



Financial Accounting Theory (22E00210)

Assignment 7

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<https://scholar.google.fi/citations?user=K1EK29oAAAAJ&hl=fi&oi=ao>

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Assignment 7. Earnings management and executive compensation

The attached data file (“Assignment 7 data.xls”) provides you with the latest available data (in databases) of items that are needed to calculate Defond-Park and Modified Jones measures of earnings management. It also includes the remuneration package information of the CEOs of the companies in the dataset.

Please read the explanation of Defond & Park and Modified Jones measures in Karjalainen-Kasanen-Kinnunen-Niskanen (2020, p. 10). You can also read the original articles DeFond & Park (2001) and Dechow et al. (1995), if needed.

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Defond & Park (2001)

An earnings management measure that can be calculated from a single income statement.

It relies on the accrual component of only net working capital (NWC).

You deduct “the theoretical NWC” from the current level of NWC.

Theoretical NWC is (current sales revenue / previous sales revenue) * previous NWC

The variables needed in the analyses are the following (available in the “Assignment 7 data.xls”):

Variable	Description	Column in the datafile
<i>Defond</i>	DeFond & Park measure of earnings management	C
<i>TACC</i>	Net Income – Operating cash flow	D
<i>Assets_1</i>	1 / Total assets	E
<i>PPE</i>	Property plant and equipment	F
<i>Revenue_change</i>	Change in (cash) revenue	G
<i>Executivesage</i>	The age of the CEO	J
<i>Female</i>	‘1’ if CEO is female, otherwise ‘0’	H
<i>Cashcompensation_share</i>	Cash compensation / Total compensation of the CEO	I

TACC, PPE and Revenue change have been divided (“scaled”) by total assets of the previous year.

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Modified Jones Model

Uses (cross-sectional) data from a sample of companies

It is sensitive to the selection of the sample

Your “y-variable” is TACC (=net income – operating cash flow), i.e. the accrual amount in net income

You use three variables as predictors (“x-variables”) of TACC in a regression model: 1/Assets; Property plant and equipment and (cash) Change of revenues

From this model you obtain the residual. It represent the unexplained portion of accruals (in the income statement)

If the residual is positive: EM (because actual accrual higher than theoretical) and vice versa.

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Modified Jones Model

$$\hat{p}_{predicted} = -0.5 + 0.3 \cdot (0.7) + 0.8 \cdot (0.3) - 0.1 \cdot (0.2)$$

	Intercept	a1 (1_Assets)	a2 (REV_Change)	a3 (PPE)		
	-0.5	0.3	0.8	-0.1		
	TACC	1_Assets	REV_change	PPE	predicted	Residual
Firm 1	1.7	0.7	0.3	0.2	-0.07	1.77
Firm 2						
Firm 3						
.						
.						
.						
Firm n						

$$TACC = \alpha_1(1/A_{\tau-1}) + \alpha_2(\Delta REV_{\tau} - \Delta REC_{\tau}) + \alpha_3(PPE_{\tau}),$$

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Modified Jones Model (continues)

Save the residual for all observations (represents the amount of earnings management; it has a mean of zero).

Run a correlation matrix and a new regression with those observations (less observations than in the initial sample because of the lack of executive compensation information).

Now the residual of the first regression is your “y-variable”

Use CEO-related information as your “x-variables”:

- The gender of the CEO (*Female*)
- CEO age (*Executiveage*)
- The ratio of cash compensation to total compensation of the CEO (*cashcompensation_share*).

The idea of this second model is to examine whether CEO related aspects have a statistically significant association with the observed earnings management

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Some words of caution

Overall, earnings management models do not have very high explanatory power (R^2)

The data retrieved for this assignment is from software and information systems related industries. There the amount of PPE may be lower than is the case in traditional manufacturing industries (leading to potentially even weaker explanatory power in the first regression).

Note that the correlation and regression analysis in excel does not accept (any) empty cells without values. If you find such cells, you need to exclude those rows from the analysis.

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Other comments

Even though the data that you need in the analyses is given to you in a preprocessed format in the columns C-I of the excel file (Assignment 7 data.xls), you are free to modify the data, if you want to do so.

For example, the data in column H (the proportion of salary+bonus divided by the total compensation) is informative of the willingness of the CEO to engage in short term earnings management. You may feel that e.g. having a bonus pay (column AG in the excel sheet) as a part of the compensation package is a better predictor of earnings management. In such case, you can change the analysis and report results from that analysis.

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Other comments

If you are very competent in regression analysis, you can test to run the second regression using logistic regression where you code as ‘1’ those (absolute) EM values that are high/low (e.g. 25% tails), and other as ‘0’. (You may want to save this part to your master thesis as this is more complex and time consuming to run in excel: “<https://www.statology.org/logistic-regression-excel/>”; it is much faster to do in a statistical software such as Stata, SAS or SPSS).

That enables you to test whether your x-variables have power to separate low & high values compared to “normal” level of EM measures.



H1 female

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
16	BLACKBAUD INC	Michael P. Gianoni	-0.0067	-0.0890	0.0006	0.0153	-0.0699	0.0000	0.0662	58				11133	MALE	00012
17	BROADBRIDGE FINANCIAL SOLUTNS	Timothy C. Gokey	-0.0133	-0.0844	0.0003	0.0000	-0.3229	0.0000	0.1065	57				7286	MALE	00013
18	CACI INTL INC -CL A	John S. Mengucci	0.0076	-0.0061	0.0003	0.0281	-0.3710	0.0000	0.1212	57				5899	MALE	00000
19	CARS.COM INC	T. Alex Vetter	-0.0049	-0.0497	0.0004	0.0076	-0.0693	0.0000	0.1242	48				4563	MALE	00016
20	CERIDIAN HCM HOLDING	David D. Ossip	0.0179	-0.0108	0.0001	0.0000	-0.0259	0.0000	0.0232	53						00017
21	CDK GLOBAL INC	Brian Matthew Krzanic	0.0261	-0.0280	0.0003	0.0000	-0.2610	0.0000	0.0462	59						00018
22	CADENCE DESIGN SYSTEMS INC	Lip-Bu Tan	-0.0535	-0.1071	0.0004	0.0451	-0.1209	0.0000	0.0379	60						00008
23	CERNER CORP	David Brent Shafer	-0.0470	-0.1274	0.0002	0.0332	-0.3095	0.0000	0.0638	62						00008
24	CORELOGIC INC	Frank D. Martell	-0.0016	-0.0572	0.0002	0.0105	-0.1459	0.0000	0.1255	59						00011
25	COMPUTER PROGRAMS & SYSTEMS	John Boyd Douglas, J	0.0446	-0.0198	0.0031	0.0031	-0.3305	0.0000	0.4579	53						00011
26	SALESFORCE.COM INC	Keith G. Block	0.0419	-0.1485	0.0001	0.0469	-0.2896	0.0000	0.0743	59						00010
27	CSG SYSTEMS INTL INC	Bret C. Griess	-0.1309	-0.0854	0.0011	0.0243	-0.5073	0.0000	0.1154	51						00010
28	COMPUTER TASK GROUP INC	Filip J. L. Gyd	-0.0677	-0.0197	0.0078	0.0313	-0.7372	0.0000	0.2798	58						00000
29	COGNIZANT TECH SOLUTIONS	Brian Humphries	-0.0610	-0.0323	0.0001	0.0261	-0.3593	0.0000	0.2989	45						00010
30	CITRIX SYSTEMS INC	David James Henshall	-0.3106	-0.0790	0.0002	0.0314	-0.2151	0.0000	0.0689	51						00008
31	COMMVault SYSTEMS INC	Sanjay Mirchandani	-0.0175	-0.1819	0.0012	0.0125	-0.3064	0.0000	0.1230	56						00011
32	DONNELLEY FINANCIAL SOLTNS	Daniel N. Leib	-0.0325	0.0082	0.0011	0.0000	-0.4253	0.0000	0.1695	53						00016
33	DXC TECHNOLOGY CO	Michael J. Salvino	-0.1378	-0.1722	0.0001	0.4271	1.0843	0.0000	0.2934	55						00016
34	ELECTRONIC ARTS INC	Andrew Wilson	0.0717	-0.0841	0.0001	0.0180	-0.0569	0.0000	0.0562	45				21366	MALE	00007
35	EBAY INC	Devin N. Wenig	-0.0789	-0.0049	0.0000	0.0154	-0.0600	0.0000	0.0136	52				57226	MALE	00010
36	EBIX INC	Robin Raina	-0.0315	0.0029	0.0009	0.0009	-0.1610	0.0000	0.3222	53				6208	MALE	00008
37	NIC INC	Harry H. Herington	0.1177	-0.0391	0.0034	0.0068	-0.5967	0.0000	0.2066	59				2420	MALE	00010
38	BOTTOMLINE TECHNOLOGIES INC	Robert A. Eberle	0.3321	-0.1080	0.0016	0.0000	-0.1520	0.0000	0.0468	58				8373	MALE	00010
39	ETSY INC	Joshua G. Silverman	0.1774	-0.2005	0.0017	0.0661	0.1924	0.0000	0.4384	50				1083	MALE	00013
40	EVERTEC INC	Morgan M. Schuessler	0.0615	-0.0958	0.0011	0.0033	-0.1517	0.0000	0.1584	46				4552	MALE	00015
41	EXLSERVICE HOLDINGS INC	Rohit Kapoor	-0.0153	-0.0433	0.0012	0.0497	-0.2456	0.0000	0.1162	54				6195	MALE	00012
42	FACEBOOK INC	Mark Elliot Zuckerberg	-0.2138	-0.0847	0.0000	0.0218	0.0209	0.0000	0.0000	35				23416	MALE	00013
43	FACTSET RESEARCH SYSTEMS INC	Frederick Philip Snow	-0.0145	-0.0839	0.0007	0.0842	-0.1245	0.0000	0.1630	55				2884	MALE	00010
44	F5 NETWORKS INC	Franois Locoh-Donou	-0.0320	-0.1239	0.0004	0.0435	-0.2080	0.0000	0.0897	48				9473	MALE	00010
45	FAIR ISAAC CORP	William J. Lansing	-0.0528	-0.0642	0.0008	0.0231	-0.2207	0.0000	0.0661	61				11345	MALE	00008
46	FIDELITY NATIONAL INFO SVCS	Gary Adam Norcross	0.0367	-0.0468	0.0000	0.0055	-0.1939	0.0000	0.0434	53				27658	MALE	00011
47	FISERV INC	Jeffery W. Yabuki, B.S	0.0171	-0.0348	0.0001	0.0000	-0.1865	0.0000	0.0379	59				27601	MALE	00007
48	FLEETCOR TECHNOLOGIES INC	Ronald F. Clarke	-0.0025	-0.0081	0.0001	0.0000	-0.3851	0.0000	0.0869	63				11504	MALE	00011
49	GLU MOBILE INC	Nick Earl	0.1173	-0.1520	0.0033	0.0368	0.0593	0.0000	0.0665	53				7147	MALE	00013
50	ALPHABET INC	Sundar Pichai	-0.1141	-0.0874	0.0000	0.0000	-0.0706	0.0000	0.0023	46				280622	MALE	00016
51	GLOBAL PAYMENTS INC	Jeffrey S. Sloan, J.D.	-0.0235	-0.0503	0.0001	0.0056	-0.4092	0.0000	0.0488	52				20502	MALE	00011
52	GRUBHUB INC	Matthew Mayer Malon	-0.0865	-0.0953	0.0006	0.0259	0.0696	0.0000	0.0906	43				7836	MALE	00015
53	HEALTHQUITY INC	Jon Kessler	0.0240	-0.1230	0.0036	0.0072	0.0450	0.0000	0.2374	52				5266	MALE	00014
54	HEALTHSTREAM INC	Robert A. Frist, Jr.	0.1029	-0.0268	0.0024	0.0292	-0.2445	0.0000	0.5545	52				617	MALE	00010

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