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Accuracy and Pervasiveness of Earnings Management Practices in Islamic Banking Institutions

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Abstract

This paper investigates issues related to the Burgstahler and Dichev methodology (1997) applied to test earnings management (EM) in Islamic banking institutions (IBIs) using earnings measured over alternative periods. These alternative periods are periods ending at the first three quarters of the fiscal year. We compare the statistical properties of fiscal year earnings to annual earnings starting with the fiscal year quarters two, three and four. In general, our results for the higher moments of the earnings distribution are more consistent with the EM hypothesis than with the settling up hypothesis. When the predictions of the two hypotheses differ, our results are generally more consistent with predictions resulting from the EM hypothesis. We find evidence of higher degree of EM pervasiveness to avoid losses, consistent with a higher motivation to manipulate earnings. Such a motivation is affected by the way banks approach the zero earnings target. IBIs approaching the target from below show higher pervasiveness than IBIs approaching the target from above.

Keywords: Earnings Management, Quarterly Earnings, Settling Up, Earnings Management Pervasiveness , Islamic Banking Institutions

1. Introduction

It is commonly tested whether companies are managing their earnings not to descend below significant thresholds (such as zero earnings or zero earnings increases) or to meet or beat analysts' expectations. Faouzi and Zarai (2012) analyzed the distribution of net income and changes in that and provided conclusive evidence that Islamic banking institutions (IBIs) methodically avoid reporting losses. They document that the histogram of scaled net profit distributable has discontinuities around zero with a disproportionately low density in the interval immediately to the left of zero and a disproportionately high density in the interval which includes zero. They attribute these findings to earnings management (EM) by Islamic banks to meet earnings thresholds of zero earnings.

Some previous studies question whether EM is responsible for the discontinuity around zero in the distribution of earnings and earnings changes. For example, Beaver, McNichols, and Nelson (2003) investigated whether special items and the asymmetric tax treatment of positive and negative earnings could be responsible for the observed discontinuity at zero in the distribution of earnings and earnings changes.

Degeorge and al. (1999) asserted that the results might be affected by deflating mechanism. They suggested that deflating disperses non-zero observations in the distribution while not dispersing observations that are exactly zero. They claimed that this contributes to the discontinuity at zero in the distribution of earnings and earnings changes (Jacob and Jorgensen, 2005).

Likewise, Durtschi and Easton (2005) suggested that the discontinuity at zero in net income scaled by the market value of equity is a consequence of the deflating mechanism used and of selection biases. They asserted that deflating moves small loss companies away from zero while it moves small profit companies towards zero inducing the presence of a discontinuity at zero. Durtschi and Easton (2005) also found that deflating by total assets or revenues induces similar biases as deflating by market value of equity.

Based on the previous comments, we examine whether prior findings relative to earnings management behaviour in Islamic banks are indeed a consequence of the deflating procedures. We test the asymmetric effects of taxes on profit and loss. We also investigate the reasons for the higher volatility of fourth-quarter earnings. We attempt to distinguish between the "settling up" effect attributable to the integral approach to quarterly income and EM as reasons for this difference in volatility. Doing so, we will be able to shed some light on the debate over whether the observed discontinuities in the distribution of fiscal year earnings are attributable to EM or rather whether they are induced by the testing procedures used.

We also address another issue that has confronted researchers investigating discontinuities in the histogram of accounting income, i.e., the degree of which EM are pervasive in Islamic banks. Moreira and Pope, (2007)

proposed measurement methodology is raised to analyze this construct.

In this paper, we assume that managers are particularly concerned about fiscal year earnings reported in IBIs' annual reports because many bonus and compensation schemes are based on earnings measured over this time period. These pay schemes provide incentives for managers to manipulate fiscal year income to maximize their compensation. Incentives to manage income are probably strongest in the fourth quarter of the fiscal year. At this time managers are likely to have a good sense of where they stand in relation to annual targets. Consistent with this, prior research provides evidence that the characteristics of fourth quarter earnings differ from earnings for the other three quarters (Jacob and Jorgensen, 2005). We treat the IBI's choice of fiscal year as exogenous to our investigation. We do not view manager's choice of fiscal year end as a strategic variable in the short-term.
This paper proceeds as follows. Section Tow describes our investigations into earnings management to meet thresholds. Section Three describes our tests to discriminate between earnings management and the "settling up" phenomenon. In Section Four, we analyze the pervasiveness of any EM. Finally, in Section Five, we state the main conclusions.

2. Investigation Into Earnings Management To Meet Thresholds

2.1. Test of Whether the Discontinuities are Induced by Scaling

In this paragraph, we investigate issues related to the Burgstahler and Dichev methodology (1997) applied to test for earnings management in IBIs using earnings measured over alternative periods. These alternative periods are periods ending at the first three quarters of the fiscal year. The intuition underlying the use of these alternative periods is that earnings measured over these periods are less likely to suffer from the effects of managerial income manipulation than earnings measured over the fiscal year. Since managers are unlikely to be evaluated based on earnings for annual periods other than the fiscal year, they have less incentive to manage these earnings. In addition, if fiscal year earnings are managed through the use of accounting accruals in the fourth quarter and if some of these accruals reverse over subsequent quarters, these alternative annual earnings likely better represent the economic earnings for a year than the fiscal year earnings reported in annual financial statements. Using the histograms of our alternative estimates of annual earnings we examine whether the results indicating that IBIs manage their earnings are indeed a consequence of the scaling procedures used in prior papers (Jacob and Jorgensen, 2005).

2.1.1. Sample Selection

Our sample consists of an unbalanced panel of annual and unconsolidated report data from Islamic banks between 2000 and 2009. The sources of the bank and SSB data used for the empirical analysis are Islamic Banks and Financial Institutions Information System (IBIS)[11] and our own research of the information presented on the web sites of Islamic banks in the sample to complete and to countercheck the selected data. Our analysis is thus based on a micro panel of annual supervisory bank-level data from 125 Islamic banks for the years 2000 through 2009. Due to lack of data and mergers during the observed time period, the panel is unbalanced and consists of 1242 bank-year observations. To be included in the sample, a bank must have income statement and balance sheet information for at least two consecutive years12.

There are 137 Islamic banks in the original sample. We omitted 6 banks that have available data for only one year, 4 banks with missing data for at least one variable used in the later analysis, one bank without the needed consecutive information, and one bank without data for the study period. The final sample comprises 125 Islamic banks consisting 1242 bank-year observations, across 27 countries and for the fiscal years 2000 to 2009. In this paper, we investigate two earnings variables: the earnings change and the earnings level. For the earnings change study, there are 551 bank-year observations and for the earnings level study, there are 691 bank-year observations.

2.1.2. Variables Measurement

Similar to Faouzi and Zarai (2012), we define earnings levels as annual net distributable earnings to measure our

[11]This database is confectioned by Islamic Research and Training Institute (IRTI) and it is directed to "the community of researchers and finance professionals working in the area of Islamic economics and finance. It seeks to provide comprehensive data and information on the activities of Islamic finance institutions, up-to-date research and literature. It provides Islamic banks database along with tools for online analysis and download. It also features recent research activities conducted by IRTI."
[12] since we scale earnings data by lagged assets

first threshold, which is avoiding losses. Annual net earnings changes are defined as net earnings in *t* minus net earnings in *t*-1 to measure our second threshold, which is avoiding earnings decreases. We deflate earnings levels and earnings changes by the bank's total assets (Mard, 2004) for the purpose of reducing the heteroscedasticity[13] problem. Hence, for every IBI and for every alternate period of the time period (2000–2009), we calculate the following ratios:

2.1.3. Research Design on Earnings Management: Discontinuity in Distribution of Earnings

Following Jacob and Jorgensen (2005), we examine the histograms of scaled earnings computed over alternate periods as a preliminary investigation of whether scaling is responsible for prior results. We thus construct histograms for earnings measured over alternate periods, periods ending in the first, second, and third quarters of the fiscal year. If prior results are due to some mechanical effect, such as the one induced by scaling, we are likely to observe similar patterns in the histograms of earnings for these other annual periods. If, on the other hand, the patterns we find are attributable to EM at fiscal year end, we must find the pattern of fiscal year earnings but not for the other three annual periods.
To achieve this purpose, we first proceed by examining a graphical distribution of reported earnings around key earnings thresholds to observe discontinuities in the distribution. Second, following Burgstahler and Dichev (1997), we compute the test statistics to demonstrate and test for discontinuities in the distribution.

2.1.3.1. Graphical Evidence

To test the existence of EM to avoid losses, we present graphical evidence in the form of histograms of the pooled cross-sectional empirical distributions of scaled earnings. EM to avoid losses is likely to be reflected in cross-sectional distributions of earnings in the form of unusually low frequencies of small losses and unusually high frequencies of small positive earnings.
Positive values of earnings consist of the IBIs successfully avoiding losses and negative values consist of the banks reporting of losses. If managers are trying to avoid losses, we expect to observe an unusually large number of observations immediately to the right of zero and unusually few observations immediately to the left of zero.
To examine the existence of EM to avoid earnings decrease we construct a historical histogram of the pooled cross-sectional empirical distributions of deflated earnings changes. The distributions of the change in earnings will not display a normal curve if the bank executives do EM in order to meet or exceed this threshold. More explicitly**,** if executives are trying to avoid decreases in earnings, we expect to observe an unusually large number of observations immediately to the right of zero, and unusually few observations immediately to the left of zero.

EM to avoid decreases in earnings is likely to be reflected in pooled cross-sectional distributions of earnings in the form of abnormally low frequencies of small decreases in earnings and abnormally high frequencies of small increases in earnings.

2.1.3.2. Statistical Test

The statistical test consists of making the difference between the actual number of observations and the number of expected ones in an interval *i* (immediately to the right and to the left of zero) divided by the estimated standard deviation of this difference. Specifically, the statistical test, as developed by Burgstahler and Dichev (1997), is expressed in this study as follows:

$$DSi\,(standardised\ difference) = \frac{(AQi - EQi)}{SDi}$$

Where

- AQ_i**:** the actual number of observations falling in interval i,
- EQ_i: the expected number of observations in interval i. In particular, $EQ_i = (AQ_{i-1} + AQ_{i+1})/2$**.**
- SD_i: the estimated standard deviation of the difference between the actual and expected numbers of observations around interval i[14]. In particular,

[13] In this frame, several approaches were used in the relative accounting and financial literature. Note, for instance, the market value, the accounting value and sales or total assets (Burgstahler & Dichev, 1997).
[14] They further gave the variance estimation in the footnote six:
"Since the number of observations in an interval is a random variable which is approximately independent of the number in adjacent intervals, the variance of the difference between the observed and expected number of observations is

$$SDi = [Np_i(1 - p_i) + (1/4)N(p_{i\_1} + p_{i+1})(1 - p_{i\_1} - p_{i+1})]^{1/2},$$

Where,

- ✓ N is the total number of observations in the sample;
- ✓ p_i is the proportion of the actual number of observations for interval i to the bank-periods; namely $p_i = AQ_i/N$;
- ✓ $p_{i-1} = AQ_{i-1}/N$
- ✓ $p_{i+1} = AQ_{i+1}/N$.

The assessment of the significance of these statistics is performed against 1.645. The values of DS, which are equal or superior in absolute value to 1.645, show the evidence of EM to achieve thresholds. This number corresponds to a level of significance of 5% for a standardized normal distribution (Brown and Caylor, 2005).
Based on the works of Burgstahler and Dichev (1997) as well as those of Brown and Caylor (2003), we consider a threshold with highly negative values of DS as being evidence of the existence of a more important EM.

2.1.4. Results

Figure.1 depicts the histograms of annual and alternate period's earnings deflated by beginning total assets. The discontinuity around zero is visually apparent for fiscal year earnings but not for earnings computed for the alternate periods.

[Insert Figure.1]

Table.1 presents results for the tow intervals around zero for levels of scaled earnings. For each of the intervals, we present results for the four periods, i.e., for periods ending at the first , second , third and fourth quarters. The last annual period, ending in the fourth quarter, corresponds to the fiscal year. For each period, the table displays SDI-statistic for the statistical significance of the deviancy of the actual frequency from the expected frequency.

[Insert Table.1]

The results presented in Table.1 confirm prior findings for fiscal year annual earnings around zero. The frequency in the interval immediately to the left of zero is significantly lower than expected and the frequency in the interval to the right of zero is significantly higher than expected. The SDI-statistics corresponding to these intervals are strongly significant, statistically (p = 0.001, and p = 0.01 respectively). According to the EDA, this is consistent with management of annual earnings to avoid reporting losses.

However, we find that periodic earnings computed using the interim alternate periods do not share these characteristics (excepting, to some extent, for the alternate period ending in the third quarter). We conjecture that the reason we observe results for the annual period ending in the third quarter similar but weaker than those for fiscal year earnings is that there is indication that IBIs also can manage third quarterly earnings to achieve thresholds (DeGeorge et al.,1999). This phenomenon would render the patterns induced by EM to meet fiscal-year targets less distinct. The magnitude of the discontinuity around zero is considerably higher for fiscal year earnings than for any of the other three alternate periods. These results do not support DeGeorge et al. (1999) and Durtschi and Easton (2005)'s argument that scaling induces the results that Burgstahler and Dichev (1997) report in the area of zero in the histogram of scaled earnings.

If EM is more prevalent at fiscal year-end than at the end of other alternate periods, the histogram of fiscal year earnings might be less smooth, i.e., have more discontinuities than the histogram of earnings for the other periods. We investigate this assumption by calculating the average of the absolute values of the SDI-statistics for the intervals of the histograms of earnings distinctly for each period. Consistent with this hypothesis, we find that the average SDI-statistic is significantly higher for the histogram of fiscal year earnings than for any of the other alternate periods (excepting, once more for the alternate period ending in third quarter). The average SDI-statistic is 0.877 for periods ending in the first quarter, 0.773 for periods ending in the second quarter, 1.025 for periods ending in third quarter and 0.914 for the fiscal year earnings.
The results of a similar analysis for changes in net income are presented in *Table.2.*

[Insert Table.2]

The results do not support the EM hypothesis for fiscal year scaled earnings changes. However, somewhat surprisingly, earnings computed for the other alternate periods appear to share this property, although to a lesser extent. The deviation from the expected frequency in the first interval immediately to the left of zero is negative

approximately the sum of the variances of the components of the difference. Denoting the total number of observations as N and probability that an observation will fall into interval i by pi, the variance of the difference between the observed and expected number of observations for interval i is approximately Npi(1-pi) + (1/4)N(pi-1+ pi+1)(1- pi-1– pi+1)."

and this deviation in interval 0 is positive for all four annual periods. We suppose that the reason we observe this phenomenon is that the distribution of earnings changes has a natural peak directly to the right of zero. Changes in earnings tend thus to be slightly positive. This is obvious from the histograms for changes in earnings deflated by total assets of equity for all four periods presented in *figure.2*

[Insert Figure.2]

The results shown in *Tables.1* and *2* would seem to argue against scaling being primarily responsible for the detected discontinuities. The discontinuities at zero, when present, in the distribution of our alternate annual earnings measures, scaled similarly to fiscal year earnings, are much smaller in magnitude and usually not statistically significant. The results are very similar to those reported in Faouzi an Zarai (2012), where the earning is scaled by Islamic bank total assets. Overall, the results reported in *Tables 1* and *2* suggest that the discontinuity at zero in the distribution of scaled earning is not due to the scaling mechanism and is very likely related to EM to attain earnings thresholds.

2.2. Test of Whether the Discontinuity is Due to the Asymmetric Tax Treatment of Profits and Losses

Beaver, McNichols and Nelson (2003) suggested that because of restrictions on tax refunds for loss firms, the taxes related with profits are proportionally higher than the tax savings related with losses. Small profits are thus taxed in a different way than small losses. They claimed that this asymmetric tax treatment can explicate a considerable proportion of the discontinuity at zero in scaled net income. If a substantial portion of the discontinuity of net income is attributable to tax effects, the discontinuity at zero in pre-tax income should be noticeably smaller. Beaver, McNichols and Nelson (2003) tested this assertion for pre-tax income scaled by market value of equity at the beginning of the year and found that the magnitude of the discontinuity is significantly reduced compared with the discontinuity in similarly scaled net income. In this section , we carried out the same analysis on scaled profit before taxes and zakat scaled by total assets (hereafter pre-tax earnings or pre-tax earnings respectively changes).

Figure.3 displays the histograms of pre-tax earnings and pre-tax earnings changes respectively for the fiscal year annual period.

[Insert Figure.3]

The results, presented in *Table.3*, are very similar to those for scaled earnings. Again, the actual frequency in the first interval immediately to the left of zero is significantly lower than expected (SDI = - 3.21) and the actual frequency in the first interval immediately to the right of zero is significantly higher than expected (SDI = 2.32). It is clear that a substantial proportion of the discontinuity at zero in the histogram of scaled earnings is also present in the histogram of pre-tax income. These results seem to indicate that the asymmetric tax treatment of gains and losses is not primarily responsible for the discontinuity at zero in scaled earnings.

[Insert Table.3]

For changes in pre-tax scaled earnings, matching the previous year's pre-tax income may not be important to Islamic bank executives. The results are not significant as for zero scaled earning thresholds. In fact, the frequency of observations for fiscal year pre-tax earnings in the first interval immediately to the right of zero is significantly higher than expected (SDI= 0.35; <1.645). Moreover, the deviation of actual from the expected frequency in the first interval immediately to the left of zero is not significantly different from zero (SDI = -1.049 ; <1.645). While we cannot exclude the possibility that the asymmetric tax treatment of gains and losses contributes to the discontinuity at zero in the histogram of scaled earnings changes, it seems that this phenomenon is not principally responsible for the phenomena documented the EDA we use in this chapter.

Brief our findings appear to support Faouzi and Zarai (2012) findings that the discontinuities in earnings and earnings change distributions are symptomatic of EM. It does not appear that distortions or selection biases introduced by the asymmetric tax treatment of gains and losses wholly explain our findings.

3. Discrimination Between Earnings Manangement And The "Settling Up" Phenomenon

Collins, Hopwood, and McKeown (1984), among others, documented that fourth-quarter earnings are more volatile than interim quarter earnings. They attributed this increased volatility to several sources, namely:

- The larger occurrence of write-offs and asset sales in the fourth quarter (Bartov, 1993).
- Under the integral approach to accounting, quarterly earnings are presumed to be an integral part of annual earnings and consequently fourth quarter earnings are used to reconcile or "settle up" annual earnings with the sum of quarterly earnings in the former three quarters. Under this approach, any estimation errors in the preceding three quarters are adjusted through fourth quarter earnings – a method which could make fourth quarter earnings more volatile.

- Fourth quarter earnings are more volatile because of EM practices (Oyer, 1998).

Other studies study earnings response coefficients (ERCs) associated with earnings from different quarters. Differences in ERCs between the fourth and other quarters could have numerous causes. First, annual earnings are audited while interim earnings are merely reviewed. Second, for seasonal companies, the fourth quarter often has the maximum revenue and consequently the most influential in determining annual income. Third, the "settling up" effect defined in the prior paragraph causes the fourth quarter earnings to be volatile. For instance, firms using intermittent LIFO for inventory use estimates to compute interim earnings. This could induce greater volatility in the fourth quarter' earnings when rectifications are made. Finally, EM in the fourth quarter could cause earnings for this quarter to be more volatile and less helpful. The first explanation would expect higher ERCs for the fourth-quarter earnings whereas the last two explanations predict lower ERCs. The majority of empirical evidence (Salamon and Stober, 1994) suggested that ERCs are lower for fourth quarter unpredicted earnings.

Overall, there are conflicting explanations for the lower ERCs for the fiscal fourth-quarter earnings. One model suggests that the integral approach to interim earnings causes the fourth-quarter earnings to be more noisy than earnings for the other three quarters because the fourth quarter earnings are employed to 'settle up', or reconcile, the fiscal year earnings with the earnings of the previous three quarters. The earnings of the previous three quarters could use approximations and estimates that may need to be corrected in calculating annual earnings. Another possible justification is that the fourth quarter earnings encompass more noise because of EM at fiscal year-end.

Lipe and Bernard (2000) hypothesized that if settling up causes noisy fourth quarter earnings then the fiscal year earnings should be less volatile than annual earnings measured over other quarters. They argued that this is because settling up corrects for errors in the earnings recorded in the first three quarters and renders the fiscal year earnings more precise and less noisy. They also predict that, if this is the case, volatility should gradually increase as we move to annual periods ending in the first, second, and third quarters as noise in earnings increases.

If the fourth quarter earnings are noisy because of EM through accruals manipulation and some of this accrual manipulation reverses over subsequent quarters, the expectations reverse. Fiscal year annual earnings would be anticipated to be the most volatile. The reversing accruals cause earnings measured over annual periods to become less volatile as we move to annual periods ending at quarter one and two. Volatility reaches its lowest level for the annual period ending in the third quarter when accruals have reversed to the highest extent.

Jacob and Jorgensen (2005) validated Lipe and Bernard (2000)'s predictions for the higher moments of earnings, under both scenarios, using simulations. The simulation results confirm their intuition about the patterns that are induced by EM to meet fiscal year targets. Variance is highest for fiscal year earnings (earnings for the annual period ending at the fourth quarter). Also variance declines monotonically as we move from the fiscal year to annual periods ending at the end of the first, second, and third quarters. Skewness is lowest for fiscal year earnings and rises monotonically as we move to annual periods ending at the first, second, and third quarters. Kurtosis is highest for fiscal year earnings and lowest for annual earnings for the annual period ending at second quarter.

They also simulate quarterly earnings under the 'settling up' premise. Again, consistent with the intuition, under the 'settling up' premise, variance is lowest for the annual period ending in quarter four. It increases monotonically and attains its peak for the period ending in third quarter. The skewness coefficient is lowest for the annual period ending in first quarter and is highest for the period ending in second quarter. The kurtosis coefficient is highest for fiscal year earnings and is lowest for the period ending in second quarter. The simulation results suggest that both the EM and the 'settling up' theories have similar expectations for kurtosis but very different expectations for the variance and skewness of annual earnings from the four annual periods. *Table.4* below summarizes the behaviours of the three moments under the "Settling up" premise and EM premise.

[Insert Table.4]

Following Lipe and Bernard (2000), we test our predictions using a pooled cross-sectional sample. We examine higher moments of annual earnings. Prior research documented that write-offs are more common in the fourth quarter (Elliot and Shaw, 1988). A possible manifestation of the big bath phenomenon, this could cause fiscal year earnings to be negatively skewed compared to earnings for other annual periods. We assume that some of the effects of the big bath reverse in following quarters and therefore the effects are not as obvious on the earnings of other annual earnings periods (Jacob and Jorgensen, 2005). We measure the skewness of Islamic banks' annual earnings in each of the four ways to examine if fiscal year earnings are more negatively skewed.

Bartov (1993) found that over half of the sales of long-lived assets occur in the fourth quarter. Elliott and Shaw (1989) suggested that the majority of write-offs takes place in the fourth quarter. If Islamic banks manage earnings by taking write-offs and recognizing gains on asset sales in the fourth quarter, the distribution of earnings would have fatter tails in the fiscal year compared to other intermediate periods. We test for this by measuring the kurtosis, the fourth moment, of the distribution. Fatter tails would cause kurtosis to be higher. We measure the kurtosis coefficient of fiscal year earnings and compare it to the kurtosis coefficient of earnings measured over other quarterly periods.

We investigate the statistical properties of the distribution of annual net income to see if they conform to the patterns under either of the hypotheses. We analyse the moments of net income. We investigate, in sequence, the higher moments, variance, skewness, and kurtosis corresponding to the second, third, and fourth central moments respectively. The results are reported in *Table.5*.

[Insert Table.5]

Our results for the variance, as reported in of *Table.5*, are more consistent with the EM hypothesis than the settling up hypothesis. The rank of the variance of fiscal year earnings is significantly higher than the rank for any of the other three intermediate periods. This result is more consistent with EM at the fiscal year-end than with effects induced by fourth quarter earnings being used to "settle up" the fiscal year earnings with the sum of the earnings for the previous three quarters.

We carried out a comparable analysis for the skewness of the distribution of earnings. If executives take a big bath when unmanaged earnings are low, this will induce negative skewness in the distribution of earnings. This effect will lead to a lower rank of earnings skewness at the fiscal year end if some of the effects of the big bath reverse over succeeding quarters. The rank of the skewness coefficient for net income is most negative for the fiscal year. A greater number of large negative realizations of earnings appear in the fiscal year aggregation than in the other three quarters. The results of the other two skewness measures are similar. The distribution of annual earnings is most negatively skewed when fiscal year earnings are used[15]. This is consistent with executives taking large negative accruals in the fourth quarter which reverse, at least partially, in subsequent quarters.

Finally, we analyse the fourth moment of earnings, kurtosis. We find that the kurtosis is larger at quarterly periods than at the reported fiscal year. Nevertheless, the kurtosis coefficient is highest for annual earnings for the period ending in quarter one. These results are therefore not strongly consistent with neither the settling up hypothesis nor EM through the big bath phenomenon or executives taking large positive accruals on occasion.

Overall, our results for the higher moments of the earnings distribution are more consistent with the EM hypothesis than with the settling up hypothesis for the fourth quarter earnings. When the predictions of the two hypotheses differ, our results are generally more consistent with predictions resulting from the EM hypothesis.

Collectively, the above tests generally validate prior findings (Faouzi and Zarai, 2012) and indicate that results are not spuriously made by scaling as Degeorge, et al. (1999). and Durtschi and Easton (2005) suggested. They also indicate that prior findings, for the most part, cannot be attributed to the asymmetric tax treatment of gains and losses. EM seems to be the most likely reason. Likewise, the findings of the discrimination between EM and 'settling up' as the reasons for the lower ERCs of fourth fiscal quarter earnings are more consistent with the EM than with the 'settling up' hypothesis.

4. Pervassiveness Of Earnings Management At The Thresholds

In addition to investigating whether there is any EM at the threshold, we also analyse the pervasiveness of the EM. For Moreira and Pope (2007), the degree of pervasiveness is the proportion of the predicted number of companies undertaking EM in a given interval over the expected number of companies in this same interval in the pre-managed earnings distribution. In this section, pervasiveness refers to the percentage of Islamic banks in a sub-sample, at or around the threshold, that undertakes EM.

In order to measure the pervasiveness of the EM, we have to compare the observed number of banks at some small interval to the left (and to the right) of zero in the presence of EM with the expected number of banks at the same interval in the absence of EM. Therefore, there is a need to find the scaled earnings (or scaled earnings changes) distribution in the absence of EM.

[15]Note that for skewness measure, a higher rank indicates that the distribution is more negatively skewed.

Q. Yu et al, (2006) supposed that, in the absence of EM, earnings are normally distributed. They added that if there is neither incentives nor evidence for EM beyond a certain point of the actual earnings distribution, they can just truncate the distribution at that point and assume that the truncated part (the distribution right to the truncation point) is normally distributed. Then, they can further deduce the mean and variance of the full earnings distribution in the absence of EM from the truncated distribution and thus, restore the full distribution.

Q. Yu et al, (2006) assumed that as all listed companies face the same macroeconomic and regulatory environment, the earning variability among companies is mainly determined by firm-specific factors. However this hypothesis is inappropriate for our Islamic banks sample since they are dispersed in many countries with different macroeconomic and regulatory environment. Thus we were not able to assume the normality of our sample. Hence, Q. Yu et al, (2006) methodology cannot be applied here.

Moreira and Pope, (2007) proposed another measurement methodology. This methodology is similar to that applied by Burgstahler and Dichev (1997), and the same happens to the expected number of observations in a given interval. Such an expected number is defined as the average of the actual number of observations in two adjacent intervals.

Following Moreira and Pope (2007), we define Islamic banks' degree of earning management pervasiveness (*EMP*) as the absolute value of the following quotient:

$$EMPi = \left| \frac{(EQi - AQi)}{EQi} \right|$$

Where:

- EQ_i: the expected number of IBIs in that same interval in the pre-managed earnings distribution;
- AQ_i : the actual number of IBIs in interval *i* (*i* = first interval to the left of zero; first interval to the right of zero);
- $EQ_i = (AQ_{i-1} + AQ_{i+1})/2$.

The above method can help us estimate the pervasiveness of EM. By comparing the observed earnings level (or earnings change) distribution and the expected earnings level (or earnings change) distribution, we can obtain the number of IBIs engaging in EM as a percentage of the banks that should fall just below or above the threshold in the absence of EM. While rough, this can offer some indication of the pervasiveness of EM (Q. Yu et al, 2006).

From the differences between the actual and expected earnings levels (or earnings changes) distributions, we compute the percentage of banks engaged in EM to be near the zero thresholds. *Table.6* reports estimates of the degree of pervasiveness for the earnings levels and earnings change analyses.

[Insert Table.6]

The former have, for both intervals, a degree of pervasiveness a little higher than 95%. That of earnings changes analysis is around 39% for the first interval to the left of zero and 12.5 % to the right of zero. Hence, Islamic banks show a higher degree of pervasiveness in avoiding earnings losses than in avoiding earnings decreases. This evidence is fully supportive of our first hypothesis and corroborates the conclusions of our previous visual findings based on the empirical distributions.

Figures.4A and 4B graphically present the degree of pervasiveness to avoid losses for all distribution, and in earnings levels and earnings changes analysis respectively.

[Insert Figure.4]

From these two figures, we can notice that the expected number of Islamic banks falling in the first interval to the left of zero should be 23, but the actual number of Islamic banks in the interval is 1. This suggests that an excess of 22 banks managed to report their earnings levels in this interval, which is 95.6% of the expected number of banks or 3.68% of the whole distribution. Consequently, we can say that EM is pervasive at the zero earnings level threshold. For the earnings changes data, the number of banks engaged in EM is 38.5% for the zero earnings decrease threshold, which is also quite high. However, the pervasiveness of EM in this case is less severe. This finding denotes again that Islamic banks are expected to face a higher incentive to manipulate earnings to avoid reporting losses. This graphical evidence adds to that discussed in the previous paragraph and is supportive of our findings in the previous section.

The literature does not offer clear evidence to guarantee that this pervasiveness measure is completely

uncorrelated with the partition variable (Moreira and Pope, 2007). In fact, if there is any correlation, there would be a measurement error (McNichols and Wilson, 1988; Beaver et al., 2003). However, since we use graphical and statistical approaches simultaneously, we do not expect our conclusions to be affected by any potential measurement error (Moreira and Pope, 2007). Even though our estimation may not be very precise, we do believe these estimations offer some useful signs of the possible range of the pervasiveness of EM among IBIs.

5. Conclusions

Using Jacob and Jorgensen (2005) framework, we investigate several questions related to the debate over whether the results in prior studies about discontinuities in earnings and earnings change histograms at earnings thresholds are evidence of earnings management in IBIs or whether they are spuriously induced by the research design. Using earnings levels as a target variable, we provided graphical and statistical evidences that there is an unusually high occurrence of Islamic banks in earnings interval immediately to the right of zero and an unusually low occurrence in that to the left for fiscal year and not for the other alternate periods. We take these findings as evidence that Islamic banks manage their earnings to avoid losses, in accordance with the earning distribution approach. However, we do not find statistical evidence of EM that might allow for avoiding earnings decreases. Such results might be explained on the ground that this because of the distribution of earnings changes is a noisy version of the distribution of earnings levels (Beaver et al. 2003).

These results generally validate the Faouzi and Zarai (2012) findings and indicate that their results are not spuriously induced by scaling as Degeorge, et al. (1999). and Durtschi and Easton (2005) suggest. They also indicate that the Faouzi and Zarai (2012) results, for the most part, cannot be attributed to the asymmetric tax treatment of gains and losses. Earnings management appears to be the most likely reason.
By the same, we try to discriminate between earnings management and 'settling up' as the reasons for the lower earnings response coefficients (ERCs) of fourth fiscal quarter earnings. Results for the variance are more consistent with the EM hypothesis than the settling up hypothesis. The rank of the variance of fiscal year earnings is significantly higher than the rank for any of the other three intermediate periods. This result is more consistent with EM at the fiscal year-end than with effects induced by fourth quarter earnings being used to "settle up" the fiscal year earnings with the sum of the earnings for the previous three quarters.
Aside from this, Islamic banks are found to have higher degree of EM pervasiveness to avoid losses, consistent with a higher incentive to manipulate earnings. Moreover, such an incentive is also affected by the way banks approach the zero earnings target. Islamic banks approaching the target from below show higher pervasiveness than Islamic banks approaching the target from above.
In sum, the empirical evidence collected so far fully supports our prior empirical studies. It suggests that Islamic banks face a higher incentive to avoid losses than to avoid earnings decreases, and do have a higher degree of EM pervasiveness.

This paper benefits from the publication of earlier studies and has attempted to complement them by providing a more holistic perspective on EM. However, the main contributions of this thesis are:

- Using different empirical methodologies, we have provided some empirical evidences of EM in IBIs, most of them related to earnings losses avoidance motivations. As far as we know, this is the first study that demonstrates this fact, using Jacob and Jorgensen (2005) approach.
- It adds to the literature that supports the discontinuities in the earnings distribution as being determined (at least partially) by EM. It extends the methodology introduced in Jacob and Jorgensen (2005) and used it to examine the EM behaviour across sets of entities with different features and incentives. At a time when Islamic banks' EM behaviour is still a "black box", this can be a significant contribution.
- Paper results have implications for investors and financial analysts. They suggest that investors and analysts can use quarterly data to unravel part of managers' earnings management decisions by choosing to analyze Islamic bank performance reported on a different annual basis than the one reported in the annual financial statements.

As this is the case in all empirical studies, the data used have a compromise between the ideal and the feasible. Our study is not an exception of this criterion. Thus, this research did not exceed certain limitations namely:

- The study does not provide us with sufficient understandings of the extent and the scope of EM in the Islamic banking industry[16]. Furthermore, it is worth noting that sometimes banks might choose not to meet the zero earning thresholds. Instead they would take larger losses in the current period and

16The disadvantages of the distribution approach, as pointed out by Healy and Wahlen (1999) and Q. Yu et al, (2006), are that it captures neither the magnitude of earnings management nor the specific methods by which earnings are managed.

accumulate some earnings for the subsequent period[17]. If this happens, the earnings will not show up near the threshold and using the reported earnings distribution to uncover earnings may not identify such practice (Faouzi and Zarai, 2012). Therefore, several directions can be taken in future research in order to detect any EM practices and to measure the frequency and magnitude of EM in the Islamic banks.

- The analysis based on unbalanced panel data suffers from efficiency problem, which may need additional rectifications to produce efficient estimation results. Moreover, the limited number of observations for some of our studies variables may compromise the properties of the methods that we used. If the period was long enough, it was possible in these conditions to make periods under analysis and to track modifications in terms of proprieties ... etc.
- The analysis fails to study cross-country heterogeneity and still suffers from omitted variable bias. Furthermore, our model used to estimate EM might not efficiently capture all the characteristic necessary to a good estimation.
- Employing an eventual survey among Islamic banking industry experts could provide additional interpretations that enhance the suggested proposals and helps discerning the difference between Islamic and conventional banks in terms of manipulating techniques and consequences.

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Table.1: Standardized Differences for Quarterly Earnings Analysis

	Period Ending in Quarter			
	One Figure.1A	Two Figure.1B	Three Figure.1C	Four Figure.1D
Standardized difference right of 0	2.286	2.54	2.892	2.713
Standardized difference left of 0	0.115	-1.569	-2.826	-6.335

Table.2: Standardized Differences for Quarterly Earnings Changes Analysis

	Period Ending in Quarter			
	One	**Two**	**Three**	**Four**
Standardized difference right of 0	2.645	1.747	2.403	0.280
Standardized difference left of 0	0.752	-0.954	-0.257	-0.935

Table.3. Standardized differences in pre-tax earnings analysis

	Values for tested intervals		Values for standardized differences in intervals			
	Standardized difference left of 0	Standardized difference right of 0	Mean	Std.Deviation	Min	Max
Figure.1.6A (Scaled Earnings)	-3.212	2.322	-0.137	1.255	-3.212	2.322
Figure .1.6B (Scaled Earnings Change)	-1.049	0.345	-0.151	1.148	-3.790	1.988

Table.4: Moments Behaviour According to Settling up and EM Hypotheses

	Settling up Hypothesis				EM Hypothesis			
	Quarter One	Quarter Tow	Quarter Three	Quarter Four	Quarter One	Quarter Tow	Quarter Three	Quarter Four
Variance	-	-	Highest	Lowest	Lowest	-	-	Highest
Skewness	Lowest	Highest	-	-	Highest	-	-	Lowest
Kurtosis	-	Lowest	-	Highest	-	Lowest	-	Highest

Table.5. Moments of Net Distributable Profits

	Period Ending in Quarter			
	One	**Two**	**Three**	**Four**
Variance	0.001	0.001	0.001	0.011
Skewness	-2.790	2.385	-0.369	-0.253
Kurtosis	17.607	10.962	6,058	2.911

Table.6. Degree of EM pervasiveness

	Discontinuity to the…			
	Left of zero		Right of zero	
	Earnings levels	Earnings changes	Earnings levels	Earnings changes
Number of actual banks: (AQ_i)	1	4	37	9
Number of expected banks: (EQ_i)	23	7	19	8
Pervasiveness: ($EMP = \left| (EQ_i - AQ_i)/ EQ_i \right|$)	0.956	0.385	0.947	0.125

Figure.1 Histograms of Annual and Alternate Period's Earnings levels

Figure.1.A: Scaled Earnings Distribution

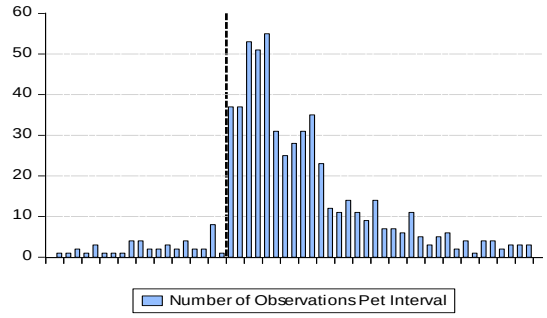

Figure.1.B: Q1 Scaled Earnings Distribution

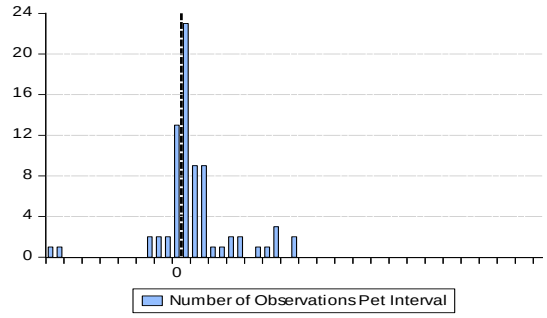

Figure.1.C: Q2 Scaled Earnings Distribution

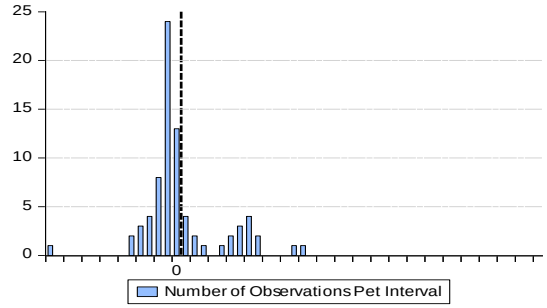

Figure.1.D: Q3 Scaled Earnings Distribution

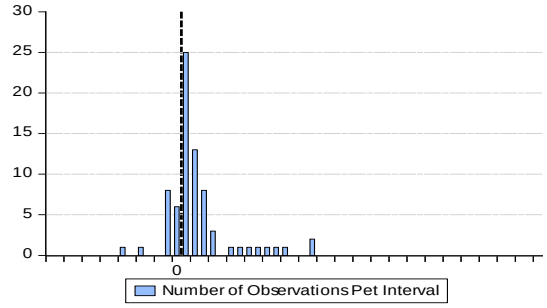

Figure 2. Histograms of Annual and Alternate Periods' Earnings Changes

Figure.2.A: Scaled Earnings Changes Distribution

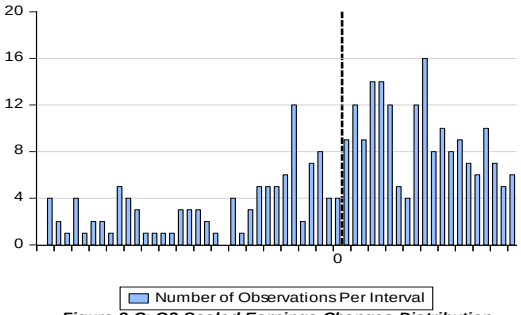

Figure.2.B: Q1 Scaled Earnings Changes Distribution

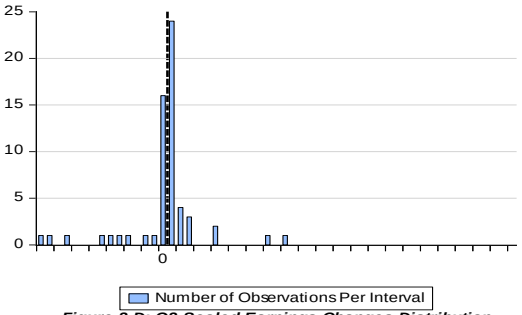

Figure.2.C: Q2 Scaled Earnings Changes Distribution

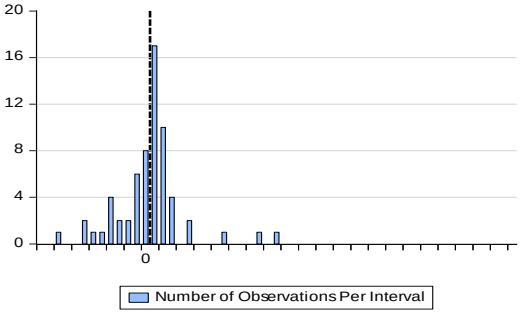

Figure.2.D: Q3 Scaled Earnings Changes Distribution

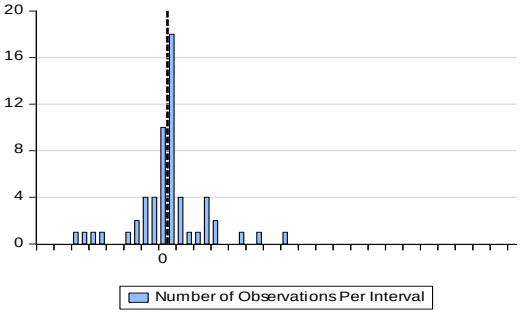

Figure.3. Histograms of Pre-tax Earnings and Pre-tax Earnings Changes

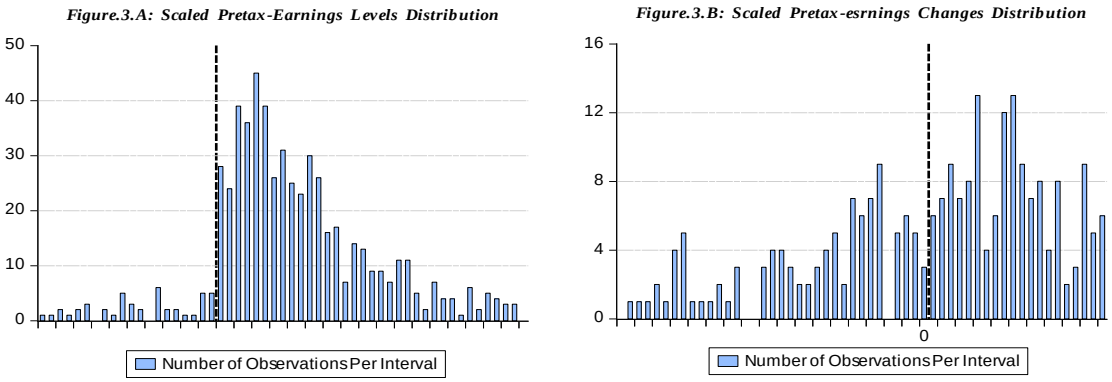

Figure.4.Degree of EM Pervasiveness