Detecting earnings management: Insights from the last decade leading journals published research

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Abstract

We conducted a meta-analysis over earnings management detection (hereunder EMD) published research in accounting leading journals during the period 2003-2013. Offering a contemporary assemblage, our paper is concerned with assessing the methodological mix, research topics, authorship and location from above area. Our paper is also focused on describing the characteristics and quantity of the papers reviewed and assessing their impact on the scholarly literature. In this regard, an individual segment of EMD research design biases is comprised. In order to further advance research within EMD field a thoroughly understanding of what research has already accomplished is necessary. Our study was developed with the scope of guiding researchers, practitioners, accounting regulators and setters in making decisions regarding limiting opportunistic behavior. Additionally, the analysis highlights future research patterns and also worrying trends in the field of EMD.

Keywords: Earnings management, abnormal accruals, real earnings management, research methods

1. Introduction

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Earnings management (hereunder EM) is a popular and appealing concept in contemporary research considered one of the most significant current discussions in accounting so far.

Our paper is part of this trend, since we analyzed the publishing patterns in EMD for the last decade. By over viewing the research designs applied in the recent literature published in the top 5 leading accounting journals, we were able to summarize the most recent publishing trends and to interpret the evidence.

While the estimation of the magnitude of EM using discretionary accruals is the main research design used by scholars, authors like Dechow et al., 1995 asserted that those models have substantial measurement error, discretionary accruals acting like noisy proxies for EM activity. Even if there is much controversy in connection to aggregate accruals models so far, our review is documenting that those models are still extensively used and still are able to attract most of the attention of the scholars. The last years comprise a changing balance in favor of real EM in the detriment of the first category.

Our subject is timely and relevant at least for three reasons. First, in the light of the previous accounting scandals, EM has become a pivotal international issue in the discussions surrounding the credibility of financial markets. Second, there is a broad interest in the findings of this literature as the reviews conducted by Graham et al., 2012 and Solomon et al., 2013 indicate. Third, the debates concerning EM detection was and still is an important topic of day-out impact of our accounting standards.

The originality of our paper consist in the fact that it offers a contemporary assemblage of the multiple perspectives applied in EMD research area and offers important insights into the range and predominance of research methods and topics within the published EMD field in the top 5 leading accounting journals.

The remainder of this paper is organized as follows. The first segment comprises the overview of our research questions and the research method used, followed by the meta-analysis and the discussion segment. The conclusion, limitation and scope for future research segment are the last ones approached.

2. Revisiting the research profile

Based on our knowledge this is the first empirical analysis of the profile of contemporary published EMD research in top 5 leading accounting journals. This study is aiming to augment the literature by analyzing and summarizing the profile of the papers approaching the detection of EM. Our study covers a period of 10 years (2003-2013).

2.1. Research questions

The purpose of this paper is to provide a meta-analysis of EMD research area. This analysis was used in order to evaluate, identify and address future research agendas. In doing so, our paper answers two related research questions:

1. What is the scholarship field of EMD research based on the top 5 leading accounting journals?
2. What is the future of EMD research field?

2.2. Research method

This section explains our method for selecting and reviewing the papers selected. We used a similar method to other published studies, such as Guthrie et al. (2012). Our review process comprised five different stages, as following:

Similar to Guthrie et al., 2012 our first stage was used for formulating the core research objectives. The second stage comprised the selection of the journals. In this respect we have selected the traditional top 5
leading accounting journals as documented by Chan et al., 2009. Table 1 summarizes the journals selected and the number of papers published. The third stage comprised the selection of the articles. Using keywords specific to EMD field we have found a total of 153 full version articles. All PDF versions of the papers were downloaded and stored in an Endnote database together with the referencing details. In the fourth stage, we examined independently the PDF full versions and excluded the papers with only a marginal EMD focus. We obtained a remaining 77 journal papers in our final sample. In the last stage we comprised all the classifications in order to establish a range of descriptive statistics, with the scope of understand all patterns emerging from the review conducted. The answers to our research questions can be formulated based on the data extracted from meta-analysis segment.

3. Meta-analysis

Using a method previously employed to select and categorize academic papers e.g. Guthrie et al., 2012 we have conducted our analysis. The following segment outlines the descriptive statistics comprised in the meta-analysis followed by open discussions of the novel findings and biases of EMD research designs.

3.1. EMD publication frequency by journal

Table 1. EMD articles in top 5 leading accounting journals (2003-2013)

<table>
<thead>
<tr>
<th>Journal name</th>
<th>Journal code</th>
<th>EMD papers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting, Organizations and Society</td>
<td>AOS</td>
<td>1</td>
<td>1.29</td>
</tr>
<tr>
<td>Contemporary Accounting Research</td>
<td>CAR</td>
<td>22</td>
<td>28.58</td>
</tr>
<tr>
<td>Journal of Accounting and Economics</td>
<td>JAE</td>
<td>20</td>
<td>25.98</td>
</tr>
<tr>
<td>Journal of Accounting Research</td>
<td>JAR</td>
<td>9</td>
<td>11.68</td>
</tr>
<tr>
<td>The Accounting Review</td>
<td>TAR</td>
<td>25</td>
<td>32.47</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ projection

The journals selected and numbers of papers identified in each of the 5 journals are presented in Table 1. A total of 77 papers were assessed during the period 2003-2013 inclusive. As it can be noticed from above table, three journals published more papers: The Accounting Review (25 papers published); Contemporary Accounting Research and Journal of Accounting and Economics where 22 papers were published respectively. 20. Accounting, Organizations and Society and Journal of Accounting Research published the least EMD papers compared with the rest of the leading accounting journals in the sample.

3.2. The methodological mix

Table 2. Research methodologies employed in EMD research published in top 5 leading accounting journals (2003-2013)

<table>
<thead>
<tr>
<th>No</th>
<th>Research methods employed in accounting journals reviewed</th>
<th>No. of studies including the methodology</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interviews</td>
<td>1</td>
<td>1.29</td>
</tr>
<tr>
<td>2</td>
<td>Descriptive survey</td>
<td>1</td>
<td>1.29</td>
</tr>
<tr>
<td>3</td>
<td>Archival/historical analysis/Discussions</td>
<td>1</td>
<td>1.29</td>
</tr>
<tr>
<td>4</td>
<td>Literature review</td>
<td>2</td>
<td>2.59</td>
</tr>
<tr>
<td>5</td>
<td>Mathematical analysis/statistical analysis</td>
<td>70</td>
<td>90.95</td>
</tr>
<tr>
<td>6</td>
<td>Experiment</td>
<td>2</td>
<td>2.59</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ projection
Table 2 summarizes the findings on research methodologies employed. The categories which formed the basis in this paper were adapted from Parker, 2011. All the above categories are self explanatory. In this respect in the research methods mix we included 6 categories as presented in Table 2. Similar to Parker, 2011, when a paper included more than one research method, it was categorized according to the main research method used.

Over the whole 2003-2013 period, the dominant methodological category was *mathematical and statistical analysis* (90.95%) followed by *literature review and experiment* (2.59%). Archival/historical analysis/discussions, interviews and descriptive survey research methods totaled 3.87%. None of the papers used the descriptive case study. We can assert based on the results summarized in Table 2 that scholars employed extensively mathematical and statistical analysis over other research methods conducting to an underused approach throughout accounting research.

### 3.3. The topical menu

Table 3. Topics identified in EMD research published in top 5 leading accounting journals (2003-2013)

<table>
<thead>
<tr>
<th>EMD Topics identified</th>
<th>No. of studies comprised</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial discretion</td>
<td>18</td>
<td>23.39</td>
</tr>
<tr>
<td>Benchmarking and thresholds</td>
<td>15</td>
<td>19.49</td>
</tr>
<tr>
<td>Audit influence</td>
<td>8</td>
<td>10.40</td>
</tr>
<tr>
<td>Political costs</td>
<td>6</td>
<td>7.79</td>
</tr>
<tr>
<td>Equity offerings</td>
<td>5</td>
<td>6.49</td>
</tr>
<tr>
<td>Conservatism and accounting standards</td>
<td>5</td>
<td>6.49</td>
</tr>
<tr>
<td>Corporate governance</td>
<td>3</td>
<td>3.89</td>
</tr>
<tr>
<td>Analyst earnings forecast and credit ratings</td>
<td>3</td>
<td>3.89</td>
</tr>
<tr>
<td>Failing firms</td>
<td>2</td>
<td>2.59</td>
</tr>
<tr>
<td>Disclosures and impression management</td>
<td>1</td>
<td>1.29</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>14.29</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: Authors’ projection

Table 3 summarizes the results of analyzing EMD topics addressed across the 2003-2013 period. When more than one topic was examined by a paper, the frequency count included the number of topics examined like in Parker (2011).

Managing discretion topic attracted the most attention with 18 papers published. Other two topics that comprised more papers compared with the rest of the topics are benchmarking and thresholds (15 papers included) and the latter, other (11 papers included). Audit influence and political costs topics comprised 8 papers respectively 6 papers. A similar number of papers were included in topics as: Equity offerings and Conservatism and accounting standards (e.g. 5 papers) and also corporate governance and analyst earnings forecast and credit ratings (e.g. 3 papers). Disclosures and impression management topic comprised only one paper e.g. Louis and Robinson, 2005. All articles that could not be coded into the above classifications were coded as other (including general) studies.
3.4. Prolific EMD researchers and location

Table 4. Authorship and location in EMD research (2003-2013)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of authors</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America*</td>
<td>139</td>
<td>82.74%</td>
</tr>
<tr>
<td>China*</td>
<td>17</td>
<td>10.12%</td>
</tr>
<tr>
<td>Canada</td>
<td>5</td>
<td>2.98%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2</td>
<td>1.19%</td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
<td>0.59%</td>
</tr>
<tr>
<td>Japan</td>
<td>1</td>
<td>0.59%</td>
</tr>
<tr>
<td>Germany</td>
<td>1</td>
<td>0.59%</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
<td>0.59%</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>0.59%</td>
</tr>
</tbody>
</table>

Number of countries 9
Number of authors 168 100.0

*Authors comprised in those categories published more than one paper in EMD research area for the period analyzed.

Source: Authors’ projection

In reviewing the profile of the EMD research area we conducted a meta-analysis in order to identify the scholars who approached this particular area and the location. In this respect the identity of the scholars appearing most frequently in the period 2003-2013 was also examined. The EMD scholars most frequently publishing in the selected journals were (in alphabetical order): David Burgstahler (USA); Daniel Cohen (USA); Patricia Dechow (USA); Katherine Gunny (USA); John Graham (USA); Paul Hribar (USA); Derek Johnston (USA); Andrewy Leone (USA); Carol Marquardt (USA); John McInnis (USA); Catherine Schrand (USA); Das Somnath (USA); Cristine Wiedman (USA); and Jeong-Bon Kim (China).

In our Table 4 we summarized the location and frequency of the scholars publishing in EMD research area. In this respect a total of 9 countries covered the EMD field, having a total of 168 authors. From the total we can notice that the significant majority of scholars are from USA (e.g. 82.74%) and China (e.g. 10.12%). The rest of the countries are extremely low represented as it can be observed from our Table 4.

4. Discussion

After conducting our meta-analysis, we now turn to discussions. By the information summarized above, our first research question found an answer. One research question still to go: “What is the future of EMD research area?” Based on the large number of studies, we argue that this particular area has the potential to develop as specialist research field.

While the large majority of studies extended the literature by examining new potential items that could be easily manipulated, others are concentrated on proposing novel research designs. The latter category is concentrated mainly in the last topic (e.g. Other). One particular study comprised in the last topic is the one conducted by Jones et al., 2008, that developed a new model for detecting EM that has an important impact in reducing type I errors. Stubben, 2010 documented on the other hand that revenue models are more likely than accrual models to detect a combination of revenue and expense manipulation. Another novel model is the one proposed by Dechow et al., 2011. Being developed based on an analysis conducted for the financial characteristics of misstating firms it comprises the strongest prediction of misstatements since now. Another new approached for EMD field was developed also by Dechow et al., 2012 and provided the possibility to test for accrual-based EM by taking into account reversal properties of accruals. Jansen et al., 2012 proposed also a simple and novel diagnostic of EM that relies on the widely held notion underlying DuPont analysis that sales is a fundamental driver of a firm’s investment and income, and that net operating assets on the balance sheet and net operating income on the income statement should vary directly with sales. The most recent model
proposed by Dechow et al., 2013 for identifying accruals-based EM comprises significant improvements for accrual methodology as Gerakos, 2013 asserted.

Assessing the main research designs used in EMD field, we can assert that accruals-based EM is still the most used one in the last decade. From accruals methodology the aggregate accruals are still extensively used, despite the growing interest in the specific accruals designs. In the last years, real EM is also assessed but in a very few studies and almost exclusively in combination with the accruals-based one.

Our latter segment in the discussion part comprises some ideas regarding the biases found in EMD research filed. Although it is known that EM exists, it is always difficult to document it without any error. Despite the large number of papers documenting the existence of EM, the current accrual techniques used to identify it are sorely lacking. Generally speaking, those techniques are almost entirely based on the assumption that unexplained accruals represent explicit EM. One can also argue that those unexplained or abnormal accruals can be poor quality earnings. That is the main reason why current research designs used to detect EM suffers from: measurement errors; correlated omitted variables and also most of them do not take into account for the dynamic of earnings.

5. Conclusion, limitations and scope for future research

The goal of our paper was to review the most recent field of EMD and to discuss the main findings. In this respect we can assert that the last decade research on EMD field, examined broad measures of EM and samples from firms where the incentives to manage earnings are expected to be high. The studies examined have shown that EM does exist and it occurs for various reasons. The main research design used for detecting EM in the last decade was the aggregate accruals measures, followed by the specific accruals research design. Recent years have documented more and more EM through real activities, but this trend is still not very strong, since the large majority of scholars are combining accruals with real EM in their studies e.g. Cohen et al., 2008; Seybert, 2010; Badertscher, 2011. The least represented research design for detection EM in our sample was the one including the distribution of earnings.

By using a meta-analysis instrument we documented that the majority of scholars approaching EMD field prefer as research method the mathematical and statistical analysis conducting to an underused approach throughout accounting research. The topics that attracted the most attention are related to managerial discretion and benchmarking and the significant numbers of studies included in our sample are conducted by scholars from USA and China (92.86%). The rest of the countries identified in our sample are extremely low represented.

Our research has one important limitation. We assessed only published work, excluding working papers or conferences proceedings papers. By doing so, we limited very much our area of interest and the number of papers from EMD field.

Further research can examine all the effects of “almighty” items like: financial transparency, conservatism, accounting standards and ethics impact on EMD. The research designs developed in the last decade can be considered as bringing significant improvements when assessing the existence and magnitude of EM, but still much is remain to be approached in the future. Even if those new models proposed have the potential to limit important biases from EM detection field many other biases remain.
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