 2008; Lin & Wu, 2014; Wilson, 2012). The decline of CEM post SOX for most entities is not surprising given the research showing that discretionary earnings management in general decreased significantly after SOX (e.g., see Cohen et al., 2008; Ibrahim et al., 2011). The findings in the current study that CEM continues in the post-SOX era for the quintile of the smallest public companies, though, adds to the mounting evidence in the literature that, overall, the intensity at which earnings management occurs is inversely related to entity size (e.g., see Aharony et al., 1993; Glaum et al., 2004; Johnson, 2009; Sevin & Schroeder, 2005).

The exact reason small companies continue to practice CEM can only be speculated. Gu et al. (2005) demonstrate that smaller entities experience greater variability in their accruals than larger companies. Thus, managers of smaller companies might simply have more opportunity to engage in discretionary earnings management than managers of larger entities. As Glaum et al. (2004) posit, maybe managers of smaller entities are under more pressure to manage earnings, especially to key reference points, than are managers of larger companies to improve their rather limited ability to raise funds in the capital markets. Johnson (2009) suggests that relative to larger entities, smaller companies experience less scrutiny by outside parties (i.e., SEC, media, financial analysts, etc.). Thus, managers of smaller entities may be more emboldened to manipulate earnings under the belief that their actions will never come to light. Future research would be needed to ascertain the definitive reason(s) why small public entities engage in CEM in

the post-SOX era while their larger counterparts seem to have abandoned this form of earnings management.

REFERENCES

Aharony, J., Lin, C., & Loeb, M. (1993). Initial public offerings, accounting choices, and earnings management. *Contemporary Accounting Research*, 10(1), 61-81.

Aono, J. & Guan, L. (2008). The impact of the Sarbanes-Oxley Act on cosmetic earnings management. *Research in Accounting Regulation,* 20, 205-215.

Aubert, F. & Grudnitski, G. (2014). The impact of SOX on opportunistic management behavior. *International Review of Financial Analysis,* 32, 188-198.

Bartov, E. & Cohen, D. (2009). The "numbers game" in the pre- and post-Sarbanes-Oxley eras. *Journal of Accounting, Auditing & Finance,* 24(4), 505-534.

Becker, C., DeFond, M., Jiambalvo, J., & Subramanyam, K. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research*, 15(1), 1-24.

Benford, F. (1938). The law of anomalous numbers. *Proceedings of the American Philosophical Society*, 78(4), 551-572.

Bogle, J. & Nolan, M. (2015). Occam's Razor redux: Establishing reasonable expectations for financial market returns. *Journal of Portfolio Management*, 42(1), 119-134.

Brenner, G. & Brenner, R. (1982). Memory and markets, or why are you paying $2.99 for a widget? *Journal of Business*, 55(1), 147-158.

Carslaw, C. (1988). Anomalies in income numbers: Evidence of goal oriented behavior. *The Accounting Review*, 63(2), 321-327.

Chen, S. & Huang, C. (2013). The Sarbanes-Oxley Act, earnings management, and post-buyback performance of open-market repurchasing firms. *Journal of Financial and Quantitative Analysis*, 48(6), 1847-1876.

Cohen, D., Dey, A., & Lys, T. (2008). Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review,* 83(3), 757-787.

Cox, S., Guan, L., & Wendall, J. (2006). Biased rounding in the reported earnings of financial firms. *Bank Accounting & Finance*, 19(5), 29-32.

Francis, J. & Krishnan, J. (1999). Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research*, 16(1), 135-165.

Francis, J., Maydew, E., & Sparks, S. (1999). The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory*, 18(2), 17-34.

Glaum, M., Lichtblau, K., & Lindemann, J. (2004). The extent of earnings management in the U.S. and Germany. *Journal of International Accounting Research*, 3(2), 45-77.

Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1-3), 3-73.

Gu, Z., Lee, C-W., & Rosett, J. (2005). What determines the variability of accounting accruals? *Review of Quantitative Finance & Accounting,* 24(3), 313-334.

Guan, L., He, D., & Yang, D. (2006). Auditing, integral approach to quarterly reporting, and cosmetic earnings management. *Managerial Auditing Journal,* 21(6), 569-581.

Hossain, M., Mitra, S., Razaee, Z., & Sarath, B. (2011). Corporate governance and earnings management in the pre- and post-Sarbanes-Oxley Act regimes: Evidence from implicated option backdating firms. *Journal of Accounting, Auditing & Finance,* 26(2), 279-315.

Ibrahim, S., Xu, L., & Rogers, G. (2011). Real and accrual-based earnings management and its legal consequences: Evidence from seasonal equity offerings. *Accounting Research Journal,* 24(1), 50-78.

Jackson, S. & Pitman, M. (2001). Auditors and earnings management. *The CPA Journal*, 71(7), 39-41.

Johnson, G. (2009). Using Benford's Law to determine if selected company characteristics are red flags for earnings management. *Journal of Forensic Studies in Accounting and Business,* 1(2), 39-65.

Jordan, C. & Clark, S. (2011). Detecting cosmetic earnings management using Benford's Law. *The CPA Journal*, 81(2), 32-37

Jordan, C. & Clark, S. (2015). The effect of the Sarbanes-Oxley Act on cosmetic earnings management: Additional evidence. *Oil, Gas & Energy Quarterly*, 63(4), 639-650.

Jordan, C., Clark, S., & Pate, G. (2008). Earnings manipulation to achieve cognitive reference points in income. *Academy of Accounting and Financial Studies Journal*, 12(3), 97-112.

Jordan, C., Pate, G., & Clark, S. (2011). Does cosmetic earnings management exist in the U.S.: Testing for the effects of operating performance and auditor size. *Journal of Business and Economic Perspectives,* 38(1), 50-60.

Kalelkar, R. & Nwaeze, E. (2011). Sarbanes-Oxley Act and the quality of earnings and accruals: Market-based evidence. *Journal of Accounting and Public Policy,* 30(3), 275-294.

Kinnunen, J. & Koskela, M. (2003). Who is Miss World in cosmetic earnings management? A cross-national comparison of small upward rounding of net income numbers among eighteen countries. *Journal of International Accounting Research*, 2, 39-68.

Krishnan, G. (2003). Audit quality and the pricing of discretionary accruals. *Auditing: A Journal of Practice & Theory*, 22(1), 109-126.

Krishnan, G., Raman, K., Yang, K., & Yu, W. (2011). CFO/CEO-board social ties, Sarbanes-Oxley, and earnings management. *Accounting Horizons*, 25(3), 537-557.

Krishnan, J., Su, L., & Zhang, Y. (2011). Nonaudit services and earnings management in the pre-SOX and post-SOX eras. *Auditing: A Journal of Practice & Theory*, 30(3), 103-123.

Lin, F. & Wu, S. (2014). Comparison of cosmetic earnings management for the developed markets and emerging markets: Some empirical evidence from the United States and Taiwan. *Economic Modelling,* 36, 466-473.

Nigrini, M. (1996). A taxpayer application of Benford's Law. *Journal of the American Taxation Association*, 18(1), 72-91.

Nigrini, M. & Mittermaier, L. (1997). The use of Benford's Law as an aid in analytical procedures. *Auditing: A Journal of Practice & Theory*, 16(2), 52-67.

Niskanen, J. & Keloharju, M. (2000). Earnings cosmetics in a tax-driven accounting environment: Evidence from Finnish public firms. *European Accounting Review*, 9(3), 443-452.

Rutledge, R., Karim, K., & Luo, X. (2014). The effects of SOX on firms audited by Big-4 versus non-Big-4 audit firms. *Journal of Accounting and Finance*, 14(1), 86-102.

Sevin, S. & Schroeder, R. (2005). Earnings management: Evidence from SFAS No. 142 reporting. *Managerial Auditing Journal*, 20(1), 47-54.

Skousen, C., Guan, L., & Wetzel, T. (2004). Anomalies and unusual patterns in reported earnings: Japanese managers round earnings. *Journal of International Financial Management & Accounting*, 15(3), 212-234.

Thomas, J. (1989). Unusual patterns in reported earnings. *The Accounting Review*, 64(4), 773-787.

Van Caneghem, T. (2002). Earnings management induced by cognitive reference points. *British Accounting Review*, 34(2), 167-178.

Van Caneghem, T. (2004). The impact of audit quality on earnings rounding-up behaviour: Some U.K. evidence. *European Accounting Review*, 13(4), 771-786.

Wilson, T. (2012). Further evidence on the extent of cosmetic earnings management by U.S. firms. *Academy of Accounting and Financial Studies Journal,* 16(3), 57-64.

Yoon, S. & Miller, G. (2002). Cash from operations and earnings management in Korea. *International Journal of Accounting*, 37(4), 395-412.