Leuz, Christian, Dhananjay Nanda, and Peter D. Wysocki, 2003, "Earnings Management and Investor Protection: an International Comparison," *Journal of Financial Economics*, vol. 69, no. 3, pp. 505-527

1. Introduction

- systematic differences in earnings management across 31 countries
- insiders, in an attempt to protect their private control benefits, use earnings management to conceal firm performance from outsiders
- earnings management is expected to decrease in investor protection
  - ∵ strong protection limits insiders' ability to acquire private control benefits, which reduces their incentives to mask firm performance
- suggest an endogenous link between corporate governance and the quality of reported earnings

developed equity market, dispersed ownership structures,
strong investor rights, legal enforcement
= less earnings management!

What is Earnings Management?

☞ the alteration of firms' reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes.

☞ some value is enjoyed exclusively by insiders ⇒ not shared by outsider investors

- Insiders: incentive to conceal their private control benefits from outsiders
  - ∵ if the benefits are detected, outsiders will take penalty action against them
- Outsider Economy ⇒ Earnings Management Frequency ▽
- Insider Economy ⇒ Earnings Management Frequency △
- advances in the corporate governance literature on the role of legal protection for financial market development, ownership structure, and private control benefits
  - Shleifer and Vishny (1997, JF)
  - La Porta et al. (2000, JFE)
- contributes to a growing literature on international differences in firms' financial reporting
  - prior research ⇒ only implicitly accounting for international differences in institutional factors
  - Alford et al. (1993, JAR)
  - Joos and Lang (1994, JAR)
  - Land and Lang (2002, Accounting Review)

2. Earnings Management Measures

- 4 country-level measures of earnings management
  - capture various dimensions along which insiders can exercise their discretion
  - capture outcomes of insiders' earnings management activities
  - avoid the problem that stated accounting rules can be circumvented by insiders and hence do not reflect firms' actual reporting practices

2.1. Smoothing reported operating earnings using accruals

- the degree to which insiders "smooth"
- reduce the variability of reported earnings by altering the accounting component of earnings, namely accruals

$$\textit{the measure} \quad = \quad Med\left[\frac{\hat{s}(\textit{operating income}_i)}{\hat{s}(\textit{cashflow from operations}_i)}\right]$$

- the indicator$\bigtriangledown \Rightarrow {}^{\exists}$insiders' exercise accounting discretion to smooth earnings

$$\textit{cashflow from operations} \quad := \quad \textit{earnings}-\textit{accrual}$$

- $\because$ impossibility of firms' cashflow term in many countries.

$$\begin{aligned} accruals_{it} &= (\Delta CA_{it}-\Delta Cash_{it})-(\Delta CL_{it}-\Delta STD_{it}-\Delta TP_{it})-Dep_{it} \\ CA &:= \text{total current assets} \\ Cash &:= \text{cash/cash equivalents} \\ CL &:= \text{total current liabilities} \\ STD &:= \text{short-term debt included in current liabilities} \\ TP &:= \text{income taxes payable} \\ Dep &:= \text{depreciation and amortization expense} \end{aligned}$$

2.2. Smoothing and the correlation between changes in accounting accruals and operating cashflows

- Insiders ordinary use accruals to cover the variation of the operating cashflow which is sensitive to the macroeconomic shock.
- Thus, the relationship between two variables will be negative significant.
- If the negativeness of the value$\bigtriangleup \Rightarrow$ reported earnings do not offer.

2.3. Discretion in reported earnings: the magnitude of accruals

- the magnitude of accruals
- the proxy for the extent to which insiders exercise in reporting earnings

$$\textit{the measure} \quad = \quad Med\left(\frac{|accruals_i|}{|cashflow\ from\ operations_i|}\right)$$

- Discretionary accruals are sometimes used by the managers to inccrease the informativeness of financial reports.
- However, these findings may be the result of effective outside investor protection and therefore may not extend to countries with weak investor protection.

2.4. Discretion in reported earnings: small loss avoidance

- Insiders usually want to avoid small losses which can be turned into small profits by earnings management: Degeorge et al. (1999), Burgstahler and Dichev (1997)

$$\textit{the measure} \quad = \quad \frac{small\ reported\ profits_i \in [0.00, 0.01]}{small\ reported\ losses_i \in [-0.01, 0.00)}$$

- using after-tax earnings scaled by total assets

2.5. Aggregate measure of earnings management

- overall summary measure developed with binomial brand
- mitigate potential measurement error
- score $\triangle \Rightarrow$ level of earnings management $\triangle$

$$\textit{the measure} \quad = \quad \frac{rank(2.1)_i + rank(2.2)_i + rank(2,3)_i + rank(2,4)_i}{4}$$

3. Sample Selection and Descriptive Statistics

- cross-section: 8616 non-financial firm, 31 countries
- time-series: fiscal years 1990 to 1999

- Table 1

Country	# Firm-years	Median firm size in US$	Median capital intensity	Fraction of mfg. firms	Per-capita GDP in US$	Inflation (%)	Volatility of GDP growth (%)
AUSTRALIA	1,483	233,344	0.425	0.319	20,642	2.62	2.01
AUSTRIA	564	213,101	0.313	0.710	29,287	2.62	1.22
BELGIUM	727	277,510	0.280	0.563	27,357	2.26	1.45
CANADA	3,322	271,287	0.465	0.381	19,687	2.25	1.92
DENMARK	1,235	119,113	0.344	0.573	34,163	2.07	1.23
FINLAND	854	308,974	0.345	0.618	26,296	2.25	4.69
FRANCE	4,404	178,163	0.187	0.548	26,960	2.04	1.42
GERMANY	4,440	336,894	0.282	0.637	30,166	2.51	1.46
GREECE	858	38,305	0.295	0.568	11,393	12.06	1.48
HONG KONG	1,483	167,754	0.376	0.513	21,610	4.10	3.89
INDIA	2,064	63,027	0.409	0.859	374	10.09	2.32
INDONESIA	787	75,502	0.361	0.694	961	13.86	7.26
IRELAND	436	124,021	0.386	0.438	18,707	2.38	3.03
ITALY	1,213	350,380	0.280	0.721	19,025	4.40	1.25
JAPAN	16,475	463,191	0.289	0.583	41,200	1.38	2.29
KOREA (SOUTH)	1,692	452,349	0.382	0.724	10,250	6.28	4.64
MALAYSIA	2,036	81,407	0.403	0.557	4,043	3.97	4.35
NETHERLANDS	1,561	349,909	0.333	0.503	27,037	2.48	1.07
NORWAY	988	104,483	0.356	0.410	33,189	2.46	1.28
PAKISTAN	508	24,907	0.432	0.913	488	10.34	2.25
PHILIPPINES	429	60,814	0.460	0.500	1,093	9.80	2.42
PORTUGAL	460	97,229	0.412	0.545	10,942	6.40	1.68
SINGAPORE	1,100	104,187	0.377	0.472	22,721	2.15	2.66
SOUTH AFRICA	1,043	380,644	0.327	0.445	3,914	10.41	1.92
SPAIN	1,082	333,207	0.424	0.492	15,092	4.43	1.64
SWEDEN	1,384	261,343	0.295	0.505	27,350	3.59	2.29
SWITZERLAND	1,320	377,488	0.394	0.626	44,485	2.51	1.65
TAIWAN	1,001	208,798	0.357	0.809	11,893	3.37	0.80
THAILAND	1,529	55,344	0.433	0.578	2,570	5.50	3.28
UNITED KINGDOM	10,685	109,337	0.335	0.430	19,126	3.95	2.03
UNITED STATES	3,792	3,597,429	0.333	0.556	27,836	3.09	1.64
Mean	2,289	316,756	0.358	0.574	19,028	4.76	2.34
Median	1,235	208,798	0.357	0.557	19,687	3.37	1.92
Min	429	24,907	0.187	0.319	374	1.38	0.80
Max	16,475	3,597,429	0.465	0.913	44,485	13.86	7.26

- Median capital intensity = Long-term assets/Total assets
- Fraction of mfg. firms = #(manufacturing firms)/#(total number of gambler)

Table 2

Panel A: Country scores for earnings management measures (Sorted by aggregate earnings management)

	Earnings smoothing measures		Earnings discretion measures		
	EM1σ(OpInc)/ σ(CFO) (–)	EM2 ρ(ΔAcc, ΔCFO) (–)	EM3 |Acc|/| CFO| (+)	EM4 # of SmProfit/ # of SmLoss (+)	Aggregate earnings management score
AUSTRIA	0.345	−0.921	0.783	3.563	28.3
GREECE	0.415	−0.928	0.721	4.077	28.3
KOREA (SOUTH)	0.399	−0.922	0.685	3.295	26.8
PORTUGAL	0.402	−0.911	0.745	3.000	25.1
ITALY	0.488	−0.912	0.630	4.154	24.8
TAIWAN	0.431	−0.898	0.646	2.765	22.5
SWITZERLAND	0.473	−0.873	0.547	5.591	22.0
SINGAPORE	0.455	−0.882	0.627	3.000	21.6
GERMANY	0.510	−0.867	0.848	3.006	21.5
JAPAN	0.560	−0.905	0.567	3.996	20.5
BELGIUM	0.526	−0.831	0.677	3.571	19.5
HONG KONG	0.451	−0.850	0.552	3.545	19.5
INDIA	0.523	−0.867	0.509	6.000	19.1
SPAIN	0.539	−0.865	0.514	6.000	18.6
INDONESIA	0.481	−0.825	0.506	7.200	18.3
THAILAND	0.602	−0.868	0.671	3.136	18.3
PAKISTAN	0.508	−0.913	0.513	2.643	17.8
NETHERLANDS	0.491	−0.861	0.480	3.313	16.5
DENMARK	0.559	−0.875	0.526	2.708	16.0
MALAYSIA	0.569	−0.857	0.578	2.658	14.8
FRANCE	0.561	−0.845	0.579	2.370	13.5
FINLAND	0.555	−0.818	0.517	2.633	12.0
PHILIPPINES	0.722	−0.804	0.555	2.455	8.8
UNITED KINGDOM	0.574	−0.807	0.397	1.802	7.0
SWEDEN	0.621	−0.764	0.466	2.568	6.8
NORWAY	0.713	−0.722	0.556	1.235	5.8
SOUTH AFRICA	0.643	−0.840	0.297	1.667	5.6
CANADA	0.649	−0.759	0.478	2.338	5.3
IRELAND	0.607	−0.788	0.371	1.667	5.1
AUSTRALIA	0.625	−0.790	0.450	1.486	4.8
UNITED STATES	0.765	−0.740	0.311	1.631	2.0
Mean	0.541	−0.849	0.558	3.196	
Median	0.539	−0.861	0.552	3.000	
Standard Deviation	0.100	0.056	0.128	1.413	
Min	0.345	−0.928	0.297	1.235	
Max	0.765	−0.722	0.848	7.200	

- descriptive statistics for the four individual earnings management measures as well as the aggregate earnings management score
- sorted in descending order based on their aggregate score
  - EM1: smaller earning variation in code-law area than common-law area
  - EM2: earnings smoothing $\Rightarrow$ frequent in Japan, Greece then Canada, US
  - EM3: magnitude of firms' accrual $\Rightarrow$ small in UK, US, big for other countries
  - EM4: loss avoidance $\Rightarrow$ large for code-law, small for common-law
- factor analysis $\Rightarrow$ suggests that a single factor represents the four individual measures
- $\therefore$ it seems appropriate to combine the four measures into a single summary measure of earnings management
- the last column of above table: presents a country ranking based on this aggregate earnings management score
  - high ranks for countries such as Austria, Italy, South Korea etc.
  - low ranks for countries such as Australia, UK, US etc.

Table 2 Panel B

Country	Legal Origin	Legal Tradition	Outside Investor Rights	Legal Enforcement	Important of Equity Market	Ownership Concentration	Disclosure Index
AUSTRIA	German	CD	2	9.4	7.0	0.51	54
GREECE	French	CD	2	6.8	11.5	0.68	55
KOREA (SOUTH)	German	CD	2	5.6	11.7	0.20	62
PORTUGAL	French	CD	3	7.2	11.8	0.59	36
ITALY	French	CD	1	7.1	6.5	0.60	62
TAIWAN	German	CD	3	7.4	13.3	0.14	65
SWITZERLAND	German	CD	2	10.0	24.8	0.48	68
SINGAPORE	English	CM	4	8.9	28.8	0.53	78
GERMANY	German	CD	1	9.1	5.0	0.50	62
JAPAN	German	CD	4	9.2	16.8	0.13	65
BELGIUM	French	CD	0	9.4	11.3	0.62	61
HONG KONG	English	CM	5	8.9	28.8	0.54	69
INDIA	English	CM	5	5.6	14.0	0.43	57
SPAIN	French	CD	4	7.1	7.2	0.50	64
INDONESIA	French	CD	2	2.9	4.7	0.62	NA
THAILAND	English	CM	2	4.9	14.3	0.48	64
PAKISTAN	English	CM	5	3.7	7.5	0.41	NA
NETHERLANDS	French	CD	2	10.0	19.3	0.31	64
DENMARK	Scandinavian	CD	2	10.0	20.0	0.40	62
MALAYSIA	English	CM	4	7.7	25.3	0.52	76
FRANCE	French	CD	3	8.7	9.3	0.24	69
FINLAND	Scandinavian	CD	3	10.0	13.7	0.34	77
PHILIPPINES	French	CD	3	3.5	5.7	0.51	65
UNITED KINGDOM	English	CM	5	9.2	25.0	0.15	78
SWEDEN	Scandinavian	CD	3	10.0	16.7	0.28	83
NORWAY	Scandinavian	CD	4	10.0	20.3	0.31	74
SOUTH AFRICA	English	CM	5	6.4	16.3	0.52	70
CANADA	English	CM	5	9.8	23.3	0.24	74
IRELAND	English	CM	4	8.4	17.3	0.36	NA
AUSTRALIA	English	CM	4	9.5	24.0	0.28	75
UNITED STATES	English	CM	5	9.5	23.3	0.12	71

- descriptive statistics on the institutional characteristics of each country in the sample and is sorted based on countries aggregate earnings management scores presented in Panel A
- Institutional variables are drawn from La Porta et al. (1997, 1998)
  - Legal Enforcement Measure = average score of 3 variables; (1) index of the legal system's efficiency, (2) an index of the rule of law, (3) level of corruption
  - Importance of Equity Markets Measure = (1) ratio of the aggregate stock market held by minorities to gross national product, (2) # of listed domestic stocks relative to the population; and (3) # of IPOs relative to the population
  - Ownership concentration = median % of common shares owned by the largest three shareholders, in the ten larges privately owned non-financial firms.
  - Disclosure index = the inclusion or omission of 90 accounting items in firms' 1990 annual reports, and hence captures firms' disclosure policies.

Table 2 Panel C

	Outside Investor Rights	Legal Enforcement	Importance of Equity Market	Ownership Concentration	Disclosure Index
Aggregate Earnings Management	−0.538	−0.291	−0.418	0.434	−0.686
	(0.002)	(0.112)	(0.019)	(0.015)	(0.000)
Outside Investor Rights		−0.026	0.515	−0.344	0.568
		(0.888)	(0.003)	(0.058)	(0.002)
Legal Enforcement			0.522	−0.396	0.393
			(0.003)	(0.028)	(0.038)
Importance of Stock Market				−0.315	0.647
				(0.084)	(0.000)
Ownership Concentration					−0.398
					(0.036)

- Negative Correlation between aggregate variable and outside investor rights, and legal enforcement
  - earnings management is more pervasive in countries characterized by less developed stock markets, more concentrated ownership, and lower disclosure

4. Empirical Results

- Descriptive cluster analysis
  - first, identify country clusters with similar institutional features
  - captures interactions among institutional factors and documents systematic patterns in earnings management without relying on specific hypothesis.

Table 3

Panel A: Mean values of institutional characteristics by cluster

Institutional Variables	Cluster 1	Cluster 2	Cluster 3
Stock Market Capitalization	0.82	0.46	0.21
Listed Firms	49.56	18.58	9.50
IPOs	4.04	0.55	0.37
Ownership Concentration	0.34	0.37	0.50
Anti-Director Rights	4.50	2.62	2.90
Disclosure Index	74.38	66.67	58.13
Efficiency of Judicial System	9.78	9.04	5.50
Rule of law	9.02	9.07	5.65
Corruption Index	8.80	9.09	5.13
	Outsider features	↔	Insider Features

Panel B: Cluster membership of countries

Institutional variables	Cluster 1	Cluster 2	Cluster 3
Countries Sorted by Aggregate Earnings Management Score	Singapore (CM)	Austria (CD)	Greece (CD)
	Hong Kong (CM)	Taiwan (CD)	Korea (CD)
	Malaysia (CM)	Switzerland (CD)	Portugal (CD)
	UK (CM)	Germany (CD)	Italy (CD)
	Norway (CD)	Japan (CD)	India (CM)
	Canada (CM)	Belgium (CD)	Spain (CD)
	Australia (CM)	Netherlands (CD)	Indonesia (CD)
	USA (CM)	Denmark (CD)	Thailand (CM)
		France (CD)	Pakistan (CM)
		Finland (CD)	Philippines (CD)
		Sweden (CD)	
		South Africa (CM)	
		Ireland (CM)	

Panel C: Pervasiveness of earnings management by cluster

	Cluster 1	Cluster 2	Cluster 3
Mean Aggregate Earnings Management Score	10.1	16.1	20.6
Tests of EM differences between clusters	C1 vs. C2	C2 vs. C3	C1 vs. C3
(p-values)	(0.044)	(0.059)	(0.003)

- Panel A: means of each institutional variable for each of the three clusters
- Panel B: cluster membership of the sample countries
- Panel C: differences between the clusters' average earnings management scores

Table 4

	Aggregate Earnings Management Measure	Aggregate Earnings Management Measure - 2SLS -	Aggregate Earnings Management Measure - 2SLS -
Constant	28.605 (<0.001)	31.421 (<0.001)	3.128 (0.463)
Outside Investor Rights	−0.499 (<0.001)	−0.641 (0.001)	—
Legal Enforcement	−0.289 (0.025)	−0.322 (0.025)	—
Private Control Benefits	—	—	0.931 (0.004)
Adjusted R^2	0.389	0.359	0.272
Number of Observations	31	31	26

- Similar hypothesis with Nenova (2000), Dick and Zingales (2002)
- Earnings Mgmt.=f(Outsider Rights, Legal Enforcement, Private Control Benefit)
  - Column 1: all coefficients except constant is always statistically significant with both OLS and 2SLS estimation
  - Column 2: to address possible endogenous bias in explanatory variables, this paper accepted Levine(1999)'s suggestion: instrument variable approach with (1) legal origins dummy (predetermined, exogenous), (2) level of wealth (prior sample period)
  - Column 3: alternative approach; directly estimate the relation between earnings mgmt. and private control benefits → country's average block premium estimated by Dyck and Zingales (2002) as a proxy and estimated 2SLS of Regression model at Column 3 with per capital GDP (similar with column 2 results were obtained)
- Robustness Checks
  - control variable? in 2SLS-estimated model in column 3, it shows that per capita GDP explains differences in corporate policies. → re-estimate the model with additional explanatory variable per capita GDP
  - consequently, regression coefficient of per capita GDP is insignificant, while other variables' coefficients are statistically significant with few changes.
  - economic heterogeneity across countries? regression models are re-estimated with two comprised sub-samples from full samples (manufacturing firm exclusive, medium size firms only) → results were essentially the same as those presented in the table (not reported in table)
  - effects of firm characteristics or macroeconomic variable? re-estimation with median firm size, median capital intensity, country's average yearly inflation rate+standard deviation of real GDP as a control variable → consistent

Table 5

	Aggregate Earnings Management *Controlling for Accounting Rules*	Aggregate Earnings Management *Controlling for Accounting Rules* - 2SLS -	Aggregate Earnings Management *Controlling for Ownership*	Aggregate Earnings Management *Controlling for Ownership* - 2SLS -
Constant	30.974	34.591	24.333	47.261
	(<0.001)	(<0.001)	(<0.001)	(0.002)
Outside Investor Rights	−0.285	−0.501	−0.444	−0.774
	(0.079)	(0.044)	(0.003)	(0.007)
Legal Enforcement	−0.297	−0.420	−0.228	−0.571
	(0.080)	(0.048)	(0.101)	(0.048)
Accrual Rules	−0.689	−0.425	—	—
	(0.016)	(0.313)		
Ownership Concentration	—	—	0.151	−0.609
			(0.302)	(0.225)
Adjusted R^2	0.584	0.468	0.392	0.214
Number of Observations	20	20	31	31

- accounting rule effects? coefficients of the "accrual rules" are significant with OLS estimation, while it turns to be insignificant with 2SLS estimation
- concentrated ownership effects? there is no incremental explanation in the model with the Ownership Concentration Variables

Thank you!