

Corporate Governance of Japan - Analysis and Prospects -

October 2017

METRICAL INC.

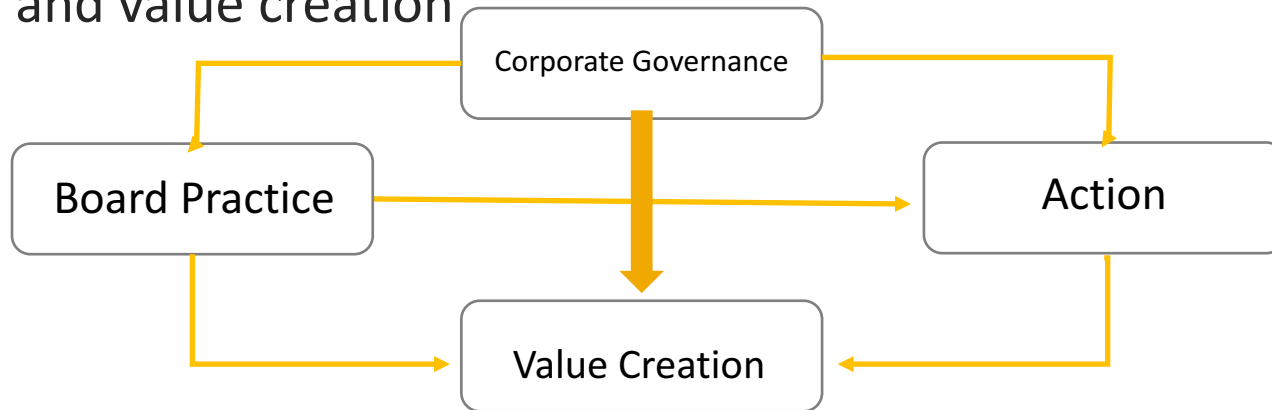
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BDTI/METRICAL Joint Research

■ Issue of CG of Japan

- Companies have worked on Board practice since Corporate Governance Code was effective in 2015, but the practice little connects to 'true' CG enhancement linking to effective corporate action and value creation



■ BDTI/METRICAL Analysis

- Analyze how Board Practice links / correlates to Action and Value Creation
- Few research focusing on analysis of linkage between Value Creation and CG practice including Action in Japan

BDTI/METRICAL Analysis (March 2017) Phase 1

■ Object and Method of Phase 1 Analysis

➤ Object

- To assess which criteria of Board Practice is a good litmus test for overall governance and quality
- To explore the linkage between Board Practice, Action and Value Creation measure such as ROE and ROA

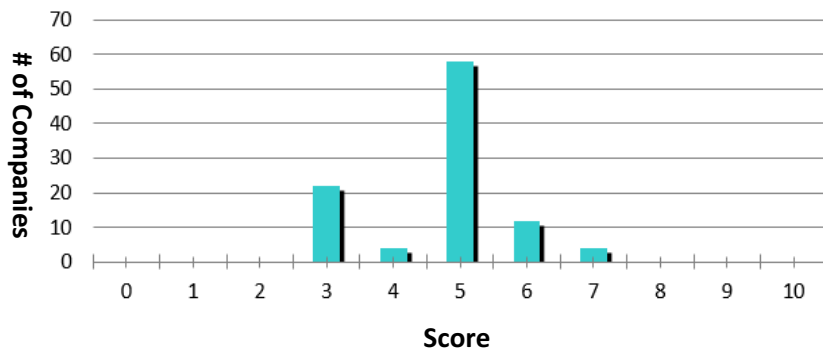
➤ Method

- To examine TOPIX100 composite companies, focusing on 4 policies of Nomination, Training, Compensation and Board Evaluation in Board Practice
- To read minutely CG reports and CG guidelines of 100 companies minutely

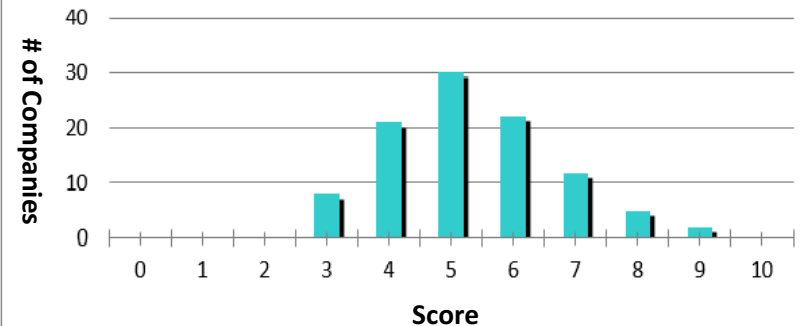
BDTI/METRICAL Analysis (March 2017) Phase 1

- Score distribution of 4 policies of Nomination, Training, Compensation and Board Evaluation from CG reports and CG guidelines of TOPIX100 companies

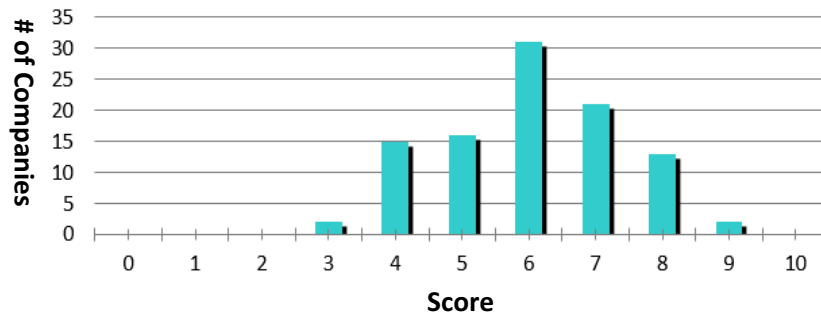
Nomination Policy



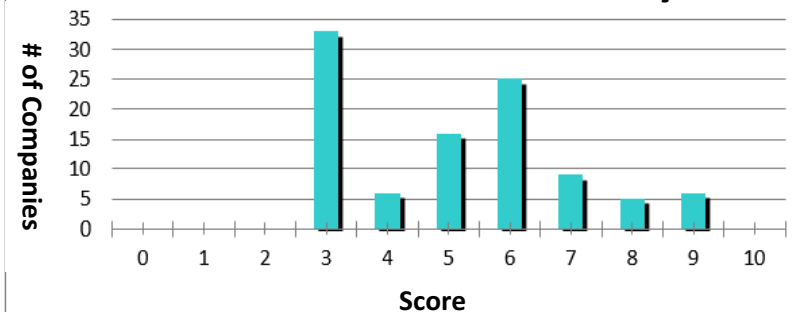
Training Policy



Compensation Policy



Board Evaluation Policy



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BDTI/METRICAL Analysis (March 2017) Phase 1

- Correlation Analysis: Board Practice and ROA, ROE (3/2017)
 - No significantly positive correlation between Board Practice and ROA and ROE
 - % of Independent Directors (INED) indicates statistically significantly negative correlation with actual
 - Nomination policy negatively correlates with ROA (expected, actual) and ROE (expected) in 90% confidence level
 - Training policy shows negative correlation with ROE (actual)
 - →No significant linkage between criteria of Board Practice and Value Creation

TOPIX100 Companies		Nomination	Training	Compensation	Board Evaluation	% of INED
ROA (E)	Correlation	—	+	+	+	—
	P-value	△	X	X	X	X
ROE (E)	Correlation	—	+	+	+	+
	P-value	△	X	X	X	X
ROE (actual)	Correlation	—	—	—	—	—
	P-value	X	△	X	X	○
ROA (actual)	Correlation	—	—	—	+	—
	P-value	△	X	X	X	X

(Source) METRICAL INC.

(Note) ○=95% confidence level, △=90% confidence level

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BDTI/METRICAL Analysis (March 2017) Phase 1

■ Results of Phase 1 Analysis

➤ Results

- In Correlation and Regression Analysis, no statistically significant positive correlation between Board Practice and ROA, ROE
- Do TOPIX100 companies comprise many of which have traditionally been slower moving in the area of corporate governance improvement?
- Are Companies with poor performance attempting to “look good” in front of investors by adopting practices deemed to be preferable, precisely because their financial performance is not good?

→To go Phase 2 Analysis

BDTI/METRICAL Analysis (March 2017) Phase 2

■ Object and Method of Phase 2 Analysis

➤ Object

- To expand sample to TOPIX100 + JPX400 and equivalent of *METRICAL* core research universe* 494 companies
- To use METRICAL scoring in Board Practice assessment
- To analyze correlation of criteria of Board Practice and Action, and Value Creation measure of *Tobin's Q*** in addition to actual ROE, ROA
- To analyze % of Independent Directors in each 5% group



METRICAL core research universe* comprises TOPIX100 and JPX400 composites and equivalent companies as of June 2015, and adding companies to JPX400 their after *Tobin's Q*** = (Total Liabilities + Market Value of Shareholders' Equity) / Total Assets

FY2016	# of Companies *	Tobin's Q	ROA	ROE	Robin's Q < 1.0	ROA < 3%	ROE < 5%
TSE1	1,998	1.17	2.27%	17.37%	1	1	0
TSE2	531	0.86	5.19%	7.74%	0	0	0
TSE1+TSE2	2,529	0.00	0.00%	0.01%	1	1	0

(Source) Bloomberg

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BDTI/METRICAL Analysis (March 2017) Phase 2

- Correlation to ROA, ROE and TQ of 494 companies (March 2017)
 - Board Practice criteria: Most criteria negatively correlate with ROA, ROE and TQ → Board Practice affects little direct effectiveness on value creation
 - Action criteria: Lower shareholding, lower share issuance, robust growth policy and METRICAL score show significantly positive correlation 
 - Lower cash holding and lower ownership of large shareholders show negative correlation 

494 Companies		Nom. Committee	Comp. Committee	Incentive Plan	% of Independent Director	Lower Shareholding	Share Issuance	Share Cancellation	Growth Policy	Lower Cashholding	Lower Ownership of large shareholders	METRICAL SCORE
ROE (act)	Correlation	—	—	—	—	+	—	+	+	—	—	+
	Significance	○	○	○	X	○	X	○	○	○	○	○
ROA (act)	Correlation	—	—	—	—	+	+	+	+	—	—	+
	Significance	○	○	○	X	○	○	○	○	○	○	○
Tobin's Q	Correlation	—	—	—	+	+	+	+	+	—	—	+
	Significance	△	○	△	X	○	△	○	○	○	○	○

(Source) METRICAL INC.

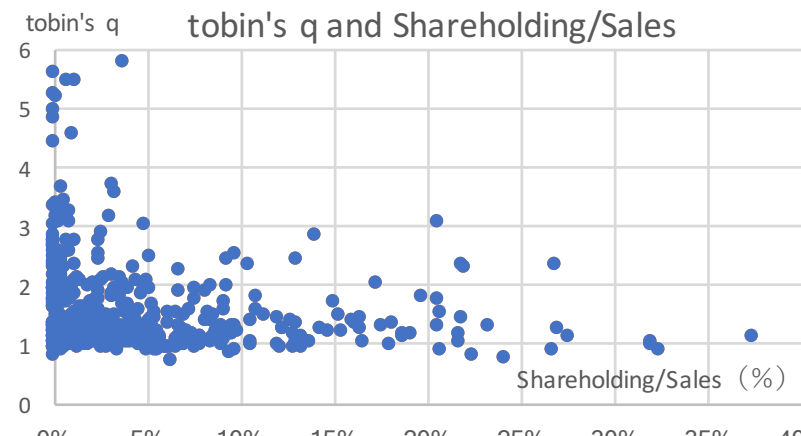
(Note) Significance ○ is 95% confidence level and △ is 90% confidence level.

(Note) The lower shareholding/Sales is, the higher the score is.

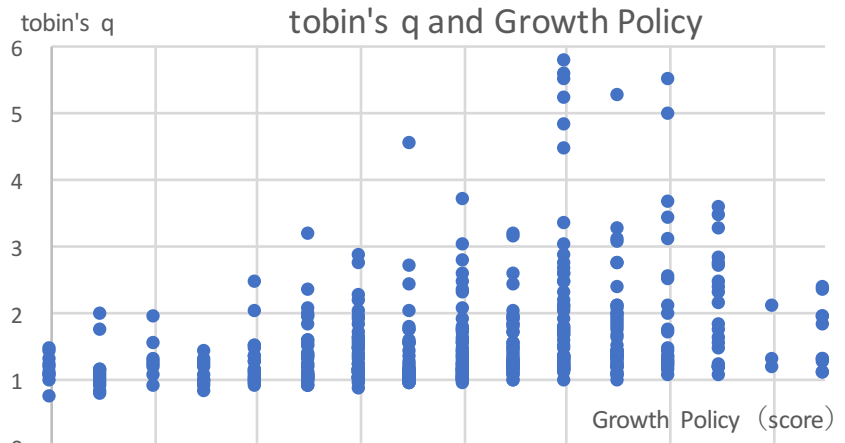
The lower cashholding/Sales is, the higher the score is. The lower ownership of large shareholders is, the higher

BDTI/METRICAL Analysis (March 2017) Phase 2

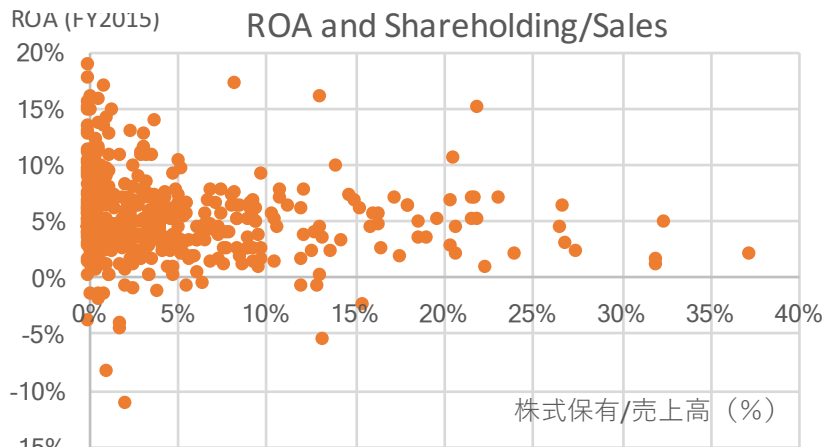
■ Distribution analysis of Action (3/2017)



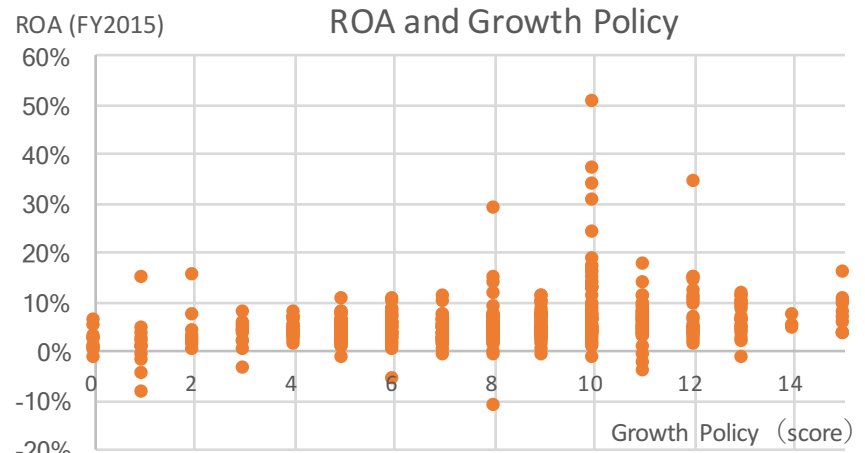
(Note) 439 Companies excluding >40% of Shareholding/Sales and Financials



(Note) 441 Companies excluding >6 of tobin's q



(Note) 439 Companies excluding >40% Shareholding/Sales and Financials



(Note) 436 Companies >30% of ROA

BDTI/METRICAL Analysis (March 2017) Phase 2

■ Performance analysis in each 5% of INED of 494 companies

➤ >50% companies (does better performance boost CG practice? Or vice versa?) A company with large shareholder shows superior performance even in lower % of INED

Higher ROA,
ROE and TQ
for >55%
INED
companies

Large
ownership
effect or a
company
run by a
great
manager?

% of Independent Directors	# of Companies	Shareholding score	Average Tobin's Q	Average ROA	Average ROE	Average METRICAL Score
>60%	9	5.1	2.00	6.8%	14.2%	7.6
55<=60% *	14	6.1	2.37	5.4%	9.6%	6.9
>50<=55%	3	2.3	1.41	2.7%	9.2%	6.5
>45<=50%	23	6.7	1.50	3.3%	6.5%	6.8
>40<=45%	17	5.2	1.36	4.4%	11.0%	6.8
>35<=40%	40	5.0	1.33	4.1%	8.2%	6.7
>30<=35%	45	4.5	1.57	4.6%	9.7%	6.5
>25<=30%	60	5.8	1.86	5.6%	12.1%	6.4
>20<=25%	88	5.7	1.54	5.0%	10.6%	5.8
>15<=20%	117	5.2	1.52	4.8%	10.8%	5.9
>10<=15%	51	5.9	1.87	6.0%	11.2%	5.5
>5<=10%	22	5.9	1.56	5.6%	11.1%	5.3
<=5%	5	8.6	1.78	8.6%	12.1%	5.1
All	494	5.5	1.62	5.0%	10.5%	6.1
TSE1	2,008		1.31	3.9%	7.9%	
Excluding Toshiba		6.0	2.5	6.4%	15.4%	7.1

Data is based on 494 companies , which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

BDTI/METRICAL Analysis (March 2017) Phase 2

■ Results of Phase 1 Analysis

➤ Results

- Only Action criteria show statistically significant correlation with ROA, ROE and Tobin's Q in lower cross-share holding/sales, lower stock issue, higher stock cancelation and robust growth policy
- Higher cash holding/sales, higher ownership of large shareholders correlate with higher ROA, ROE and TQ
- Stratified by 3 groups on % of independent directors (INED)
- ✓ Group >50% shows superior performance of ROA, ROE, TQ and METRICAL score
- ✓ Lower % of INED group includes companies (large ownership of founder-led company and subsidiary of large company, effect) with superior performance of ROA, ROE and TQ
- ✓ A large number of companies of less than 50% of INED appear to have implemented new governance practices on a somewhat cosmetic basis

What happened after AGM in June?

- Comparison of 3/2017 and 8/2017 -

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rest with the reported company.

Correlation analysis of CG Practices (3/2017-8/2017) ①

- No significantly positive correlation between committees and performance of ROE, ROA and TQ
- Significantly positive correlation between lower Cross-Share holding/Sales and performance of ROE, ROA and TQ

as of 08/2017		Nomination committee	Compensation committee	Diversity	Incentive Plan	% of INED	Stock Holdings	Dividend Policy
ROE (act)	Correlation	-0.116587823	-0.126419349	-0.007467764	-0.034395275	-0.058275886	0.171705725	0.008742353
	P-value	0.009070042	0.004637877	0.867709178	0.442839986	0.193279065	0.000114009	0.84539309
ROA (act)	Correlation	-0.169343016	-0.166926796	-0.058895796	0.000143397	-0.084402412	0.276682296	0.059971838
	P-value	0.000141932	0.000177041	0.188576258	0.997448023	0.059300993	3.07172E-10	0.180613817
TQ	Correlation	-0.100411651	-0.100726193	-0.008572155	0.041351213	-0.003068782	0.226350051	0.143770498
	P-value	0.024745184	0.024295279	0.848366259	0.356150485	0.945428532	3.12937E-07	0.001265923

as of 03/2017		Nomination committee	Compensation committee	Diversity	Incentive Plan	% of INED	Stock Holdings	Dividend Policy
ROE (act)	Correlation	-0.1226927	-0.152905798	-0.038195741	-0.150796705	-0.050588569	0.207989447	-0.029921767
0	P-value	0.006013249	0.0006018	0.394070332	0.000717183	0.258859125	2.72205E-06	0.504422252
ROA (act)	Correlation	-0.132087164	-0.1423034	-0.023463051	-0.100079577	-0.051003405	0.247750152	0.031128639
0	P-value	0.003084392	0.001420967	0.600688941	0.025227954	0.254969108	1.97578E-08	0.487377624
TQ	Correlation	-0.084779411	-0.090040908	0.006824103	-0.086694655	0.020608225	0.216802204	0.139471556
	P-value	0.058170655	0.044172914	0.879019934	0.052700522	0.645724026	9.86662E-07	0.001770613

Data is based on score of 494 companies for 03/2017 and 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

Correlation analysis of CG Practices (3/2017-8/2017) ②

- Significantly positive correlation: less share Issuance, more share cancelation, robust growth policy and METRICAL score
- Significantly negative correlation: lower cash holding/sales and higher ownership of large shareholders

as of 08/2017	Stock issuance	Stock cancel	Growth Policy	Cash/Sales	Takeover	Large owner	AGM /IR	Metrical score
ROE (act)	0.091875827 0.040011453	0.127652956 0.004249523	0.515848245 2.30636E-35	-0.104253043 0.019715362	0.069299374 0.121724857	-0.155869137 0.000468566	-0.067791315 0.130072075	0.160438903 0.000315774
ROA (act)	0.078102703 0.081030398	0.16921995 0.000143549	0.294062346 1.967E-11	-0.222915049 4.75816E-07	0.052966988 0.237106836	-0.215385784 1.16484E-06	-0.096157265 0.031573568	0.078570319 0.079222191
TQ	0.066390631 0.138215418	0.069482146 0.120742233	0.258302786 4.58618E-09	-0.177609269 6.51186E-05	0.06693583 0.135000358	-0.135975189 0.002310502	-0.076751723 0.086442732	0.106050668 0.017684714

as of 03/2017	Stock issuance	Stock cancel	Growth Policy	Cash/Sales	Takeover	Large owner	AGM /IR	Metrical score
ROE (act)	0.013733385 0.759350102	0.114587214 0.010337665	0.484301414 8.83934E-31	-0.138890524 0.001851454	0.078496718 0.079504607	-0.208429638 2.59014E-06	-0.104815153 0.019059603	0.08909075 0.046467228
ROA (act)	0.09740207 0.029426097	0.174650882 8.64137E-05	0.438754271 5.96629E-25	-0.205405814 3.63562E-06	0.063451192 0.15657152	-0.216977698 9.665E-07	-0.137106464 0.002121267	0.102982095 0.02127088
TQ	0.080549353 0.071928474	0.105664082 0.018105287	0.375900233 3.12183E-18	-0.179477385 5.43358E-05	0.073916046 0.098749283	-0.155501752 0.000483448	-0.094993587 0.033700892	0.126982512 0.004456777

Data is based on 494 companies for 03/2017 and 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

To improve ROA ■ ■ ■

■ Regression analysis: ROA (act) and CG criteria

- Lower shareholding/sales, higher share cancelation and robust growth policy significantly positive correlate with improvement in ROA
- Lower cash holding/sales and lower ownership of large shareholders significantly negative correlation with ROA

Multiple Regression Analysis	
Correlation R	0.566861888
R2	0.3213324
Adjusted R2	0.301981389
STDV	0.043658308
Sample #	506

Variance		
dF	SS	Significance F
Regression	14	1.80327E-33
Error	491	
Total	505	

Data is based on 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

Coefficient	Coefficients	Standard Error	P-value
% of Independent Directors	-0.036092016	0.018771928	0.055101039
Nomination Committee	-0.002148969	0.004106539	0.600998579
Compensation Committee	-0.001233395	0.0045339	0.785706786
Lower Shareholding/Sales	0.002736883	0.000699288	0.000103678
Dividend Policy	-9.78913E-05	0.00189689	0.95886346
Share Issuance	0.003167748	0.001760197	0.072528878
Share Cancelation	0.00496693	0.001407408	0.000456138
Takeover Defense	-0.000800652	0.00056809	0.159357229
Growth Policy	0.006100263	0.000696035	3.07745E-17
Lower Cashholding/Sales	-0.015364325	0.001746472	2.38733E-17
Lower Ownership of large shareholders	-0.002156834	0.000663907	0.001238767
Incentive Plan	0.001562512	0.001754957	0.373718322
AGM/IR	-0.001793297	0.002104002	0.394448336
Diversity	-0.0518406	0.035765891	0.147852464

To improve ROE ■ ■ ■

■ Regression analysis: ROA (act) and CG criteria

- Lower shareholding/sales and robust growth policy significantly positive correlate with improvement in ROA
- Lower cash holding/sales and lower ownership of large shareholders significantly negative correlation with ROA

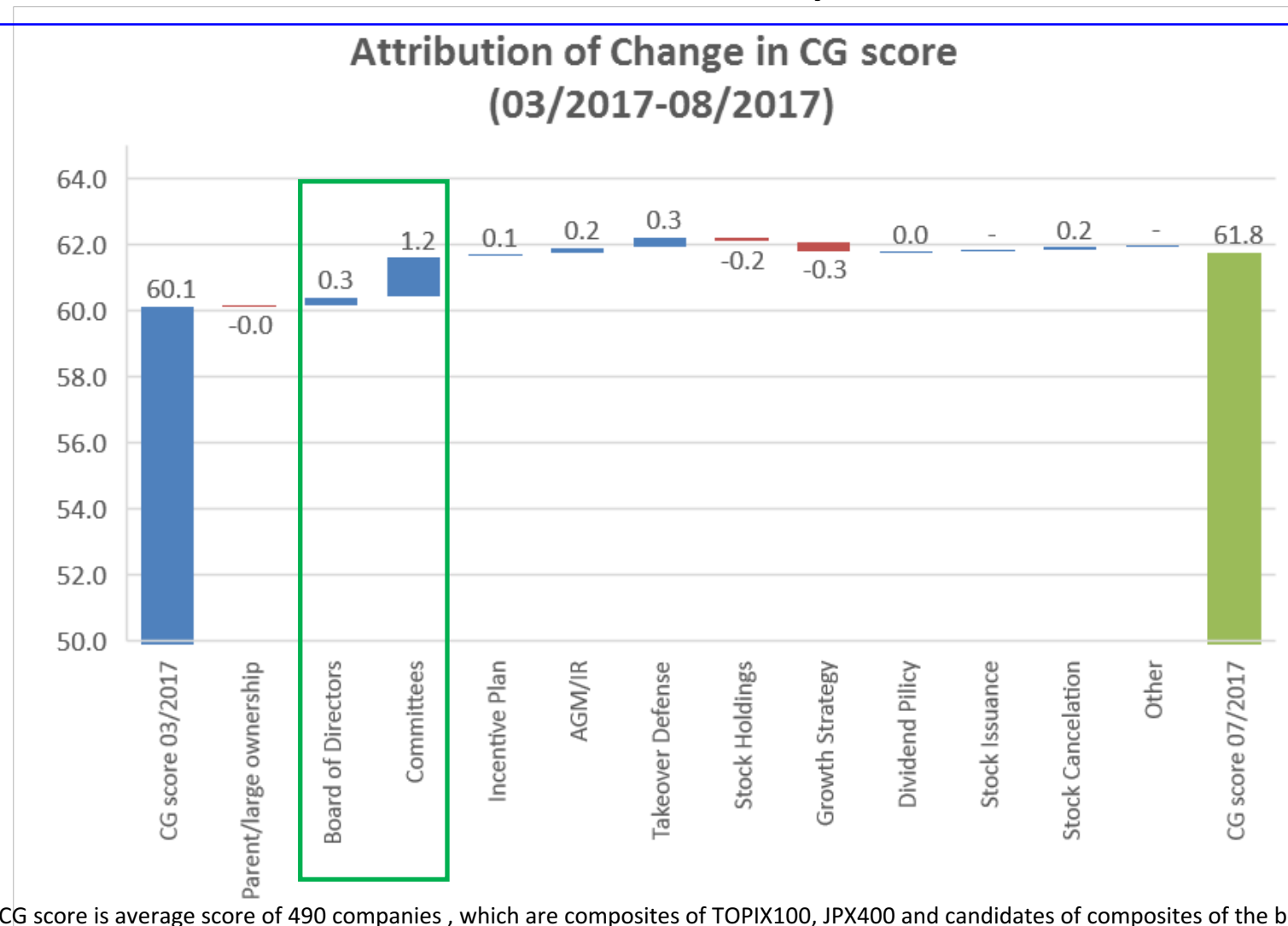
<i>Multiple Regression Analysis</i>	
Correlation R	0.6437036
R2	0.4143544
Adjusted R2	0.3976557
STDV	0.0769585
Sample #	506

<i>Variance</i>		
<i>dF</i>	<i>SS</i>	<i>Significance F</i>
Regression	14	1.5614E-48
Error	491	
Total	505	

Data is based on 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

	<i>Coefficient</i>	<i>Coefficients</i>	<i>t Stat</i>	<i>P-value</i>
% of Independent	-0.037054		-1.119789624	0.263350883
Nomination Com	0.0001672		0.023094187	0.981584524
Compensation Co	-0.005205		-0.651296903	0.515159548
Lower Sharehold	-0.001078		-0.874438275	0.382307129
Dividend Policy	0.0009839		0.294252387	0.768689407
Share Issuance	0.0089165		2.873714397	0.004232602
Share Cancellation	0.0035523		1.431868407	0.152817735
Takeover Defense	-6.24E-05		-0.062339291	0.950318008
Growth Policy	0.0201178		16.3968715	1.66328E-48
Lower Cashholding	-0.026485		-8.602966209	1.053E-16
Lower Ownership	-0.003762		-3.214921411	0.001390732
Incentive Plan	-0.000499		-0.161286851	0.871933821
AGM/IR	-0.002839		-0.765412631	0.444393631
Diversity	-0.082424		-1.307357219	0.191703284

METRCAL score Attribution analysis (3/2017-8/2017)



CG score is average score of 490 companies , which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

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Slower companies moved more aggressive? (3/2017-8/2017)

- The number of Cos with lower % of INED decreased, # of Cos adopted committees & incentive plan increased, and # of Cos removed takeover defense increased
- The increase of female directors and the decrease of cross-shareholdings have little progressed

	# of Companies %	Companies <25% of Independent Directors	Companies with no Female Directors	Companies with No Nomination	Companies with No Compensation	Companies with No Incentive Plan	Companies with Takeover Difence	Companies >10% of Shareholding/Sales	Companies >10% of Cash holding/Sales
08/2017	506 %	223 44%	332 66%	233 46%	216 43%	6 1%	78 15%	199 39%	215 42%
03/2018	494 %	256 51%	333 66%	258 51%	239 47%	19 4%	90 18%	183 36%	219 43%
Change	12	-7%	0%	-5%	-5%	-3%	-2%	3%	-1%

*Data of 2017/03 is 494 companies and 2017/08 is 506 companies

**Shareholding is shares that a company owns non-trading purpose

	ROA (act)	ROE (act)	TQ
08/2017	5.1%	10.4%	1.65
03/2018	5.0%	10.5%	1.62
Change	0.1%	-0.1%	0.03

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Is really Board Practice improving? (3/2017-8/2017)

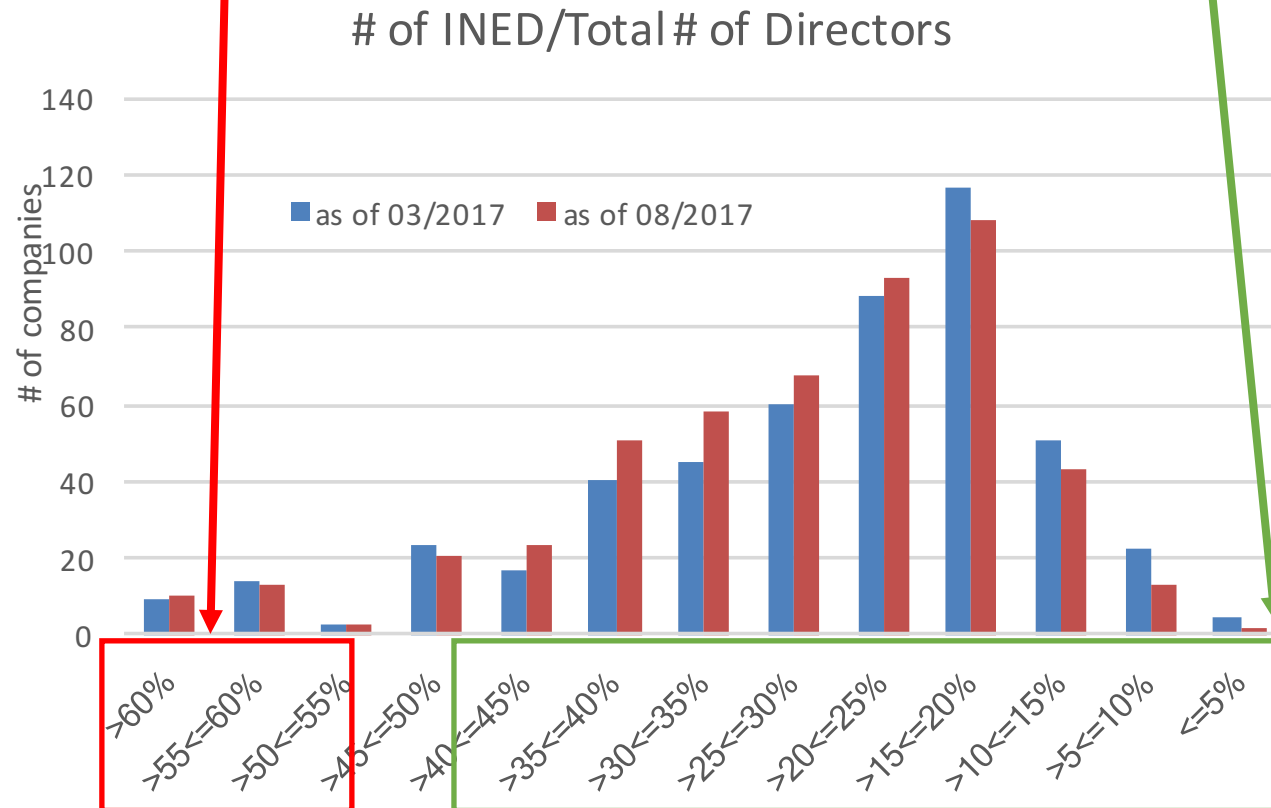
- Slightly more companies adopt Nom. committees (optional) , but half of which still comprises >50% of inside directors
- Slightly more companies adopt Comp. committees (optional) , but half of which still comprises >50% of inside dire
- % of INED increased slightly, but % of female INED has little progress and most of Cos adopts only one female INED

	# of Companies	Nomination Committee		Compensation Committee		Diversity		
		Committee	> 50% INED	Committee	> 50% INED	Female INED	> 1 Female INED	> 0 Female INED
08/2017	506	271	156	290	158	174	21	153
	%	54%	58%	57%	54%	34%	12%	88%
03/2018	494	237	132	257	134	161	17	145
	%	48%	56%	52%	52%	33%	11%	90%
Change	12	6%	2%	5%	2%	2%	2%	-2%

*Data of 2017/03 is 494 companies and 2017/08 is 506 companies

Change in % of INED (3/2017-8/2017)

- Limited number of Cos adopts >50% INED, while % of INED improved in lower % group



Data is based on 494 companies for 03/2017 and 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

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Companies raised % of INED (3/2017-8/2017)

JP Sec #	Company Name	会社名	独立取締役比率推移	08/2017独立取締役比率	03/2017独立取締役比率	08/2017 ROA	03/2017 ROA
9435	HIKARI TSUSHI	光通信	29%	29%	0%	6.10%	6.10%
8001	ITOCHU	伊藤忠商事	23%	44%	21%	3.00%	3.00%
7951	YAMAHA	ヤマハ	22%	56%	33%	6.90%	6.90%
7267	Honda Motor	本田技研工業	20%	36%	15%	1.90%	1.90%
6674	GS Yuasa	ジーエス・ユアサコーポレー	20%	29%	8%	2.60%	2.60%
6141	DMG MORI SEIKI	DMG森精機	19%	44%	25%	-1.40%	-1.40%
7846	PILOT	パイロットコーポレーション	17%	29%	11%	12.60%	12.60%
7860	AVEX GROUP HOLDING	エイベックス・グループ・ホールディングス	17%	33%	17%	3.90%	3.90%
4901	FUJIFILM Holdings	富士フイルムホールディングス	17%	33%	17%	3.70%	3.70%
1722	MISAWA HOME	ミサワホーム	17%	17%	0%	1.50%	1.50%
9719	SCSK	SCSK	16%	38%	21%	7.60%	7.60%
3086	J.FRONT RETAIL	J. フロントリテイリング	16%	38%	22%	2.60%	2.60%
5002	SHOWA SHELL	昭和シェル石油	15%	38%	22%	1.70%	1.70%
3116	TOYOTA BOSHOKU	トヨタ紡織	15%	40%	25%	0.50%	0.50%
5333	NGK INSULATOR	日本ガイシ	15%	23%	8%	7.50%	7.50%
9962	MISUMI Group	ミスミグループ本社	14%	43%	29%	8.70%	8.70%
5714	DOWA HOLDING	DOWAホールディングス	14%	29%	14%	6.00%	6.00%
6425	Universal Entertainment	ユニバーサルエンターテインメント	14%	43%	29%	4.20%	4.20%
6755	FUJITSU GENERAL	富士通ゼネラル	14%	23%	9%	9.70%	9.70%
7419	Nojima	ノジマ	13%	47%	33%	5.70%	5.70%
8309	Sumitomo Mitsui	三井住友トラスト・ホールディングス	13%	47%	33%	0.30%	0.30%
5019	Idemitsu Kosan	出光興産	13%	33%	20%	-1.50%	-1.50%
4095	Nihon Parkrizing	日本パーカライジング	13%	20%	7%	5.40%	5.40%
4202	DAICEL CHEMICAL	ダイセル	13%	50%	38%	7.20%	7.20%
8876	Relo Holdings	リロ・ホールディング	12%	29%	17%	8.60%	8.60%
4704	Trend Micro	トレンドマイクロ	12%	29%	17%	8.00%	8.00%
9022	Central Japan Railway	東海旅客鉄道	11%	30%	19%	6.40%	6.40%
6750	ELECOM	エレコム	11%	33%	22%	10.70%	10.70%
6371	TSUBAKIMOTO	椿本チエイン	11%	33%	22%	5.00%	5.00%
9766	KONAMI	コナミ	11%	33%	22%	3.20%	3.20%
8377	Hokuhoku Finance	ほくほくフィナンシャルグループ	11%	33%	22%	0.20%	0.20%
6806	HIROSE ELECTRIC	ヒロセ電機	11%	25%	14%	6.70%	6.70%
4708	Relia Holdings	りらいあホールディングス	11%	25%	14%	5.50%	5.50%
2802	Ajinomoto	味の素	10%	33%	23%	5.00%	5.00%
8897	Takara Leben	タカラレーベン	10%	30%	20%	3.30%	3.30%
7280	MITSUBA	ミツバ	10%	30%	20%	2.70%	2.70%
9045	Keihan Electric Railway	京阪電気鉄道	10%	38%	29%	3.30%	3.30%
6752	Panasonic	パナソニック	10%	33%	24%	3.50%	3.50%
7230	NISSIN KOGYO	日信工業	10%	22%	13%	14.70%	14.70%
9375	Kintetsu World Express	近鉄エクスプレス	10%	22%	13%	2.50%	2.50%
9101	Nippon Yusen	日本郵船	10%	27%	18%	0.80%	0.80%
8252	MARUI GROUP	丸井グループ	10%	43%	33%	2.40%	2.40%

Data is average score of 490 companies, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

Change in criteria score by % of INED (3/2017-8/2017) ①

■ >50% INED group continues improvement in practices

Change: 08/2017-03/2017

% Independent Directors	# of Cos	Average Tobin's Q	Average ROA	Average ROE	Average METRICAL Score	Nom. Committee	Comp. Committee	Diversity	Incentive Plan
>60%	1	-0.1	-2.5%	-11.2%	-0.3	1.0	1.0	-0.6%	1.1
>55<=60%	-1	0.1	-0.6%	4.2%	0.0	0.6	0.6	1.0%	0.8
>50<=55%	0	-0.1	0.4%	5.4%	1.1	1.0	1.0	7.7%	0.0
>45<=50%	-2	-0.1	1.0%	4.6%	0.1	0.9	1.0	0.6%	0.6
>40<=45%	6	0.1	0.2%	-2.2%	0.3	0.6	0.6	-0.1%	0.3
>35<=40%	11	0.0	-0.2%	1.1%	0.0	0.6	0.6	-0.9%	0.4
>30<=35%	13	0.1	0.3%	-1.0%	0.0	0.4	0.3	0.1%	0.2
>25<=30%	8	-0.0	0.5%	0.3%	-0.1	0.4	0.3	0.3%	0.5
>20<=25%	5	-0.0	0.0%	-0.2%	0.1	0.2	0.2	0.0%	0.5
>15<=20%	-9	0.0	0.3%	-0.8%	-0.1	0.2	0.2	0.1%	0.2
>10<=15%	-8	0.3	1.1%	1.9%	-0.1	0.1	0.1	-0.6%	0.3
>5<=10%	-9	-0.2	-0.9%	-3.1%	0.1	0.2	0.3	0.7%	-0.3
<=5%	-3	0.1	-0.2%	5.7%	0.1	0.0	-0.2	5.0%	0.1
All	12	0.0	0.1%	-0.1%	0.0	0.4	0.4	0.2%	0.4

*Data of 2017/03 is 494 companies and 2017/08 is 506 companies. >60% includes Toshiba.

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Change in criteria score by % of INED (3/2017-8/2017) ②

■ Some practices improve in =<50% INED group

独立取締役 比率	企業数	Change								
		Lower Shareholding/ Sales	Dividend Policy	Share Issuance	Share Cancellation	Growth Policy	Lower Cashholding /Sales	Takeover Difence	AGM/IR	Overseas Investor Ownership
>60%	1	1.3	0.0	-1.4	1.8	-1.9	0.3	0.1	-0.1	-2.7%
>55<=60%	-1	-0.6	-0.1	-1.4	0.9	-1.0	-0.0	-0.1	-0.0	0.3%
>50<=55%	0	1.7	0.7	-1.6	0.7	1.2	0.3	3.3	0.7	-1.6%
>45<=50%	-2	-0.9	-0.3	-1.1	0.8	2.1	-0.3	0.7	-0.0	-0.6%
>40<=45%	6	0.4	-0.2	-0.8	1.4	0.2	0.1	1.3	0.2	5.1%
>35<=40%	11	0.3	-0.0	-0.7	1.2	0.4	0.1	0.2	0.1	0.1%
>30<=35%	13	0.5	0.1	-1.0	1.0	0.7	0.1	0.9	-0.1	-1.6%
>25<=30%	8	-0.3	-0.0	-1.1	1.1	0.1	0.0	-0.2	0.2	-0.6%
>20<=25%	5	-0.1	0.1	-1.2	0.9	0.3	0.0	0.8	0.3	-0.7%
>15<=20%	-9	-0.6	-0.0	-0.8	1.3	0.4	-0.0	-0.4	0.2	-0.3%
>10<=15%	-8	-0.3	-0.0	-0.7	1.1	1.1	0.1	0.0	0.4	-0.2%
>5<=10%	-9	0.8	0.0	-1.5	0.2	-0.8	0.6	1.0	0.7	-4.7%
<=5%	-3	0.4	-0.4	-1.5	-0.0	1.8	-0.3	0.0	-0.9	-17.7%
全企業	12	-0.2	0.0	-1.0	1.1	0.4	0.0	0.3	0.2	-0.2%

*Data of 2017/03 is 494 companies and 2017/08 is 506 companies. >60% includes Toshiba.

Criteria score by each 5% group of INED (8/2017) ①

- >50% INED group shows superior score in criteria
- Superior profitability companies push average number of performance criteria higher in lower % INED groups

Include
Toshiba

% Independent Directors	# of Cos	Average Tobin's Q	Average ROA	Average ROE	Average METRICAL Score	Nom. Committee	Comp. Committee	Diversity	Incentive Plan	Lower Shareholding/Sales	Dividend Policy
>60%	10	1.89	4.3%	3.0%	7.2	2.0	2.0	12.2%	3.9	6.4	2.8
>55<=60%	13	2.47	4.8%	13.8%	6.9	1.2	1.3	10.5%	3.7	5.5	2.3
>50<=55%	3	1.35	3.2%	14.6%	7.6	2.0	2.0	13.3%	3.7	4.0	2.7
>45<=50%	21	1.42	4.3%	11.1%	6.8	1.7	1.7	6.0%	3.0	5.8	2.4
>40<=45%	23	1.46	4.6%	8.8%	7.1	1.3	1.3	5.0%	3.9	5.6	2.5
>35<=40%	51	1.38	3.9%	9.3%	6.7	1.4	1.3	4.7%	3.3	5.3	2.6
>30<=35%	58	1.69	5.0%	8.7%	6.5	1.0	1.0	4.0%	3.1	5.0	2.5
>25<=30%	68	1.82	6.1%	12.4%	6.3	1.0	1.0	4.9%	2.9	5.5	2.4
>20<=25%	93	1.53	5.0%	10.4%	5.9	0.5	0.6	2.6%	2.6	5.5	2.4
>15<=20%	108	1.55	5.1%	10.0%	5.8	0.7	0.7	2.3%	2.5	4.6	2.4
>10<=15%	43	2.18	7.0%	13.0%	5.5	0.2	0.3	1.7%	2.3	5.6	2.4
>5<=10%	13	1.39	4.7%	8.0%	5.3	0.4	0.5	0.9%	1.9	6.7	2.0
<=5%	2	1.85	8.4%	17.8%	5.2	0.0	0.0	8.3%	0.5	9.0	1.0
全企業	506	1.65	5.1%	10.4%	6.2	0.9	0.9	3.8%	2.8	5.3	2.4

Exclude
Toshiba

% Independent Directors	# of Cos	Average Tobin's Q	Average ROA	Average ROE	Average METRICAL Score	Nom. Committee	Comp. Committee	Diversity	Incentive Plan	Lower Shareholding/Sales	Dividend Policy
>60%	9	1.94	5.7%	10.5%	7.8	2.0	2.0	12.3%	4.0	6.2	3.1

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Criteria score by % of INED (8/2017) ②

- >50% INED group shows relatively superior score in criteria
- =<50% groups show higher score in some criteria

Include Toshiba	% Independent Directors	Share Issuance	Share Cancelation	Growth Policy	Lower Cashholdin g/Sales	Takeover Difence	Ownwershi p of Large Shareholde	Overseas Investor Ownership	AGM/IR
	>60%	-1.4	1.8	8.9	0.7	9.0	13.5	41.5%	6.3
Exclude Toshiba	>55<=60%	-1.4	0.9	7.5	0.5	9.2	12.3	37.0%	5.9
	>50<=55%	-1.7	0.7	9.9	0.3	10.0	15.0	40.7%	6.3
	>45<=50%	-1.1	0.8	9.3	1.0	8.1	13.1	30.3%	5.9
	>40<=45%	-0.8	1.4	7.7	0.7	9.6	13.9	35.0%	5.6
	>35<=40%	-0.7	1.2	7.6	1.2	8.2	13.2	32.6%	6.1
	>30<=35%	-1.0	1.0	8.4	1.0	8.4	14.1	29.1%	5.4
	>25<=30%	-1.1	1.1	9.3	1.3	8.8	13.2	28.9%	5.5
	>20<=25%	-1.2	0.9	8.2	1.3	8.7	12.7	24.6%	5.3
	>15<=20%	-0.8	1.3	8.3	1.2	8.0	13.1	25.3%	5.2
	>10<=15%	-0.7	1.1	8.5	1.3	7.7	12.4	26.8%	5.2
	>5<=10%	-1.5	0.2	7.7	1.5	9.2	11.9	20.7%	4.9
	<=5%	-1.5	0.0	9.6	0.5	10.0	12.5	13.8%	2.5
	All	-1.0	1.1	8.4	1.2	8.5	13.1	28.2%	5.4
	% Independent Directors	Share Issuance	Share Cancelation	Growth Policy	Lower Cashholdin g/Sales	Takeover Difence	Lower Ownwershi p of Large	Overseas Investor Ownership	AGM/IR
	>60%	-1.2	2.0	9.7	0.7	8.9	13.3	42.6%	6.3

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METRICAL INC.
corporate governance, investment research & solutions

To improve % of INED . . .

- Regression analysis between % of INED and CG criteria
 - Significantly positive correlation with % of INED: Nom, Comp committees, lower cross-shareholding/sales, lower ownership of large shareholders, incentive plan, AGM/IR and Diversity
 - Lay the groundwork (listed criteria above)" will lead to >50% INED that raises performance effectively → but Long Way

Multiple Regression Analysis	
Correlation R	0.572748465
R ²	0.328040804
Adjusted R ²	0.310249624
STDV	0.104888352
Sample #	505

Variance		
dF	SS	Significance F
Regression	13	4.87363E-35
Error	491	
Total	504	

Data is based on 506 companies for 08/2017, which are composites of TOPIX100, JPX400 and candidates of composites of the both Indices.

Coefficient	Coefficients	Standard Error	P-value
Nomination Committee	0.016656188	0.009837218	0.091055339
Compensation Committee	0.029349094	0.010814099	0.006882129
Lower Shareholding/Sales	0.005123341	0.001666303	0.002224681
Dividend Policy	-0.004822228	0.004566304	0.291466467
Share Issuance	-0.002793911	0.004227003	0.508943307
Share Cancellation	-0.000128259	0.003388451	0.969821138
Takeover Defense	0.000740072	0.001376812	0.59114789
Growth Policy	0.000260482	0.001673411	0.87636553
Lower Cashholding/Sales	-0.016350367	0.004137531	8.89764E-05
Lower Ownership of large shareholders	0.002872248	0.001590959	0.071631255
Incentive Plan	0.014707729	0.004163778	0.000450838
AGM/IR	0.017848788	0.00499537	0.000387641
Diversity	0.437187577	0.08363459	2.54817E-07

Summary: BDTI/METRICAL analysis (8/2017)

- CG practice enhances at modest pace before/after AGM in Jun
 - More companies employ committees (optional), but the member of committee is issue (half of which comprises >50% of internal directors)
- No significant positive correlation between Board Practice and Performance
 - *Board Practice does not seem to link with effective Action and value creation*
- Only action criteria in "Lower shareholdings," "Lower share issuance," "Higher share cancelation" and "Robust growth policy"
 - *Why do companies take Actions right now? → This results in true enhancement in CG practice effectively*
- % of INED has raised in lower % groups, but companies with >50% INED is still limited.
 - *Companies >50% keep upbeat performance and improving*
- For raising % of INED to >50% that will act more effectively
 - *Committees, Incentive Plan, AGM/IR, Diversity and Lower cross-shareholdings should progress to raise % INED → Need more time*

Future Analysis and Issue: BDTI/METRICAL analysis (8/2017)

- To focus more on real improvement in CG Practice
 - *Need profound analysis of each company*
 - *METRICAL offers CG research report for individual company*

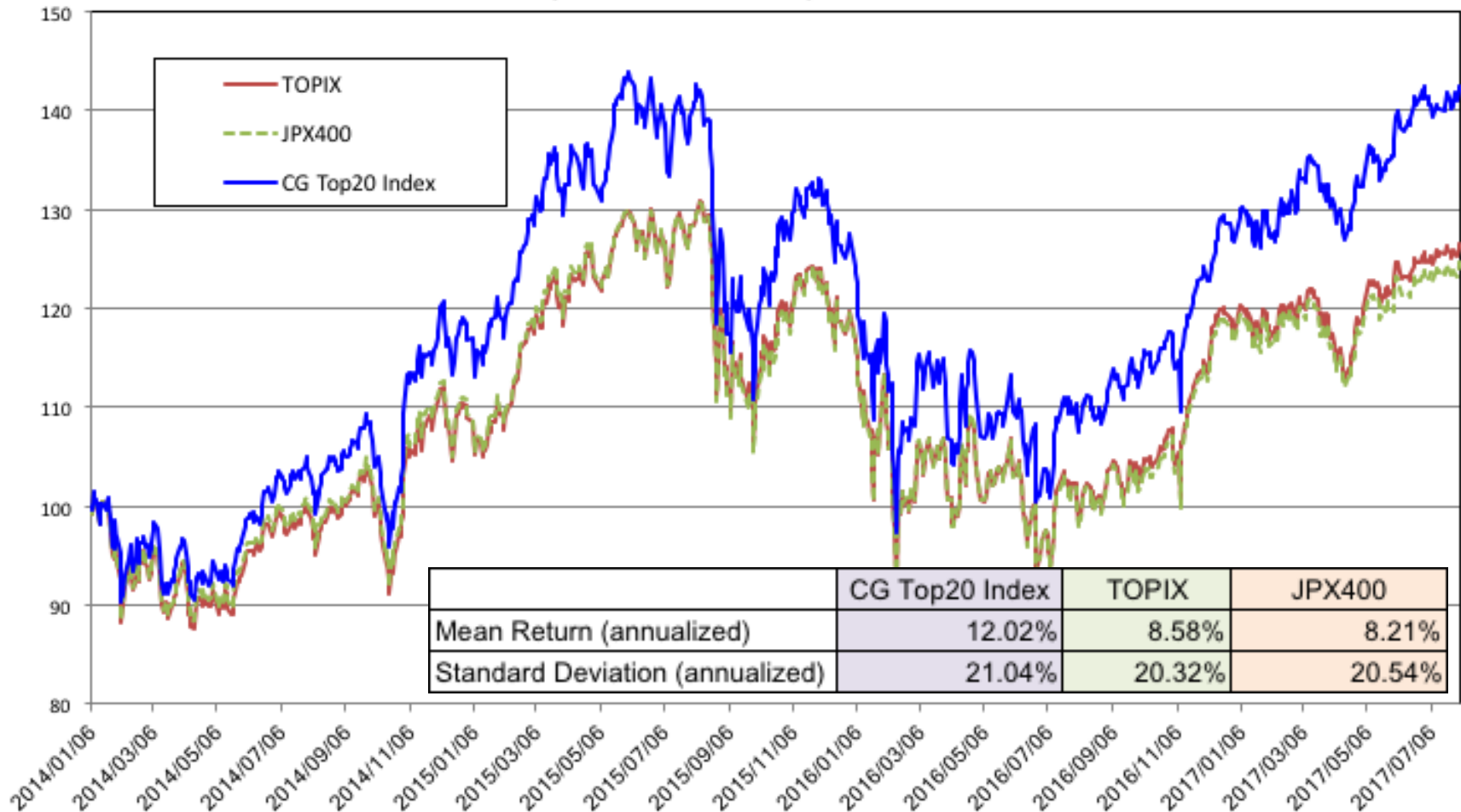
- To explore solution which improvement in Board Practice should link to effective action and Value Creation
 - *Need other key factors than % of INED, as >50% of INED functions effectively on superior performance*
 - *Need reinforcement of INED function, if it takes much time before a majority of companies adopt >50% INED*

- To solve the problem, other parties than companies should play a role
 - *Need improvement in Practice and Action of investors*
 - *Need improvement in information and data filed to regulators*

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Stock price performance ①

CG Top 20 Index Vs. Topix and JPX400



(Note) Data period is from January 2014. January 6 2014=100.

CG Top20 Index is equal-weighted dollar amount invested in each 20 company.

(Source) Tokyo Stock Exchange

sd

Stock price performance ②

CGR 07/2016			
Rank	Company	会社名	CG score
1	HOYA	HOYA	95.1
2	Astellas Pharma	アステラス製薬	89.9
3	Lawson	ローソン	88.3
4	Miraca Holdings	みらかホールディングス	87.2
5	Shiseido	資生堂	86.4
6	Kao	花王	85.8
7	TDK	TDK	85.4
8	KDDI	KDDI	82.6
9	USS	ユー・エス・エス	82.3
10	Japan Exchange Group	日本取引所グループ	81.7
10	KONICA MINOLTA HOLDINGS	コニカミノルタ	81.7
12	BRIDGESTONE	ブリヂストン	81.3
13	OMRON	オムロン	81.2
13	ORIX	オリックス	81.2
15	SYSMEX	シスメックス	80.7
16	JSR	JSR	80.6
17	ANRITSU	アンリツ	80.5
18	NAMCO BANDAI Holdings	バンダイナムコホールディングス	80.0
19	NITTO DENKO	日東電工	79.7
20	Nabtesco	ナブテスコ	79.6
Average		平均値	83.6

CGR 07/2017			
Rank	Company	会社名	CG score
1	HOYA	HOYA	94.3
2	Astellas Pharma	アステラス製薬	93.1
3	Kao	花王	89.0
4	Shiseido	資生堂	86.9
5	Miraca Holdings	みらかホールディングス	85.6
6	UNITED ARROWS	ユナイテッドアローズ	84.3
7	BRIDGESTONE	ブリヂストン	83.3
8	KDDI	KDDI	82.3
9	Panasonic	パナソニック	81.6
10	OMRON	オムロン	81.3
10	KONICA MINOLTA HOLDINGS	コニカミノルタ	80.9
12	J.FRONT RETAILING	J. フロントリテイリング	80.6
13	Japan Exchange Group	日本取引所グループ	80.4
13	Kirin Holdings	キリンホールディングス	80.4
15	SYSMEX	シスメックス	80.3
16	Takeda Pharmaceutical	武田薬品工業	80.1
17	KOMATSU	小松製作所	80.0
18	RICOH	リコー	79.8
19	USS	ユー・エス・エス	79.7
19	MS&AD Insurance	MS&ADホールディングス	79.7
Average		平均値	83.2

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