

# INVESTIGATING INCOME SMOOTHING: EMPIRICAL EVIDENCE FROM VIETNAM'S LISTED COMPANIES

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## ABSTRACT

The income smoothing is a dimension of the accounts manipulation theme that has been attracting a great attention in the accounting literature. A goal of manipulation is widely ascribed to managers who wants income smoothing. The author has tried to investigate income smoothing at listed companies on the Stock Exchange. For this purpose, we chose a stratified random sample of 285 companies from formula listed companies on Vietnam Stock Exchange. We carried the mechanism for smooth and non-smoothing companies Eckel model (coefficient of variation of a distribution of profits to sales). We have compared 111 smoothing companies and 174 non-smoothing companies. The study results suggest that the Eckel index is suitable for the Vietnam stock market and show a slight increase compared to the previous research.

**Keywords:** Income smoothing; Listed firms; Vietnam.

## 1. Introduction

Firms often attempt to control fluctuations in reported earnings and steer them to levels which they consider desirable. Either managing reported figures to increase earnings when management thinks its initially planned term-end settlement targets (smoothing level figures) cannot be achieved or managing reported figures to decrease earnings when achievement of earnings higher than planned is certain may be implemented during a given fiscal period. This type of management accounting behavior is called income smoothing or income smoothing behavior. It has been noticed that income statement is considered as one of the statements to be presented in financial reporting. For that reason, the company's earning is considered vital information because it can be used to measure the corporate performance. In other words, information of the earning can be used to assess the performance or account- the ability of management and also predict the ability of companies in the effort of

contributing to the following earning.

The managers will take action to increase earnings when earnings are relatively low and to decrease earnings when earnings are relatively high (Bao and Bao, 2004). Usually, the dampening in earnings variability is chosen by the management of the company to report a gradual growth in earnings that is in line with the private information of the management about future earnings. As income smoothing is widely accepted to be the most interesting type of earnings management.

Managers of companies will select different patterns or types of earnings management in different situations. Consequently, it is possible that over the course of several years managers can select different types of earnings management that they see fit for the economic situation in which the company is operating. Kirschenheiter and Melumad (2001) performed researches which showed that big bath accounting and income smoothing can be practiced together by the management of companies. The management

of companies can perform big bath accounting in the current year and smooth the “saved” earnings over the future year earnings. Other combinations of types of earnings management are available. Income smoothing has received considerable attention in the academic literature in the past one hundred years (Kirschenheiter and Melumad, 2001). In an early discussion, Hepworth (1953) suggests that owners and creditors of an enterprise will feel more confident with corporate management that is able to report table earnings than the considerable fluctuation of reported earnings exists (Hepworth, 1953, p.34). Academics have basically investigated on: (1) whether firms do actually smooth income and which firms are more prompted to smooth (e.g.: DeFond and Park, 1997); (2) how income smoothing is implemented (e.g.: Beidleman, 1973), and (3) why managers are interested in smoothing income numbers (e.g.: Ronen and Sadan, 1981).

Within the financial accounting research topic of earnings management, researchers have always been very interested in studying income smoothing. Bao and Bao (2004) stated that in general the study of income smoothing has been very successful compared to the study of other forms of the use of earnings management. This success is due to a couple of reasons. First of all, researchers have been able to define income smoothing more precisely than other forms of earnings management. According to Bao and Bao (2004) research on the use of income smoothing has been successful because researchers have been able to identify which companies use income smoothing and which companies do not use income smoothing. This implies that there are methods which successfully measure the use of income smoothing.

However, some financial accounting research takes a different view on income smoothing and even concludes that a positive

side is related to this type of earnings management. One of the more recent approaches to research income smoothing is presented by Tucker and Zarowin (2006). This article presents the use of income smoothing as being not necessarily bad. If the use of income smoothing improves, the earnings informativeness Tucker and Zarowin (2006) shed a new light on the discussion of the positive and the negative effects of the use of income smoothing. In the context of Vietnam, many studies have used these models for measuring earnings management. Hence, the author has tried to investigate income smoothing at listed companies on the Stock Exchange. The results of income smoothing help users of financial reporting to recognize that if smoothing earning is used and the Eckel index is a good tool to do that.

## 2. Literature Review

Within the financial accounting research topic of earnings management, academic researchers have always been very interested in studying the use of income smoothing. In general, academic research of income smoothing has been very successful compared to the study of other forms of the use of earnings management (Bao and Bao, 2004). Several reasons explain why academic research on income smoothing has been more successful than research on other types of earnings management. First of all, researchers have been able to define income smoothing more precisely than other forms of the use of earnings management. Some frequently used definitions of income smoothing are:

Beattie et al. (1994), “*The reduction in earnings variability over a number of periods, or, within a single period, as a movement towards an expected level of reported earnings.*”

Fudenberg and Tirole (1995), “*The process of manipulating the time profile of earnings reports to make the reported income*

*stream less variable, while not increasing reported earnings over the long run."*

Ronen and Sadan (1981), "*An attempt by managers to manipulate income numbers so as to impart to the resulting series a desirable and smooth trend.*"

Based on these three definitions of income smoothing it is clear that to perform income smoothing, the management of a company will try to report an increasing linear stream of earnings over the years. To accomplish this, the management needs to increase earnings in periods of relatively low earnings and needs to decrease earnings in periods of relatively high earnings. If this is compared with the other types of earnings management, one could argue that in the period of relatively low earnings the management needs to perform earnings maximization while in periods of relative high earnings management needs to perform earnings minimization. The management of companies prefers to report a smooth stream of earnings because fluctuations in the profitability of the company are considered to have a negative effect on the company's risk profile (Hoogendoorn, 2004). Although this "misleading" of users of the financial statements at first appears to have a negative effect, positive effects of this type of earnings management exist.

Secondly, academic research has been successful in studying the use of income smoothing, because researchers have accomplished to make a clear differentiation between smoothers and non-smoothers. This implies that there are several tests which can successfully measure whether the management of a company practices income smoothing or not. Most empirical research has focused on export data of companies to determine the existence of income smoothing behavior (Albrecht and Richardson, 1990).

It is a fact that income smoothing becomes a phenomenon which has been

often proved in some previous studies. This practice has been investigated through various levels of different samples. Furthermore, income smoothing is considered to be an important factor. Research by Moses (1987) and Atik & Sensoy (2005) shows that at least 60% of the sample used in the study can be classified as smoothing the company earnings. Another proponent, such as Barnea et al. (1976) classified accounting income smoothing as inter-temporal smoothing and classification. Inter-temporal smoothing is based on the situation when cost and expenses are recognized and smoothing classification is done with the classification under ordinary cost and extraordinary one in which the ordinary post finally becomes flat.

Eckel (1981) distinguishes between income smoothing as a natural smoothing and intended smoothing. Natural smoothing is the alignment resulting from transactions that inherently produce a smoothed earning. In other words, the company's operations to generate income by collecting revenues and expenses are inherent to eliminate fluctuations in income flows. In other words, the process of generating income itself generates a stream of smoothed income. Alignment occurs without the intervention of any party. According to Eckel (1981), two main types of income smoothing exist. These are natural smooth income streams and intentionally smoothed income streams by the management of the company. These two main types of income smoothing streams are in addition recognized by Albrecht and Richardson (1990).

Although income smoothing is a type of earnings management that is deliberately performed by the management of companies, one type of income smoothing exists without the interference of management. Natural smooth income streams are the result of an earnings-generating process which is based

on its own characteristics produces smooth income streams (Eckel, 1981). For example, public utility companies such as producers of energy or public transportation are expected to have natural smooth income streams. Consequently, the process of natural smoothing is not qualified as earnings management.

If the smooth income stream is qualified as intentionally being smoothed by the management of the company than earnings management is the basis for the reported smooth income stream. Within intentionally smoothed income stream, there are two sub-categories. These are artificial smoothing and real smoothing.

Real income smoothing is the equivalent of earnings management by the use of real transactions. This type of income smoothing is sometimes also called transaction or economic smoothing (Stolowy and Breton, 2004). These transactions influence the cash flow of the company, which is not the case for artificial smoothing. One example of real transactions that can be applied to accomplish income smoothing is to select investment opportunities based on the covariance of the expected revenue series (Eckel, 1981).

Artificial smoothing or accounting smoothing is the equivalent of earnings management by the use of accounting choice or earnings management by means of financial accounting estimates. This type of smoothing does not include the use of an economic event. Instead, this type of income smoothing transfers revenues and expenses from one period to another period. One method for management to do this is the use of accruals. Consequently, much academic research on income smoothing has focused on accruals to measure income smoothing.

### **3. Measuring Income Smoothing**

According to Copeland (1968), there are three research methods of the use of income

smoothing. First, researchers can inquire management, second researchers can contact third parties such as auditors, and third researchers can perform studies on ex post data. The majority of the academic research has chosen the third option; performed studies based on ex post data. Early research on earnings management tried to detect earnings management by determining whether management of companies selected accounting methods and created certain provisions in such a manner to influence the income of the companies (Van der Bauwhede, 2003). This method often refers to as the classical approach (Albrecht, 1990). According to Eckel (1981), several down sides are related to this type of measuring the use of earnings management. First of all, these methods require a model to predict an expected and normalized income. It is very difficult to predict the expected normalized incomes for companies. Because this is very difficult, researchers could conclude that management of the company used income smoothing to manipulate the income of the company, while this was not the case. For example, some researchers used the income of the past year to predict the income of the current year. Consequently, income was differed from the expected normalized income due to another variable, research could conclude that the management of the company was practicing income smoothing. Moses (1987) states that these types of research approaches are not capable of differentiating between the natural smoothed income and the intentional smoothed income. Secondly, if researchers examine one income smoothing variable in relation to the normalized income they could get biased results. Consequently, researchers should study the effect of multiple income smoothing variables in relation to the normalized income. It will avoid the biased results. Thirdly, some academic researchers examined income smoothing variables in relation to the normalized income for one

period. As income smoothing is a type of earnings management, that is only effective if the management of the company practices it for several years, academic research should examine several periods. Only if several periods are examined, researchers can conclusively determine if income smoothing is performed. In addition, Ronen and Sadan (1981) have also commented on these early approaches to the use of income smoothing. Their criticism is based on the fact that the early approaches are not capable of identifying motives for income smoothing and are not able to predict when income smoothing occurs.

### Income Variability Approach

The first academic research approach to artificial income smoothing separate from natural smoothing was performed by Imhoff (1977). Imhoff was the first academic researcher to apply the income variability approach. According to Imhoff, the actions taken by the management of the company to perform “real” smoothing included in the sales figures of the company. The sales figures would, therefore, represent the “real” smoothing if this is performed by the management of the company. Consequently, by comparing the variance of sales to the variance of ordinary income the use of artificial income smoothing can be examined. The income variability approach defines a company as an income smoother if:

$$\frac{CV_{\Delta I}}{CV_{\Delta S}} \leq 1$$

Where  $\Delta I$  = One period change in income

$\Delta S$  = One period change in sales

$CV$  = Coefficient of variation

$$= \frac{\sqrt{\text{Variance}}}{\text{Expected Value}}$$

The income variability approach is additionally selected by Eckel (1981) and by Albrecht and Richardson (1990) to examine artificial income smoothing. The income variability approach is considered as a better

approach than the classical approach. The classical approach tried to predict income and the income variability approach does not include any predictions of income. Additionally, the income variability approach examines sales and income for several periods. Although the income variability approach is an improvement on the classical approach, some downsides to this approach still exist. First, Eckel (1981) stated that the income variability approach is only capable of identifying the successful attempt by managing on the use of income smoothing. Unsuccessful attempts by management to perform income smoothing are not identified by this approach. Additionally, Albrecht and Richardson (1990) found that even if the ratio in the formula before is not below 1, the management of a company could still be performing artificial income smoothing. In addition, Michelson and et al. (1995) also apply the income variability approach for detecting the use of income smoothing.

## 4. Data and results

### 4.1. Data

According to above mentioned conditions, around 680 companies are members of statistical society in the current research. But, the respective number is obtained via limited society sampling formula.

According to Yamane (1967), overall is  $N = 680$ , the accuracy is 95%, the standard error of  $\pm 5\%$ .

$$n = \frac{N}{1 + N(e)^2} = \frac{680}{1 + 680(0.05)^2} = 251$$

n - the sample size

N - the population size

e - the acceptable sampling error

In this study, the data panel includes 285 companies on Vietnam stock markets (HNX and HOSE) in the period of 2011 to 2015. Thus, the sample size represents the overall population. For some enterprises, data was collected from annual financial statement reports and a total observations of 1420 were

collected. This time period was the longest that provided adequate data on the relevant variables and was also selected to allow a sufficient number of years to calculate the variables necessary to detect income smoothing or earnings management.

#### 4.2. Results

This section will present the research results based on the empirical research performed to identify the smoothers and non-

smoothers in the research data sample. The income variability method is applied to identify which companies are smoothers and which companies are non-smoothers. Consequently, if for a selected company is applicable, this company is identified as a smoother (Appendix A).

Selection mechanism of CL-FISH CORP - as an instance of Income smoothing companies in net profit levels - is presented in Tables 1.

**Table 1**

Smoothing in net profit levels

Year	Net Profit	Profit Variations	Sales	Sales Variations
2011	114,883,000,000	-	1,288,041,000,000	-
2012	15,279,000,000	-99,604,000,000	1,032,195,000,000	-255,846,000,000
2013	5,148,000,000	-10,131,000,000	987,212,000,000	-44,983,000,000
2014	12,312,000,000	7,164,000,000	854,490,000,000	-132,722,000,000
2015	29,133,000,000	16,821,000,000	1,139,475,000,000	284,985,000,000
<i>Sum</i>		-85,750,000,000		-148,566,000,000
<i>Standard deviation</i>		46,150,832,303		200,495,798,849
<i>Mean</i>		-21,437,500,000		-37,141,500,000
<i>Dispersion Coefficient (CV)</i>		-2.152808504		(5.398161056)
CY = CV $\Delta$ I/CV $\Delta$ S	0.398804052			

Since the respective index is smaller than 1. Therefore, it can be asserted that this company has smoothed in net profit level.

Selection mechanism of Bibica company - as an instance of Income smoothing companies in net profit levels - is presented in Tables 2.

**Table 2**

Non-smoothing in net profit levels

Year	Net Profit	Profit Variations	Sales	Sales Variations
2011	46,369,000,000	-	3,287,083,000,000	-
2012	26,029,000,000	-20,340,000,000	3,516,336,000,000	229,253,000,000
2013	44,880,000,000	18,851,000,000	3,728,692,000,000	212,356,000,000
2014	57,793,000,000	12,913,000,000	4,333,945,000,000	605,253,000,000
2015	85,815,000,000	28,022,000,000	4,153,080,000,000	-180,865,000,000
<i>Sum</i>		39,446,000,000		865,997,000,000
<i>Standard deviation</i>		18,248,678,891		278,032,214,850
<i>Mean</i>		9,861,500,000		216,499,250,000
<i>Dispersion Coefficient (CV)</i>		1.850497276		1.284217912
<i>CY = CV<math>\Delta</math>I/CV<math>\Delta</math>S 1.440952706</i>				

Since the respective index is larger than 1. Therefore, it can be asserted that this company has non-smoothed in net profit level.

The income smoothing index results from 285 listed companies in the 2011-2015 period.

No.	Firm	Income smoothing index
1	ABT	0.887
2	ACL	0.399
3	AGF	1.264
4	ALT	-38.553
5	AMV	-1.733
6	ASM	0.078
7	ASP	12.524
8	B82	-0.291
9	BBC	1.441
10	BCC	1.597
11	BCI	0.79
12	BED	-1.302
13	BKC	2.019
14	BLF	-1.022
15	BMC	0.565

No.	Firm	Income smoothing index
144	PGC	-0.181
145	PGD	-0.969
146	PGS	-0.105
147	PGT	8.661
148	PHC	25.652
149	PHR	1.038
150	PIT	-0.94
151	PJC	-1.763
152	PJT	-0.149
153	PLC	1.947
154	PMS	1.514
155	PNC	8.13
156	PNJ	1.24
157	POT	0.817
158	PPC	5.97

No.	Firm	Income smoothing index
16	BMP	1.434
17	BPC	0.07
18	BST	-9.212
19	BTP	-1.451
20	BTS	2.663
21	BXH	-1.998
22	C92	0.851
23	CAN	2.244
24	CAP	2.322
25	CCM	-1.604
26	CII	0.734
27	CJC	-0.874
28	CLC	0.462
29	CMC	7.909
30	COM	-0.277
31	CSC	0.8
32	CSM	1.851
33	CTC	1.609
34	CTD	1.116
35	CYC	-0.199
36	D2D	0.372
37	DAD	1.753
38	DBC	4.828
39	DC4	-0.941
40	DCL	0.186
41	DCS	-0.955
42	DHA	-1.352
43	DHC	0.253
44	DHG	1.14
45	DHT	2.619
46	DIC	8.901
47	DID	-0.194

No.	Firm	Income smoothing index
159	PSC	-4.242
160	PTC	5.009
161	PTL	0.795
162	PV2	5.672
163	PVD	0.928
164	PVE	-0.917
165	PVG	0.783
166	PVI	-0.092
167	PVL	12.708
168	PVR	-0.036
169	PVS	-1.056
170	PVT	0.217
171	PVX	-4.473
172	PXI	2.785
173	PXT	-37.598
174	QNC	1.499
175	QST	-0.809
176	QTC	-1.142
177	RAL	4.191
178	RDP	2.952
179	REE	1.873
180	RIC	7.075
181	S55	-0.54
182	S74	-0.145
183	S99	0.243
184	SAF	1.574
185	SAM	1.918
186	SAV	-0.228
187	SC5	3.766
188	SCD	-0.784
189	SCJ	-0.24
190	SD5	5.246



No.	Firm	Income smoothing index
48	DIG	2.257
49	DMC	0.071
50	DNP	1.252
51	DPR	0.888
52	DQC	0.768
53	DST	3.344
54	DTT	0.4
55	DVP	0.956
56	DXG	0.623
57	DXV	0.251
58	DZM	2.674
59	EBS	-12.839
60	ECI	0.662
61	FDC	-12.391
62	FMC	0.718
63	FPT	0.548
64	GDT	2.999
65	GIL	26.826
66	GMC	1.764
67	GMD	1.809
68	GTA	0.187
69	HAD	3.926
70	HAG	-2.124
71	HAP	0.217
72	HAS	1.248
73	HAX	0.74
74	HBC	-2.33
75	HCC	1.822
76	HCT	-2.311
77	HDC	-0.147
78	HEV	1.648
79	HGM	1.11

No.	Firm	Income smoothing index
191	SD7	1.436
192	SD9	2.144
193	SDA	-2.721
194	SDC	2.903
195	SDH	1.83
196	SDN	7.009
197	SED	7.595
198	SFC	-0.568
199	SFI	2.637
200	SFN	-0.218
201	SGD	-1.245
202	SGT	3.466
203	SHI	0.412
204	SHN	-0.366
205	SIC	0.907
206	SJC	0.81
207	SJE	0.412
208	SJS	1.193
209	SMC	-0.553
210	SRC	-0.73
211	SRF	3.891
212	ST8	0.682
213	STC	2.445
214	SVC	1.872
215	SZL	568.072
216	TAC	-0.748
217	TBC	1.096
218	TBX	0.475
219	TCL	1.432
220	TCM	15.147
221	TCR	-5.226
222	TDH	1.021

No.	Firm	Income smoothing index
80	HHC	1.177
81	HJS	3.161
82	HMC	1.342
83	HOM	-5.507
84	HPG	0.95
85	HRC	0.939
86	HSG	1.111
87	HST	-41.34
88	HT1	2.408
89	HTP	5.64
90	HTV	4.031
91	HUT	2.854
92	HVG	-7.746
93	HVT	5.371
94	ICF	0.746
95	IMP	9.158
96	ITA	0.846
97	ITC	0.405
98	KBC	1.532
99	KDC	-0.436
100	KHA	0.682
101	KHP	16.98
102	KKC	-1.48
103	KMR	3.231
104	KMT	-1.26
105	KSB	14.378
106	KSH	2.672
107	KSS	0.897
108	L10	1.333
109	L18	-1.12
110	L43	0.567
111	L44	1.221

No.	Firm	Income smoothing index
223	THB	-5.458
224	TIC	0.843
225	TIE	1.111
226	TIX	2.157
227	TJC	0.031
228	TKC	3.952
229	TKU	-1.103
230	TMP	0.497
231	TMS	0.962
232	TMX	0.818
233	TNA	2.608
234	TNC	0.332
235	TNG	1.461
236	TPC	0.053
237	TRA	1.281
238	TRC	1.031
239	TS4	-0.391
240	TSC	-1.32
241	TST	-2.35
242	TTF	-0.082
243	TV2	1.256
244	TV3	-0.776
245	TXM	-0.803
246	TYA	0.092
247	UIC	1.222
248	VBH	0.695
249	VC1	1.107
250	VC2	0.561
251	VC6	-0.024
252	VC7	-1.584
253	VCC	0.75
254	VCG	-2.492

No.	Firm	Income smoothing index
112	L61	-35.397
113	LAF	-1.159
114	LBE	0.179
115	LBM	1.181
116	LCG	1.114
117	LGC	0.892
118	LGL	-18.294
119	LHG	2.574
120	LTC	38.404
121	LUT	-0.112
122	MAC	0.699
123	MCG	-12.312
124	MCO	1.603
125	MCP	-0.121
126	MHC	-0.352
127	MKV	3.714
128	MSN	98.734
129	NAV	0.153
130	NBB	7.929
131	NBP	0.555
132	NGC	-0.083
133	NSC	0.418
134	NST	-0.745
135	NTL	2.943
136	NTP	11.076
137	OCH	-58.456
138	OGC	-1.586
139	ONE	3.423
140	OPC	1.985
141	PAC	-3.755
142	PDC	2.825
143	PET	-0.228

No.	Firm	Income smoothing index
255	VCS	2.418
256	VDL	0.422
257	VE1	1.404
258	VE9	2.97
259	VFG	1.277
260	VGS	0.296
261	VHC	-11.745
262	VHG	1.532
263	VIC	81.575
264	VID	-5.841
265	VIP	300.285
266	VIS	1.201
267	VMC	2.307
268	VNA	2.904
269	VNC	12.177
270	VNE	3.016
271	VNG	-2.294
272	VNL	11.719
273	VNM	2.357
274	VNS	1.666
275	VNT	2.623
276	VPH	0.477
277	VPK	-3.737
278	VSC	0.856
279	VSH	-0.073
280	VTB	-3.363
281	VTC	0.475
282	VTL	-0.174
283	VTO	3.97
284	VTS	1.52
285	VTV	0.301

The companies will be regarded as profit smoothers if they smooth their profit in one of the net profit levels, the respective company is an income-smoothing organization because its CV ratios are all below 1. The objective of this model is specifically synthetic smoothing of profit. Natural income smoothing is not essentially related to any managerial action or decision.

Furthermore, actual income smoothing also represents an economic situation which is not analyzed in the scope of the current research. But on the contrary, synthetic smoothing is, in fact, indicative of intentional actions of the management for smoothing time series of reported profits, which evidently leads to deviation in the provision of economic facts. Another issue needed to be emphasized is the fact that Eckel's theoretical framework is merely used for identifying successful efforts of profit-smoothing. In other words, this model will not be able to identify those organizations which failed to smooth their profit.

### **5. Conclusion**

In this study, the income variability is a proven method to test the use of income smoothing and is additionally applied by Eckel (1981) and Albrecht and Richardson (1990) amongst others. For the period of 2011 to 2015, 111 companies are identified as smoothers and 174 companies are identified as non-smoothers based on the income variability approach. However, this period includes the years of the financial crisis. Consequently, this research has successfully identified companies as smoothers and non-smoothers.

According to Eckel (1981), natural smooth income streams and intentionally smoothed income streams exist. Intentionally smoothed income streams are the focus of this research as these income streams are the results of the use of earnings management by the management of the company. To apply

income smoothing, the management of the company needs to consider the smoothing objects, dimensions, and instruments as defined by Barnea, Ronen and Sadan (1976) and Copeland (1968). Although most prior empirical research has qualified income smoothing as a bad phenomenon, this research comments on a possible good characteristic. If income smoothing is applied by the management of the company to signal their private information about future earnings to the users of the financial statements, the use of income smoothing can be qualified as a positive one. However, several motives are not related to the signaling of private information.

### **6. Limitation and suggestions for future research**

This is either a limitation of the model applied to measure the use of income smoothing, or is related to the smoothing behavior of the management of the companies in times of crisis. As this is beyond the scope of this research, it is qualified as a research limitation. Second, a research limitation is related to the variables applied in this research. This research selected the net income of the companies as the smoothing object. This selection was made because the net income is the most studied smoothing object. Consequently, it is possible that other smoothing objects will result in other identifications of smoothers and non-smoothers.

Based on the empirical research, several suggestions for future academic research on the relation of income smoothing and the earnings informativeness can be defined. It is concluded from the empirical research, a change in the research period influenced the results of which companies are identified as smoothers and which companies are identified as non-smoothers by the income variability model. This research concludes that the financial crisis could be responsible for the change in the identification of smoothers and

non-smoothers. Future academic research could additionally comment on if the financial crisis affected the use of income smoothing by the management of the companies.

Additionally, the power of the income variability model to measure income smoothing in times of economic distress could be investigated by future academic research ■

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