Chapter 8
How Does the Market Value Management Practices of Japanese Firms? Using Management Practice Survey Data

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Abstract This paper examines the extent to which firm's management practices are valued in the marketplace using the data of interview survey. First, we divide a firm's market value into its tangible and intangible assets, and further decompose the intangible asset value into the components attributable to advertising, to R&D, and to management practices. We find that the component attributable to management practices is much smaller than the components attributable to R&D or to advertising. We also find that among various management practices, human resource management has a significantly positive impact on Tobin's q. Some of organizational management variables, however, have significantly negative impacts on Tobin's q, contrary to the findings of Bloom and Van Reenen (Quarterly Journal of Economics 122:1341–1408, 2007; Journal of Economic Perspectives 24:203–224, 2010) and Bloom et al. (Academy of Management Perspectives 26:12–33, 2012), to which we referred when we conducted interview survey. Then, we further explore the organizational management practice variables to understand why they do not have significantly positive impacts on Tobin's q. The finer analysis finds that many characteristics of management practices, which are supposed to increase market value of the firms, actually have no significant impact or a negative impact on Tobin's q. The results suggest that information sharing and

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coordination within a unit or a team increase the value, while disclosing information and coordinating across units decrease the value. The results also suggest that quick decision making has different impacts on firm's market value depending upon the contexts. Speedy decision making increases the value in case of new business development, while consultation with the people concerned increases firm's market value in case of closing the existing business. The different results of this study from the existing ones may suggest that good management practices are different among countries.

Keywords Management practices • Intangible assets • Decomposition

8.1 Introduction

It has been argued that various kinds of intangible assets influence firm performance. Corrado et al. (2005, 2009) classified intangible assets into three categories: computerized information, innovative property, and economic competencies. Many studies have examined the impacts of computerized information and innovative property on firm performance.[1] Regarding economic competencies, brand equity as well has been studied by marketing scholars (Aaker 1991; Ito 2000; Simon and Sullivan 1993), but the economic study on management practices, the other component of economic competencies related to human and organizational capital, has just started recently (Bloom and Van Reenen 2007, 2010).[2]

It is recognized that such intangible assets are valuable to firms, but they are not publicly revealed enough. According to *Yuka Shoken Hokoku-sho* (Japanese 10k report) of Canon issued in December 2011, for example, the tangible fixed assets are 750 billion yen, while the intangible fixed assets are 35 billion yen. The latter includes patents, land leaseholds, trademarks, designs, software and so on, which are only some parts of the intangible assets. Most of the intangible assets discussed above, however, are not reported in firm's balance sheet.

Since firms spend much resource to acquire and accumulate intangible assets, it is important to know how the market values them. While several researchers have attempted to evaluate technological capability and brand equity by using the investment in R&D and advertising, few studies have evaluated human and organizational capital. Especially, market value of management practices has not been examined, because the investment in improvement of management practices is not usually available.[3]

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[1] As to computerized information, Brynjolfsson and Hitt (1995), for example, examined the relationship between IT investment and productivity. Many management scholars have examined the impact of innovative property or technological capability on firm performance (Argyres 1996; Helfat 1994, 1997; Henderson and Cockburn 1994).

[2] Human and organizational capital has been studied not in economics but in the field of management.

[3] Miyagawa et al. (2012) is an exception. They evaluate economic competence using the data on labor costs and expense of organizational reform.

Therefore, this study tries to know how the market values management practices using the score of the interview survey on management practices for Japanese firms. First, we divide a firm's market value into its tangible and intangible assets, and further decompose the intangible asset value into the components attributable to advertising, to R&D, and to management practices. The results indicate that the component attributable to management practices is much smaller than the components attributable to R&D or to advertising, because some of organizational management variables have significantly negative impacts on Tobin's q, contrary to the findings of Bloom and Van Reenen (2007, 2010) and Bloom et al. (2012). Then, we further explore the organizational management practice variables to understand why they do not have significantly positive impacts on Tobin's q.

The structure of this study is as follows: In the next section, we explain about our management practice survey and propose our analysis. In Sect. 8.3, we describe data and variables. In Sect. 8.4, we report the results of estimation, and with the results, decompose estimated value of intangible assets into the components attributable to management practices and others. In Sect. 8.5, we do a finer analysis on the impact of each organizational management practice on Tobin's q to understand why organizational management practices are valued low in Japan. In the final section, we discuss about the results and the future research agenda.

8.2   Market Value of Management Practices

8.2.1   Management Practice Survey

Following Bloom and Van Reenen (2007), we conducted the interview surveys, "Intangible assets Interview Survey in Japan" (hereinafter referred to as IAISJ). We interviewed the managers of the planning departments of the listed firms in Japan. We conducted the interview twice.[4] The first interview was done between November, 2011 and February, 2012. The second interview was done between July and September, 2012. Consequently, we could accomplish interviews with 402 firms.[5] The composition of the industries of the respondents is described in Table 8.1.

We asked the questions in ten categories: business environment, production management system, organizational goal/target, human resource management, human resource development, acquisition of human resource, lifetime employment system, industrial relations, decision making and information flow, and

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[4] We asked the research firms to conduct the interviews. Examining the results of the pilot interviews, we discuss with them on how to interview and score the answers.

[5] The number of the firms we interviewed is 277 for the first interview and 130 for the second interview. Among them, we found two duplicates and three unavailable firm observations, and consequently, we use 402 firm observations.

Table 8.1 Industry
composition of the
responding firms

Industry	# of Respondents (firms)
Foods	26
Chemical	19
Pharmaceutical	10
Metal	37
Machinery	42
Electric Machinery	45
Automotive	17
Other Manufacturing	76
Sub Total (Manufacturing)	272
Construction	21
Wholesale and Retail	27
Restaurant	19
Real Estate	10
Transportation	5
Information Service	25
Other Service	23
Sub Total (Non-manufacturing)	130
Total	402

organizational reform. We suppose that organizational goal/target, industrial rela-
tions, and decision making and information flow are about organizational capital,
while human resource management, human resource development, acquisition of
human resource are about human capital.

We asked a few questions in each category except for the categories of lifetime
employment system and industrial relations, which have only one question. In each
question, we have three sub questions, and the more sub questions you answer
positively, the more point you get. For example, there are several questions in the
category of human resource development. One of the questions, Employee's exper-
tise, is composed of three sub-questions:

1. "Are employees rotated in a fixed schedule (e.g., once every 2 or 3 years)?"
2. "To improve the expertise of the employees, are they assigned to a set position
   for a long time?"
3. "Is there a systematic program in place for employees to acquire some
   expertise?"

If you answer "No" to the first sub-question, you get the score, 1. If you answer
"Yes", you move to the second sub-question. If you answer "No" to the second
sub-question, you get the score, 2. If you answer "Yes", you move to the third
sub-question. If you answer "No" to the third sub-question, you get the score, 3. If
you answer "Yes", you get the score, 4.

Consequently, we assign the score from 1 to 4 for each question, depending upon
the answers to the three sub questions.[6]

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[6] Miyagawa et al. (2010) describe the scoring system of this interview survey in more detail.

8.2.2 Market Value of Management Practices

While there have been various ways to measure the value of the intangible assets, we adopt financial-market based estimation.[7] Following Lindenberg and Ross (1981), the market value of the firm (MV) can be divided into the portions of firm value attributable to the tangible (V_t) and the intangible assets of the firm (V_i).

$$MV = V_t + V_i \tag{8.1}$$

Dividing the both sides of Eq. (8.1) by the tangible asset value gives us

$$(MV/V_t) = 1 + (V_i/V_t). \tag{8.2}$$

The tangible asset value of the firm, V_t, is measured as the replacement cost (RC) of the tangible assets of the firm. The left side of Eq. (8.2) may then be written as (MV/RC) which is by definition Tobin's q. Thus, we obtain

$$q = (MV/V_t) = 1 + (V_i/V_t). \tag{8.3}$$

To estimate the impact of various factors on the intangible asset value of the firm, the following regression equation is estimated:

$$q - 1 = (V_i/V_t) = a + \sum bX + \sum cZ + \varepsilon \tag{8.4}$$

Among X, we include the factors which affect such components of intangible assets as innovative property and economic competencies. As the factor related to innovative property, we include R&D expenditures. We also include advertising expenditure as the factor related to brand equity, one component of economic competencies. Moreover, as Konar and Cohen (2001) include environmental performance of the firm as the other factor affecting intangible asset value, we include management practices as the other factor related to economic competencies.

Moreover, market valuation is based on expected profitability. Thus, among control variables, Z, we include industry concentration ratio. We also control firm size and age.

The management score multiplied by estimated regression coefficient is the contribution of management practices to Vi/Vt. Similarly, we calculate the portion of Vi/Vt attributable to R&D activity and that attributable to advertising.[8]

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[7] Other than financial-market based estimation, Simon and Sullivan (1993) pointed out five techniques to measure brand equity: estimation based on the conditions of acquisition and divestment, based on the price premium commanded by a product, based on the brand name's influence on customer evaluation, based on brand replacement cost, and based on a brand-earnings multiplier.

[8] In general, the market value of the firm can be considered a function of the tangible and intangible asset value, and can be represented as $MV = G(V_t, V_i)$. If any interaction between the

8.3   Data and Variables

8.3.1   Variables of Management Practices

We construct the variables of management practices using the score of the interview survey (IAISJ) described above. In the interview, the respondents were required to answer questions on the situation in the latter half of 2000s. To construct the other variables described below, therefore, we collect the financial data of each year from 2005 to 2010. Thus, it is supposed that we have 2,412 observations (402 firms * 6 years). However, some of financial data for many years in the past necessary to construct several variables described below are missing for many firms. Consequently, the number of observations is 373 for the whole sample, 261 for manufacturing industry sub-sample, and 112 for non-manufacturing industry sub-sample.

   As for a management practice variable, we use the first principal component calculated by principal component analysis instead of the raw interview score. We asked various questions to measure the degree of good management practices. Thus, the first principal component is considered a general indicator of good management practices. The equation of component c_j is

$$c_j = \gamma_j(X - \mu) \qquad (8.5)$$

   γ_j is orthonormal eigenvector of component j, X is the vector of scores calculated from each question and μ is mean vector of X. We aggregate all the scores into one variable, *pcaq_all*. To compare the components attributable to management practices and to others in decomposition of estimated value of intangible assets, we standardize the variables of management practices, R&D activities, and advertising. Therefore, we use z score of each variable, which is denoted as *variable name_z* (*pcaq_all_z*, for example). Moreover, we divide the questions into two categories: organizational capital and human resource management. We aggregate the scores in the category of organizational capital into one variable, *pcaq_org*, and aggregate the scores in the category of human resource management into the other variable, *pcaq_human*.

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tangible assets and the intangible assets is expressed by the interaction term between V_t and V_i, the market value can be represented as $MV = V_t + V_i + V_t * V_i$. Then, we obtain $q = (MV/V_t) = 1 + ((1 + V_t)/V_t) * V_i$. While the coefficient of V_i is different from that in the model without considering the interaction effect into account, we can estimate the impact of various factors on the intangible asset value of the firm in the same regression. Moreover, when we decompose the three kinds of the intangible asset values using the coefficient estimated by the model with the interaction, the calculated intangible assets value is not V_i/V_t, but $((1 + V_t)/V_t) * V_i$.

8.3.2 Other Variables

To decompose the intangible asset into components stemming from management practices, advertisement, and R&D activities, we estimate Tobin's q − 1. Following Hori et al. (2004), we calculate Tobin's q defined as follows.

$$q = \frac{Average\,stock\,price * Number\,of\,authorized\,shares + Interest\text{-}bearing\,liabilities}{Total\,Assets - K\,at\,previous\,year + Replacement\,value\,of\,real\,capital\,stock\,at\,previous\,year} \tag{8.6}$$

K is tangible assets which are calculated by perpetual inventory method following $K_t = (1 - \delta)K_{t-1} + I_t$ except for land. Land price is maintained booked value. δ is depreciation rate.[9]

For R&D activities, we use the natural logarithm of R&D expenditures (*lnrd*), and for advertisement, we use the natural logarithm of advertising expenditures (*lnadv*). As control variables, we include the natural logarithm of number of employees (*lnL*), the natural logarithm of firm age (*lnage*), and four-firm cumulative concentration ratio (*CR4*). Year dummy and industry dummy are also included. Such financial data is collected from securities report by Development Bank of Japan. Definition and summary statistics of the variables are indicated in Tables 8.2 and 8.3.

8.3.3 Estimation Method

For estimating the attribution of each intangible asset to firm value, we use IAISJ and financial data between 2005 and 2010. These data are not panel, but pooled data because the same values of the management practice score of each firm is applied over the observation period. As Wooldridge (2001) pointed out, however, using pooled data may cause a problem of serial correlation. Wooldridge (2001) also suggested that feasible GLS (FGLS) is a way to deal with the problem of serial correlation. Thus, we adopt FGLS as the estimation method.

Process of FGLS is as follows: First of all, we estimate regression of $q - 1$ on independent variables, obtain the residuals $\hat{u}$, and take the logarithm of squared $\hat{u}$, $\log(\hat{u}^2)$. Using $\log(\hat{u}^2)$, we estimate regression of $\log(\hat{u}^2)$ on the same independent variables as the first step and obtain the fitted value $\hat{g}$ and exponentiation form of it, $\hat{h} = \exp(\hat{g})$. Finally, we estimate weighted least squares of $q - 1$ on the independent variables using weight $1/\hat{h}$.

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[9] The depreciation rate of building is 0.047, structure is 0.0564, machinery is 0.09489, ship is 0.1470, vehicle is 0.1470 and tool is 0.08838.

Table 8.2 Definition of variables

Variables	Definition
V	Tobin's q minus 1
pcaq_all	First component of principle component analysis using questions 4, 5, 6
pcaq_human	First component of principle component analysis using all questions
pcaq_org	First component of principle component analysis using questions 3, 8, 9
lnrd	Logarithm of R&D expenditure
lnadv	Logarithm of advertising expenditure
lnage	Logarithm of firm age
CR4	4 firms concentration ratio
lnL	Logarithm of number of employees

Table 8.3 Summary statistics

	All industries			Manufacturing		
	Observations	Mean	Std. error	Observations	Mean	Std. error
V	269	0.02	1.00	241	−0.08	0.58
lnrd	269	13.37	1.95	241	13.64	1.80
lnadv	269	12.64	1.91	241	12.76	1.87
lnage	269	3.98	0.49	241	4.01	0.45
CR4	269	0.09	0.23	241	0.10	0.24
pcaq_human	269	0.09	1.39	241	0.04	1.39
pcaq_org	269	−0.04	1.20	241	−0.07	1.15
pcaqall	269	0.06	1.51	241	−0.01	1.47
year2	269	2,006.93	1.47	241	2,006.95	1.47
	Non-manufacturing (concluding lnrd)			Non-manufacturing		
	Observations	Mean	Std. error	Observations	Mean	Std. error
V	28	0.91	2.46	112	0.29	1.49
lnrd	28	11.07	1.66	28	11.07	1.66
lnadv	28	11.63	1.96	112	12.56	2.01
lnage	28	3.72	0.74	112	3.61	0.54
CR4	28	0.01	0.01	112	0.01	0.05
pcaq_human	28	0.56	1.24	112	0.23	1.41
pcaq_org	28	0.21	1.55	112	−0.04	1.30
pcaqall	28	0.61	1.78	112	0.25	1.62
year2	28	2,006.79	1.47	112	2,007.06	1.49

Table 8.4 Determinants of Tobin's q (1)

	(1)	(2)	(3)	(4)
pcaq_all_z	0.056**	0.078***		
	(2.09)	(2.96)		
pcaq_hum_z			0.103***	0.099***
			(3.34)	(3.17)
pcaq_org_z			−0.082**	−0.049
			(−2.44)	(−0.91)
lnrd_z	0.166***	0.201***	0.197***	0.220***
	(3.09)	(4.55)	(4.07)	(2.80)
lnadv_z	0.127**	0.145***	0.112**	0.095**
	(2.41)	(3.53)	(2.41)	(2.40)
lnL	−0.142***	−0.190***	−0.148***	−0.176*
	(−2.72)	(−3.76)	(−3.00)	(−1.92)
CR4	0.020	0.038	−0.028	−0.109*
	(0.34)	(0.68)	(−0.53)	(−1.74)
lnage	−0.121	0.089**	−0.188*	0.039
	(−1.49)	(2.30)	(−1.86)	(0.72)
_cons	1.280**	0.587	1.440**	0.698
	(2.36)	(1.44)	(2.33)	(0.91)
Observations	269	241	269	241
F-Statistics	27.048	11.474	23.604	13.466
Prob > F	0.000	0.000	0.000	0.000
R-sq	0.364	0.228	0.415	0.195
Adjusted R-sq	0.326	0.190	0.378	0.153

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parentheses

8.4 Empirical Results

8.4.1 Estimation of $q - 1$

The results from the estimation of Eq. (8.4) are indicated in Tables 8.4 and 8.5. Model (1) and (2) in Table 8.4 show the results using the first principal component of all the items (*pcaq_all_z*) as a management practice variable, while Model (3) and (4) show the results using the first principal component related to human resource management (*pcaq_human_z*) and that related to organizational capital (*pcaq_org_z*). Model (1) and (3) are for the whole sample, while Model (2) and (4) are for the manufacturing industry sample.

As indicated in Model (1) and (2), *pcaq_all_z* is significant and positive. Thus, these results suggest that management practices have a significantly positive impact on Tobin's q. As shown in Model (3) and (4), on the other hand, *pcaq_org_z* is negative and it is significant in Model (3), while *pcaq_human_z* is positive and significant. Therefore, these results suggest that among management practices,

Table 8.5 Determinants of Tobin's q (2)

	(5)	(6)	(7)	(8)	(9)	(10)
pcaq_all_z	0.017	0.055**	0.122*			
	(0.80)	(2.14)	(1.87)			
pcaq_hum_z				0.080***	0.089***	0.176**
				(2.99)	(3.45)	(2.43)
pcaq_org_z				−0.082***	−0.080**	0.010
				(−2.62)	(−2.04)	(0.11)
lnadv_z	0.092**	0.172***	−0.135*	0.069**	0.171***	−0.135
	(2.31)	(5.00)	(−1.70)	(2.03)	(5.66)	(−1.53)
lnL	−0.012	−0.049*	0.055	0.004	−0.018	0.071
	(−0.49)	(−1.79)	(0.59)	(0.17)	(−0.68)	(0.79)
CR4	0.050	0.015	0.759	−0.001	−0.057	0.752
	(0.78)	(0.28)	(1.08)	(−0.01)	(−1.23)	(1.03)
lnage	−0.394***	−0.116	−1.112***	−0.492***	−0.137	−1.252***
	(−4.32)	(−1.49)	(−4.13)	(−5.32)	(−1.49)	(−5.07)
_cons	1.330***	0.475	4.096***	1.662***	0.395	4.366***
	(2.96)	(1.14)	(4.19)	(3.80)	(0.84)	(4.31)
Observations	373	261	112	373	261	112
F-Statistics	14.535	7.431	8.142	11.868	9.889	9.042
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
R-sq	0.285	0.148	0.584	0.236	0.167	0.641
Adjusted R-sq	0.253	0.113	0.519	0.200	0.131	0.580

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parentheses

human resource management and organizational capital have different effects. Management practices associated with human resource management has a positive impact on Tobin's q, while management practices associated with organizational capital has a negative impact on Tobin's q.

Regarding the other variables related to intangible assets, *lnrd_z* and *lnadv_z* are positive and significant in any models of Table 8.4. Therefore, R&D and advertising expenditures have a positive impact on q and the market value of intangible assets. As to control variables, *lnL* is negative and significant in any models, suggesting that large size in terms of number of employees has a negative impact on q. *CR4* is positive in Model (1) and (2), while negative in Model (3) and (4), but it is significant only in Model (4). *Lnage* is negative for the whole sample and significant in Model (3), while it is positive for the manufacturing industry sample and significant in Model (2).

Table 8.5 shows the results of the estimation for the whole sample (Model (5) and (8)), manufacturing industry sample (Model (6) and (9)), and non-manufacturing sample (Model (7) and (10)). Since R&D data is not available in many firms in non-manufacturing industries, *lnrd* is not included in each model. As indicated in Model (5), *pcaq_all_z* is positive and significant for manufacturing and for non-manufacturing samples as the results shown in Table 8.4, while it is positive but not significant for the whole sample. Advertising expenditures,

however, are significantly positive for the whole sample and for manufacturing industry sample, but they are significantly negative for non-manufacturing industry sample.

As shown in Model (8), (9), and (10), *pcaq_human_z* is positive and significant for any samples. However, *pcaq_org_z* is negative and significant for the whole sample and for manufacturing industry sample, while it is positive (but not significant) for non-manufacturing industry sample. Therefore, it is a very robust result that management practices associated with human resource management have a positive impact on Tobin's q.

8.4.2 Decomposition of Intangible Assets

While management practices are not easily observed, the results described above suggest that the market values some of them. In this paper, we suppose that intangible assets are composed of management practices, brand equity (advertising and marketing activities), and technological capability (R&D activities). Thus, we can decompose intangible asset value into the components attributable to management practices, to brand equity, and to technological capability using the results of estimations.

Table 8.6 indicates the decompositions of intangible asset value (ratio to tangible asset value) into *VImp*, *VIrd*, and *VIad*, the components attributable to management practices, R&D, and advertising, respectively. There are 15 different ways of decompositions, each of which is calculated using the estimation of each model in Tables 8.4 and 8.5. When we calculate each component, we use the estimated regression coefficients of the explanatory variables in each model.

As indicated in Table 8.6, when we use the results of estimation using the first principal component, *VIrd* is positive. *VIad* is positive for the whole sample and for the manufacturing industry sample, while it is negative for the non-manufacturing sample (the models used are (7) and (10)). *VImp* is negative when the model with *pcaq_all_z* for the manufacturing sample (the models used are (2) and (6)), while it is positive when the other eight models are used. As far as the value of each intangible asset is positive, the value of *VImp* is much smaller than that of *VIrd* and *VIad*, and *VIrd* is larger than *VIad*. Regarding *VImp*, non-manufacturing firms have larger value than firms in manufacturing firms. Regarding *VIad*, firms in the manufacturing industries have the largest value.

8.5 Further Exploration of Management Practices

The results above indicate that the value of *VImp* is much smaller than that of *VIrd* and *VIad*. It is partly because some variables of management practices, especially those related to organizational capital, have negative impacts on $q - 1$. Therefore,

Table 8.6 Decomposition of intangible assets

Decomposition of V	Used model	Obs	Mean	Std. dev.	Min	Max
VIad	(1)	269	0.010	0.108	−0.247	0.229
VIrd	(1)	269	0.014	0.150	−0.474	0.362
VImp	(1)	269	0.001	0.050	−0.091	0.124
VIad	(2)	241	0.019	0.120	−0.270	0.262
VIrd	(2)	241	0.041	0.167	−0.572	0.437
VImp	(2)	241	−0.001	0.068	−0.127	0.173
VIad	(3)	269	0.009	0.095	−0.218	0.202
VIrd	(3)	269	0.016	0.178	−0.562	0.430
VImp	(3)	269	0.003	0.096	−0.263	0.189
VIad	(4)	241	0.012	0.078	−0.176	0.171
VIrd	(4)	241	0.045	0.183	−0.626	0.479
VImp	(4)	241	0.000	0.089	−0.236	0.160
VIad	(5)	373	0.012	0.078	−0.206	0.165
VImp	(5)	373	0.000	0.016	−0.028	0.038
VIad	(6)	261	0.025	0.141	−0.319	0.309
VImp	(6)	261	−0.005	0.049	−0.089	0.122
VIad	(7)	112	−0.012	0.124	−0.208	0.303
VImp	(7)	112	0.016	0.117	−0.186	0.245
VIad	(8)	373	0.009	0.059	−0.155	0.125
VImp	(8)	373	0.003	0.080	−0.217	0.184
VIad	(9)	261	0.025	0.140	−0.319	0.309
VImp	(9)	261	0.000	0.085	−0.235	0.177
VIad	(10)	112	−0.012	0.125	−0.209	0.303
VImp	(10)	112	0.022	0.175	−0.311	0.356
VIad	(11)	269	0.009	0.093	−0.212	0.197
VIrd	(11)	269	0.015	0.165	−0.519	0.397
VImp	(11)	269	−0.030	0.160	−0.367	0.461
VIad	(12)	241	0.011	0.070	−0.158	0.153
VIrd	(12)	241	0.035	0.141	−0.483	0.369
VImp	(12)	241	−0.032	0.160	−0.398	0.394
VIad	(13)	371	0.007	0.050	−0.132	0.106
VImp	(13)	371	−0.006	0.153	−0.304	0.548
VIad	(14)	261	0.016	0.091	−0.207	0.201
VImp	(14)	261	−0.044	0.158	−0.392	0.329
VIad	(15)	110	0.024	0.310	−0.754	0.518
VImp	(15)	110	−0.121	0.646	−1.111	1.826

we explore further the variables of organizational management practices to understand why they do not have significantly positive impacts on Tobin's q in the following way.

Instead of *pcaq_org_z*, we include dummy variables for each score of each question in the category of organizational capital. As explained above, each question has three sub-questions, and the more sub-questions you answer positively, the

more score you get. We assign the score from 1 to 4 for each question, depending upon the answers to the three sub-questions.[10] Therefore, we make the three dummy variables for each question: *Score2_D*, *Score3_D*, and *Score4_D*. *Score2_D* is 1 if the score is 2, and 0 otherwise. *Score3_D* is 1 if the score is 3, and 0 otherwise. *Score4_D* is 1 if the score is 4, and 0 otherwise. We suppose that the larger score you get, the better management practices you have. Thus, we predict that all the three dummy variables have a significantly positive coefficient and that the value of the coefficient is increasing from *Score2_D* through *Score3_D* to *Score4_D*.

The results of the analysis are indicated in the first model of each of Table 8.7 through Table 8.12 and model (17) and (18) in Table 8.13. Each model includes the dummy variables (*Score2_D*, *Score3_D*, and *Score4_D*) to each of the eight different questions. In any models, the results of the dummy variables are different from our expectation. We expect that all the three dummy variables have a significantly positive coefficient and the coefficient of *Score2_D* is the lowest and that of *Score4_D* is the highest. However, in model (11-1) for example, *Score2_D* and *Score4_D* are negative, while *Score3_D* is significantly positive.

Thus, we examine the content of the question, and modify the way to assign scores or drop the observations in the following ways: (1) if there are very few respondents for a certain score, we drop the observations for the score, (2) if the respondents who answer "No" to the first sub-question (score 1) but their answers are suspected to include different meanings, we drop the observations with score 1, (3) we change the dummy variables: in the second model of each table (from Table 8.7 to 8.12) includes *Score3_D* and *Score4_D* (the base is the observations with score 1 and 2), and the third model includes only *Score4_D* (the base is the observations with score 1, 2, and 3).

Table 8.7 shows the results of the exploration of the question on setting target levels. As indicated Model (11-1), the result is different from our expectation. Therefore, following the modification rule (3), we estimate model (11-2) and (11-3). The results indicate that *Score3_D* in model (11-2) is significantly positive, while *Score4_D* in model (11-3) is significantly negative. The second sub-question is "Are the target levels appropriately set as non-binding challenges?" Therefore, setting appropriate levels of targets increases firm value. The third sub-question, on the other hand, is "Are target levels checked to ensure there is fairness between divisions or sections?" Thus, this result may suggest that keeping fairness between divisions needs coordination costs to decreases firm value.

Table 8.8 shows the results on the question of permeation of goals. Following the modification rule (3), we estimate model (12-2) and (12-3). The result suggests that *Score4_D* in model (12-3) is significantly positive. The third sub-question is "Do all the employees accept the target levels and are they motivated to reach the levels?" Thus, the result suggests that whether employees know and understand the goal or not does not matter, but permeation of the goal, which motivates the employees, increases firm value.

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[10] As to the questions and sub-questions of organizational capital, see Appendix.

Table 8.7 Determinants of Tobin's q—effect of organizational score (setting target levels)

Variable	Description of scores	(11-1) Coefficient/t	(11-2) Coefficient/t	(11-3) Coefficient/t
Score2_D [Score1_D]	Goals on multiple levels [Not Goals on multiple levels]	−0.055 (−0.71)		
Score3_D	Goals adjusted in each division	0.244** (2.34)		
Score4_D	Consistency maintained	−0.042 (−0.66)		
Score3_D [Score1_D/Score2_D]			0.235** (2.27)	
Score4_D			−0.040 (−0.58)	
Score4_D [Score1_D/Score2_D/ Score3_D]				−0.109** (−2.34)
lnrd_z		0.292*** (4.55)	0.281*** (3.84)	0.208*** (4.43)
lnadv_z		0.106* (1.84)	0.118** (2.02)	0.110** (2.51)
Observations		298	298	298
R-sq		0.418	0.423	0.357
Adjusted R-sq		0.387	0.395	0.328
F Statistics		32.070	34.340	39.682
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

Table 8.9 shows the results on the question of checking the degree to which goals are achieved. Following the modification rules (3), we estimate model (13-2) and (13-3). In addition, there are very few respondents who get score 1 for this question. Therefore, following the rule (1), the observations with score 1 are dropped.[11] The results, however, indicate that Score4_D is not significant. Thus, we understand that insignificant results of any dummy variables suggest that this management practice (checking on performance) is not relevant in Japanese firms.

In Table 8.10, the results on the question of permeation of degree to which goals are achieved are shown. Following the modification rule (3), we estimate model (14-2) and (14-3). The result indicates that any dummy variables are not significant,

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[11] For this question, there are no negative responses to the first sub-question (score is 2). As a result, the dummy variables in model (13-1) are Score3_D and Score4_D, and that in either model of (13-2) or (13-3) is Score4_D only, but in model (13-3), the observations with score 1 are dropped, while in model (13-2), they are not dropped.

Table 8.8 Determinants of Tobin's q—effect of organizational score (permeation of goals)

Variable	Description of variable	(12-1) Coefficient/t	(12-2) Coefficient/t	(12-3) Coefficient/t
Score2_D	Employees know the goals	−0.244***		
[Score1_D]	[Employees don't know goals]	(−5.98)		
Score3_D	Employees understand the priority	−0.033		
		(−0.58)		
Score4_D	Employees accept the target levels	0.070		
		(1.53)		
Score3_D			0.062	
[Score1_D/Score2_D]			(1.07)	
Score4_D			0.144***	
			(3.12)	
Score4_D				0.127***
[Score1_D/Score2_D/ Score3_D]				(3.02)
lnrd_z		0.190***	0.198***	0.194***
		(3.90)	(3.43)	(5.28)
lnadv_z		0.155***	0.136***	0.128***
		(4.44)	(3.52)	(3.58)
Observations		298	298	298
R-sq		0.441	0.387	0.419
Adjusted R-sq		0.412	0.357	0.393
F Statistics		30.300	32.956	41.417
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisk *** indicates the coefficient is significant with significance level of 1 %. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

suggesting that any scores do not have any significant impact on firm value. Thus, we understand that this management practice (permeation of degree to which goals are achieved) is not relevant in Japanese firms.

Table 8.11 shows the results on the question of handling when goals have not been achieved. Following the modification rule (3), we estimate model (15-2) and (15-3). Moreover, the first sub-question is "Is a meeting consisting of managerial staff and employees promptly held as soon as it is known that the goals were not achieved?" To this sub-question, not only those who do not have an immediate meeting but also those who achieved all the goals can answer "No." Since it is suspected that the different kinds of respondents can be mixed in those with score 1 (answer "No" to the first sub-question), we drop the observation with score 1, following the modification rule (2). The result in Model (15-2) indicates that Score3_D and Score4_D are significantly negative, suggesting that either documentation of the measures for handling the failure to achieve the goal or disclosing them to the other division decreases firm value.

Table 8.9 Determinants of Tobin's q—effect of organizational score (checking the degree to which goals are achieved)

Variable	Description of variable	(13-1) Coefficient/t	(13-2) Coefficient/t	(13-3) Coefficient/t
Score3_D	Checking periodically	−1.472***		
[Score1_D]	[Not checking achieved]	(−5.18)		
Score4_D	Checking by employments	−1.470***		
		(−5.15)		
Score4_D			−0.048	(0.00)
[Score1_D/Score3_D]			(−0.92)	(−0.01)
lnrd_z		0.254***	0.219***	(0.26)***
		(5.08)	(3.94)	(5.19)
lnadv_z		0.062	0.107**	(0.07)*
		(1.65)	(2.47)	(1.81)
Observations		298	298	291
R-sq		0.391	0.337	0.363
Adjusted R-sq		0.361	0.306	0.335
F Statistics		32.839	32.398	35.828
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

Table 8.12 indicates the results on the question of handling when goals have been achieved. Following the modification rule (3), we estimate model (16-2) and (16-3). The result indicates that any dummy variables are not significant, suggesting that any scores do not have any significant impact on firm value. Thus, we understand that this management practice (handling when goals have been achieved) is not relevant in Japanese firms.

Table 8.13 shows the results on the question of decision making speed. While in models (17) and (18), the results of the dummy variables are not as we expected, we do not modify the specification of the model. But the results can be interpreted in the reasonable way. The question corresponding to model (17) is "When you start a new business with other departments, how long do you spend ground work?" The result indicates that all the three dummy variables are positive and only Score4_D is significant. This result suggests that making a quick decision on starting a new business increases firm value and especially limiting ground work within less than 20 % of the total time significantly increase firm value.

On the other hand, the result in model (18), the question corresponding to which is "When you close an existing business, how long do you spend ground work?" indicates that Score 2_D and Score3_D are significantly negative. Since score 1 (base) means that the longest consultation with the people concerned, the result suggest that making a quick decision on closing an existing business decreases firm value. We discuss such contrasting results in the next section.

Table 8.10 Determinants of Tobin's q—effect of organizational score (results of checks on performance)

Variable	Description of variable	(14-1) Coefficient/t	(14-2) Coefficient/t	(14-3) Coefficient/t
Score2_D	Results are openly available within division	−0.026		
[Score1_D]	[Not openly available within division]	(−0.18)		
Score3_D	Openly available between relevant division	−0.139		
		(−1.36)		
Score4_D	Adjustments for different divisions	−0.082		
		(−0.68)		
Score3_D			−0.129	
[Score1_D/Score2_D]			(−1.59)	
Score4_D			−0.085	
			(−0.81)	
Score4_D				−0.011
[Score1_D/Score2_D/ Score3_D]				(−0.17)
lnrd_z		0.254***	0.219***	0.256***
		(5.08)	(3.94)	(5.19)
lnadv_z		0.062	0.107**	0.065*
		(1.65)	(2.47)	(1.81)
Observations		298	298	298
R-sq		0.371	0.365	0.355
Adjusted R-sq		0.338	0.334	0.325
F Statistics		31.344	31.181	35.964
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

8.6 Discussion and Conclusion

This paper examined how the market values management practices affecting intangible assets of the firm using the interview survey data, and decomposed intangible asset value into the components attributable to management practices, to brand equity, and to technological capability. We found that the component attributable to management practices is much smaller than the other two components. It is because management practices associated with organizational capital have either an insignificant or a negative impact on intangible asset value. Therefore, we further explored the variables of organizational management practices to know why they do not have a significantly positive impact on Tobin's q contrary to our expectation.

Table 8.11 Determinants of Tobin's q—effect of organizational score (handling when goals have not been achieved)

Variable	Description of variable	(15-1) Coefficient/t	(15-2) Coefficient/t	(15-3) Coefficient/t
Score2_D	Meeting consisting of manager	0.150		
[Score1_D]	[Not have meeting consisting of managers]	(1.12)		
Score3_D	To revise spread throughout the division	−0.055		
		(−0.62)		
Score4_D	Known throughout relevant and other division	−0.063		
		(−0.75)		
Score3_D			−0.187*	
[Score1_D/Score2_D]			(−1.67)	
Score4_D			−0.200*	
			(−1.83)	
Score4_D				−0.108
[Score1_D/Score2_D/ Score3_D]				(−1.65)
lnrd_z		0.223***	0.220***	0.198***
		(3.97)	(4.12)	(4.04)
lnadv_z		0.087*	0.065	0.073
		(1.73)	(1.23)	(1.47)
Observations		298	275	275
R-sq		0.376	0.376	0.346
Adjusted R-sq		0.342	0.345	0.316
F Statistics		37.867	34.514	35.670
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisks *, *** indicate the coefficient is significant with significance level of 10 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

We found that in any organizational management practices, the order of the scores is different from our expectation. We can divide the items of management practices which give unexpected results into two groups. In one group of the items of management practices, there is no significant difference in the influence on firm value among the detailed practices (sub-questions). It means that the items of management practices are not relevant to affect intangible asset value of Japanese firms. In the other group of the items, however, detailed practices we supposed the best ones actually have a negative impact on firm value.

Among the latter group, the item of ground work, for example, has an interesting implication. In case of closing an existing business, much consultation with the people increases firm value. When starting a new business, on the other hand, quick decision making without long ground work is favorable. Therefore, quick decision making have different impacts on firm value between in starting and in closing

Table 8.12 Determinants of Tobin's q—effect of organizational score (handling when goals have been achieved)

Variable	Description of variable	(16-1) Coefficient/t	(16-2) Coefficient/t	(16-3) Coefficient/t
Score2_D	Higher goals set	0.022		
[Score1_D]	[Not set higher goal]	(0.26)		
Score3_D	Period for setting higher goal	−0.089		
		(−1.58)		
Score4_D	Measures institutionalized	0.003		
		(0.03)		
Score3_D			−0.072	
[Score1_D/Score2_D]			(−1.42)	
Score4_D			0.004	
			(0.05)	
Score4_D				0.031
[Score1_D/Score2_D/ Score3_D]				(0.40)
lnrd_z		0.241***	0.224***	0.206***
		(5.48)	(5.27)	(4.20)
lnadv_z		0.110**	0.104**	0.106**
		(2.50)	(2.45)	(2.26)
Observations		298	298	298
R-sq		0.392	0.376	0.348
Adjusted R-sq		0.360	0.346	0.318
F Statistics		24.319	31.120	33.417
Prob > F		0.000	0.000	0.000

Note: Estimation method is GLS. Asterisks **, *** indicate the coefficient is significant with significance level of 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

businesses. When you start a new business, quick decision making increase firm value as usually expected. But when you close the existing business, there are many people concerned with the closing business in the firm. Closing the business without consultation with the people increases conflicts and complaints within the firm, which may decrease firm value. Therefore, it is reasonable that quick decision making have different impacts on firm value.

The items of setting target levels and of handling when goals have not been achieved also have an interesting implication. The analysis on the detailed practices for both items found that interaction with other divisions either to keep fairness or to share the measures to the unachieved goals has a negative impact on firm value. It may suggest that coordination costs decrease firm value. Moreover, the analysis on the item of handling unachieved goals found that immediate meeting within the division increases firm value, while documentation of the measures to the unachieved goals and disclosing them to the other divisions decrease firm value.

Table 8.13 Determinants of Tobin's q—effect of organizational score (consultation with the people concerned)

Variable	Description of variable	(17) Coefficient/t	(18) Coefficient/t
Score2_D	40–59 %	0.090	−0.181**
[Score1_D]	[Over 60 %]	(1.04)	(−2.42)
Score3_D	20–39 %	0.006	−0.268***
		(0.07)	(−3.07)
Score4_D	Under 19 %	0.110*	−0.127
		(1.69)	(−1.44)
lnrd_z		0.195***	0.160***
		(3.03)	(2.99)
lnadv_z		0.143***	0.114**
		(3.57)	(2.41)
Observations		287	287
R-sq		0.369	0.352
Adjusted R-sq		0.335	0.316
F Statistics		25.977	24.760
Prob > F		0.000	0.000

Note: Estimation method is GLS. Asterisks *, **, *** indicate that the coefficient is significant with significance level of 10 %, 5 %, 1 %, respectively. Industry dummy and year dummy are included but not reported. t-statistics is in parenthesis

The two detailed practices are corresponding to the different process in knowledge creation.

In the SECI model of knowledge creation, there are the four processes: Socialization, Externalization, Combination, and Internalization (Nonaka and Takeuchi 1995). Immediate meeting within the division is corresponding to socialization, sharing tacit knowledge through face-to-face communication or shared experience, while documentation and disclosing the measures are corresponding to externalization, converting tacit knowledge to explicit knowledge by developing concepts and models. Thus, Japanese firms, which are good at socialization, can increase firm value, while those which have a problem in externalization cannot increase firm value. Moreover, conversion of tacit knowledge to explicit one by documentation and distribution explicit knowledge through the organization may break down tacit knowledge creation among the people with shared experience in the division.

Such results of the further exploration of organizational management practices explain some of the small impact of management practices on firm value. But it is, in some sense, reasonable that management practices have smaller impacts on firm value than R&D activities and brand equity, because management practices as firms' routines are difficult for outsiders to observe. It is consistent that causal ambiguity is one of the intangible barriers to imitation. When a firm's distinctive capabilities involve tacit knowledge, they are difficult to articulate as an algorithm, formula, or set of rules, and therefore, it is not observable or imitable (Rumelt 1984; Reed and DeFillipi 1990). Because of this, it is argued that intangible assets can be the sources of sustainable competitive advantages (Villalonga 2004).

Some researchers develop similar argument on the uniqueness of strategy. Uniqueness in strategy is a necessary condition for creating economic rents and should be positively associated with firm value. However, uniqueness in strategy heightens the cost of collecting and analyzing information to evaluate a firm's future values, and therefore, capital markets systematically discount uniqueness in the strategy choices of firms (Litov et al. 2012). Among intangible assets, technological capability and brand equity, on the other hand, are relatively easy for outsiders to observe, because R&D and advertising expenditures are publicly revealed.

Contrary to our findings, Bloom and Van Reenen (2007, 2010) and Bloom et al. (2012) find that high score of management practices leads to high firm performance, and therefore, is considered good management practices. We consider two possible reasons for such a contradiction: a difference in the ways of the survey and a difference in good management practices across the countries. While Bloom and Van Reenen (2007) conducted the survey to the plant manager of manufacturing, we did so to the managers of the planning departments. That is, while they asked on management practices of manufacturing plants, we asked on management practices of firms as a whole. Some management practices distinctively good for manufacturing plants, however, may not be so for non-plant establishments or organization as a whole. Therefore, this difference in the way of the interview may be the reason for the different results.

Suppose the item on training, for example. It is asked if training on an occupational ability (manufacturing, sales, etc.) is regularly executed in the interview. High score of this item may result in high performance at the plant level, but may not do so at the company level. Instead of such training, training on leadership, strategy formulation, and finance, or education in MBA program may be relevant.

The other reason may be related to the difference in management style among the countries (Aoki 1988, 2010), as our further exploration of organizational management practices suggests. For example, speedy decision making is usually considered a good management practice, while ground work, which slows down decision making, is regarded a bad management practice. In the U.S. firms with hierarchical coordination mechanism, people only have to report to their boss, and do not need prior consultations with many people. Therefore, speedy decision making without long ground work may increase productivity and firm performance. In Japanese firms with horizontal coordination mechanism, on the other hand, people need to consult with many people ex ante to reach a consensus. Decisions without a consensus may not be implemented smoothly, and therefore decrease firm performance.

That is, good management practices which lead to high firm performance are different between in Japan and in other countries. The further exploration of detailed practices in this paper suggests that some of the practices decrease firm value in the Japanese firms. Therefore, it is a promising future direction of international comparative research to refine the survey to capture good management practices for high performance of Japanese firms and to collect the data from Japanese firms as well as their counterparts in foreign countries using the refined survey.

Appendix: Questions Related to Organizational Management Practices

Implementation of organizational goals (setting target levels)

2. Are the settings for the individual or sectional target levels simply given to you from the division or section above you? Or are they given to you while considering the opinions of your division or section?
3. Are the target levels appropriately set as non-binding challenges?
4. Are target levels checked to ensure there is fairness between divisions or sections?

Implementation of organizational goals (permeation of goals)

2. Do all employees know the goals?
3. If goals exist on various levels (such as company-wide, divisional, and sectional goals), do all employees understand the level of priority of the goals?
4. Do all the employees accept the target levels and are they motivated to reach the levels?

Implementation of organizational goals (degree to which goals are achieved, checks on performance)

2. Are checks made to see how far goals have been achieved?
3. Are the checks made regularly?
4. In addition to the checks as a formal system, do employees make the checks voluntarily?

Implementation of organizational goals (permeation of degree to which goals are achieved, and results of checks on performance)

2. Are the results of such checks made openly available within your division?
3. Are the results of such checks made openly within not only your division but also between relevant divisions?
4. Are adjustments made to ensure that the degree to which goals have been achieved at different divisions is fairly compared?

Implementation of organizational goals (results of checks—handling when goals have not been achieved)

2. Is a meeting consisting of managerial staff and employees promptly held as soon as it is known that the goals were not achieved?
3. After investigation, are points to revise spread throughout the division, and are measures for handling the failure to achieve the goals promptly implemented?
4. Are problematic issues and countermeasures made throughout the relevant divisions, and if necessary, other divisions?

Implementation of organizational goals (results of checks—handling when goals have been achieved)

2. When goals are achieved are investigations made so that those goals renewed on a continuous basis or so that higher goals are set?
3. How long is it between the setting of higher goals and the operation/implementation of those goals?
4. Are these measures institutionalized on a company-wide level?

Decision making speed (ground work in case of starting a new business)

When you start a new business with other departments, how long do you spend ground work? Answer the ratio of the time for ground work within 100 % (from the beginning of the project to the start of the business).

1. Over 60 %
2. 40–59 %
3. 20–39 %
4. Under 19 %

Decision making speed (ground work in case of closing an existing business)

When you close an existing business, how long do you spend ground work? Answer the ratio of the time for ground work within 100 % (from the beginning of the project to the closing of the business).

1. Over 60 %
2. 40–59 %
3. 20–39 %
4. Under 19 %

*The number of each sub-question is the score you get when you answer "Yes" to the sub-question.

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