

국제회계기준의 가치관련성: F-Score를 중심으로

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Motivation

- 국제회계기준의 도입목적: 회계정보의 투명성과 가치관련성의 향상 (IFRS)
- 회계정보의 투명성: 감사품질, 비교가능성 등
- 가치관련성: 전통적인 방법의 테스트와 측정을 사용함
EX) 장부가치의 가치관련성
- 포트폴리오 접근법으로 기본적분석을 행함

Prior Studies

- 회계정보의 투명성: 국제회계기준의 도입은 회계정보의 투명성을 향상 시켰다. 이익의 질, 비교가능성의 향상 등
- 가치관련성: 다양한 방법으로 가치관련성의 향상을 검증함. 연구개발비 등의 가치관련성.
- Piotroski (2000): F-score를 개발하여 기본적분석을 통한 포트폴리오의 초과수익을 증명
- 국제회계기준 下에서의 회계정보가 좀더 가치관련성이 높은 F-score를 생성함

Hypothesis

H: 국제회계기준의 도입은 회계정보의 가치관련성을 향상 시켰다.

Research Design

Piotroski F-score

Calculation procedure

Profitability

1. Return on Assets (1 point if it is positive in the current year, 0 otherwise); = 당기순이익/총자산
2. Operating Cash Flow (1 point if it is positive in the current year, 0 otherwise); = 영업현금흐름
3. Change in Return of Assets (ROA) (1 point if ROA is higher in the current year compared to the previous one, 0 otherwise);
4. Accruals (1 point if Operating Cash Flow/Total Assets is higher than ROA in the current year, 0 otherwise); = 영업현금흐름/총자산

Leverage, Liquidity and Source of Funds

5. Change in Leverage (long-term) ratio (1 point if the ratio is lower this year compared to the previous one, 0 otherwise); = 장기차입금/총자산
6. Change in Current ratio (1 point if it is higher in the current year compared to the previous one, 0 otherwise); = 유동자산/유동부채
7. Change in the number of shares (1 point if no new shares were issued during the last year); 발행주식수

Operating Efficiency

8. Change in Gross Margin (1 point if it is higher in the current year compared to the previous one, 0 otherwise); 매출총이익
9. Change in Asset Turnover ratio (1 point if it is higher in the current year compared to the previous one, 0 otherwise); = 매출액/총자산

Research Design

Variable definitions

MVE	Market value of equity at the end of fiscal year t. Market value is calculated as the number of shares outstanding at fiscal year-end times closing share price.
ASSETS	Total assets reported at the end of the fiscal year t.
BM	Book value of equity at the end of fiscal year t, scaled by MVE.
ROA	Net income before extraordinary items for the fiscal year preceding portfolio formation scaled by total assets at the beginning of year t.
ΔROA	Change in annual ROA for the year preceding portfolio formation. ΔROA is calculated as ROA for year t less the firm's ROA for year t-1.
ΔMARGIN	Gross margin (net sales less cost of good sold) for the year preceding portfolio formation, scaled by net sales for the year, less the firm's gross margin from year t-1.
CFO	Cash flow from operations scaled by total assets at the beginning of year t.
ΔLIQUID	Change in the firm's current ratio between the end of year t and year t-1. Current ratio is defined as total current assets divided by total current liabilities.
ΔLEVER	Change in the firm's debt-to-assets ratio between the end of year t and year t-1.
ΔTURN	Change in the firm's asset turnover ratio between the end of year t and year t-1. The asset turnover ratio is defined as net sales scaled by average total assets for the year.
ACCRUAL	Net income before extraordinary items less cash flow from operations, scaled by total assets at the beginning of year t.
Return	12- (24-) month buy-and-hold return of the firm starting at the beginning of the Raw Return fifth month after fiscal year-end.
Market-adjusted	Buy-and-hold return of the firm less the buy-and-hold return on the value-weighted market index over the same investment horizon.

$$F_SCORE = F_ROA + F_ΔROA + F_CFO + F_ACCRUAL + F_ΔMARGIN + F_ΔTURN + F_ΔLEVER + F_ΔLIQUID + EQ_OFFER$$

Results – Table 1

Panel A: Financial Characteristics

Variable	Mean	Median	Standard Deviation	Proportion with Positive Signal
MVE	614,300	73,107	5,224,843	n/a
ASSETS	831,678	111,434	4,979,268	n/a
BM	3.0609	1.7509	7.7903	n/a
ROA	0.0126	0.0313	0.2668	0.755
Δ ROA	-0.0062	-0.0039	0.3570	0.490
Δ MARGIN	-0.0008	-0.0007	0.2009	0.493
CFO	0.0468	0.0473	0.1173	0.745
Δ LIQUID	0.0258	0.0097	18.9732	0.549
Δ LEVER	-0.0029	0.0000	0.0925	0.296
Δ TURN	-0.0278	-0.0101	0.3422	0.499
ACCRUAL	0.0342	0.0222	0.2532	0.643

Results – Table 1

Panel B: Buy-and-Hold Returns from a High Book-to-Market Investment Strategy

Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percent Positive
<i>One-year returns</i>							
Raw	0.201	-0.406	-0.230	-0.003	0.349	0.915	0.495
Market-Adj.	0.121	-0.465	-0.262	-0.040	0.256	0.726	0.454
<i>Two-year returns</i>							
Raw	0.345	-0.521	-0.296	0.016	0.514	1.343	0.547
Market-Adj.	0.240	-0.589	-0.347	-0.054	0.390	1.147	0.496

Results – Table2

Pearson / Spearman

	ROA	ΔROA	ΔMARGIN	CFO	ΔLIQUID	ΔLEVER	ΔTURN	ACCRUAL	EQ_OFFER	F_SCORE	
RETUEN_12		0.032	0.023	0.013	0.075	-0.025	0.020	0.048	0.024	0.133	0.086
RETUEN_24		0.025	0.022	0.003	0.073	-0.011	0.028	0.046	0.021	0.138	0.084
MA_RET_12		0.018	0.014	0.006	0.054	-0.005	0.012	0.035	0.017	0.097	0.067
MA_RET_24		0.024	0.010	0.001	0.066	-0.006	0.000	0.032	0.017	0.105	0.074
ROA	1.000	0.352	0.184	0.514	0.195	-0.051	0.002	-0.380	0.067	0.381	
ΔROA	0.666	1.000	0.461	0.167	0.112	-0.083	0.239	-0.187	0.048	0.558	
ΔMARGIN	0.064	0.101	1.000	0.150	0.084	-0.036	0.058	-0.034	0.017	0.470	
CFO	0.295	0.079	0.068	1.000	0.066	-0.063	0.063	0.471	0.105	0.540	
ΔLIQUID	0.006	0.002	0.002	0.004	1.000	0.059	-0.039	-0.127	-0.101	0.251	
ΔLEVER	-0.421	-0.319	-0.002	0.040	0.000	1.000	-0.048	-0.016	0.056	-0.272	
ΔTURN	-0.030	-0.006	0.001	0.055	-0.012	-0.022	1.000	0.073	0.104	0.379	
ACCRUAL	-0.912	-0.657	-0.037	0.124	-0.004	0.454	0.054	1.000	0.001	0.163	
EQ_OFFER	0.000	-0.004	0.000	0.008	0.000	0.008	0.007	0.003	1.000	0.309	

Results – Table3

Panel A: One-Year Market-Adjusted Returns

<i>MA_RET_12</i>	Mean	10%	25%	Median	75%	90%	%Positive	N	
All Firms		0.121	-0.465	-0.262	-0.040	0.256	0.726	0.454	28,568
F_SCORE									
0		0.145	-0.676	-0.374	-0.209	0.065	1.156	0.347	49
1		-0.029	-0.620	-0.408	-0.155	0.171	0.666	0.369	425
2		0.137	-0.571	-0.332	-0.070	0.270	0.800	0.427	1,532
3		0.108	-0.521	-0.309	-0.077	0.238	0.781	0.421	3,471
4		0.102	-0.476	-0.274	-0.061	0.228	0.716	0.429	5,533
5		0.105	-0.456	-0.260	-0.032	0.259	0.722	0.464	6,638
6		0.160	-0.418	-0.233	-0.025	0.256	0.708	0.469	5,034
7		0.142	-0.411	-0.213	-0.012	0.286	0.700	0.485	3,580
8		0.136	-0.424	-0.221	-0.015	0.297	0.773	0.485	1,853
9		0.096	-0.431	-0.211	-0.009	0.264	0.614	0.494	453
Low Score		-0.011	-0.626	-0.397	-0.158	0.171	0.688	0.367	474
t-stat/(p-value)		2.697 / (0.004)							
High Score		0.128	-0.427	-0.221	-0.013	0.292	0.735	0.487	2,306
t-stat/(p-value)		-0.354 / (0.638)							

Results – Table3

Panel B: One-Year Raw Returns

	Mean	10%	25%	Median	75%	90%	%Positive	N
All Firms	0.201	-0.406	-0.230	-0.003	0.349	0.915	0.495	28,568
Low Score	0.044	-0.556	-0.377	-0.119	0.224	0.801	0.380	474
t-stat/(p-value)	3.120 / (0.001)							
High Score	0.211	-0.332	-0.193	0.028	0.385	0.943	0.530	2,306
t-stat/(p-value)	-0.418 / (0.662)							

Panel C: Two-Year Market-Adjusted Returns

	Mean	10%	25%	Median	75%	90%	%Positive	N
All Firms	0.240	-0.589	-0.347	-0.054	0.390	1.147	0.457	26,517
Low Score	0.084	-0.758	-0.495	-0.162	0.275	1.107	0.387	437
t-stat/(p-value)	0.815 / (0.208)							
High Score	0.243	-0.517	-0.299	-0.015	0.428	1.213	0.488	2,187
t-stat/(p-value)	-0.042 / (0.517)							

Results – Table4

<i>MA_RET_12</i>	Small Firms			Medium Firms			Large Firms		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Firms	0.245	0.010	8,378	0.110	-0.031	8,377	0.021	-0.073	8,377
<i>F_SCORE</i>									
0	0.003	-0.129	14	0.375	-0.217	16	0.129	-0.209	17
1	0.041	-0.077	147	-0.041	-0.155	150	-0.124	-0.200	100
2	0.179	-0.039	457	0.204	-0.044	523	0.002	-0.132	407
3	0.228	-0.040	972	0.081	-0.079	1,036	0.003	-0.114	820
4	0.200	-0.022	1,503	0.106	-0.045	1,553	0.022	-0.086	1,451
5	0.219	0.009	1,696	0.110	0.002	1,778	0.008	-0.070	1,918
6	0.357	0.026	1,501	0.126	-0.013	1,591	0.027	-0.060	1,744
7	0.299	0.067	1,229	0.108	-0.005	1,046	0.026	-0.049	1,200
8	0.199	0.031	686	0.093	-0.032	552	0.089	-0.043	578
9	0.187	0.061	173	0.039	-0.054	132	0.045	-0.053	142
Low Score	0.038	-0.077	161	-0.001	-0.158	166	-0.087	-0.203	117
t-stat/(p-value)	1.710 / (0.044)			1.549 / (0.061)			2.140 / (0.016)		
High Score	0.197	0.040	859	0.083	-0.038	684	0.080	-0.045	720
t-stat/(p-value)	0.965 / (0.167)			0.801 / (0.212)			-3.007 / (0.999)		

Results – Table5

<i>MA_RET_12</i>	GAAP			IFRS			
	Mean	Median	N	Mean	Median	N	
All Firms		0.158	-0.029	13,304	0.088	-0.049	15,264
<i>F_SCORE</i>							
0		0.296	-0.234	16	0.072	-0.190	33
1		-0.014	-0.170	166	-0.038	-0.139	259
2		0.129	-0.057	609	0.142	-0.074	923
3		0.134	-0.075	1,515	0.088	-0.078	1,956
4		0.124	-0.059	2,598	0.082	-0.062	2,935
5		0.128	-0.031	3,170	0.083	-0.033	3,468
6		0.237	-0.007	2,271	0.098	-0.031	2,763
7		0.201	0.020	1,745	0.085	-0.037	1,835
8		0.177	0.029	964	0.092	-0.041	889
9		0.109	0.032	250	0.080	-0.043	203
Low Score		0.013	-0.177	182	-0.026	-0.146	292
		1.528 / (0.063)			2.350 / (0.009)		
High Score		0.163	0.030	1,214	0.089	-0.041	1,092
		-0.152 / (0.560)			-0.046 / (0.519)		

Results – Table6

<i>MA_RET_12</i>	GAAP			IFRS		
	Small Firms	Medium Firms	Large Firms	Small Firms	Medium Firms	Large Firms
All Firms	0.258	0.107	0.042	0.219	0.111	0.013
<i>F_SCORE</i>						
0	0.164	0.871	0.187	-0.158	0.150	0.122
1	-0.055	0.142	-0.235	0.184	-0.099	-0.093
2	0.216	0.107	0.019	0.125	0.243	-0.003
3	0.235	0.076	-0.032	0.216	0.084	0.015
4	0.210	0.094	0.022	0.181	0.112	0.021
5	0.235	0.079	0.013	0.185	0.126	0.006
6	0.387	0.141	0.055	0.288	0.118	0.016
7	0.296	0.126	0.096	0.308	0.096	-0.006
8	0.208	0.136	0.106	0.173	0.066	0.079
9	0.138	0.039	0.122	0.368	0.040	-0.004
Low Score	-0.039	0.231	-0.199	0.148	-0.077	-0.058
t-stat/(p-value)	1.518 / (0.065)	2.445 / (0.007)	1.859 / (0.032)	2.789 / (0.003)	1.910 / (0.028)	2.692 / (0.004)
High Score	0.193	0.116	0.109	0.208	0.061	0.063
t-stat/(p-value)	-0.053 / (0.521)	0.252 / (0.400)	-0.884 / (0.812)	0.231 / (0.409)	-0.153 / (0.561)	-0.540 / (0.706)

Conclusions

- 국제회계기준의 도입은 회계정보의 가치관련성을 향상 시켰다.
- F-score를 기준으로 한 포트폴리오의 구성은 시장 초과수익을 가져다 준다. → 국제회계기준의 도입 이후 초과수익이 더욱 크다.
- 추가적인 분석을 통해 결과의 강건성을 담보하였다.

- 포트폴리오의 구성으로 주가수익률만을 관찰함.
- 인과관계등의 분석을 위한 회귀분석등의 통계적인 기법이 필요함.