

The 51st Congress of the European Regional Science Association

**The Impact of Governance Structure on Firm Performance:
Evidence from Japanese Local Mixed Enterprises (LMEs)**

Tomoyasu Tanaka

Kinki University, Faculty of Business Administration
3-4-1 Kowakae, Higashi-Osaka, 577-8502 JAPAN
(E-mail) tanakatomo@bus.kindai.ac.jp

Takao Goto

Kinki University, Faculty of Business Administration
3-4-1 Kowakae, Higashi-Osaka, 577-8502 JAPAN
(E-mail) t-goto@bus.kindai.ac.jp

[Abstract]: Using the data from Japanese LMEs in the tourism industry, this paper aims to evaluate the impact of governance structure on their performance. Our main findings are as follows: the percentage of local government ownership has a negative impact on performance. A 1% decrease in local government ownership results in current profits improving 0.129% at the sample mean. As for the board composition of LMEs, it is not clear if the degree of local government participation affects performance.

[JEL Classification]: H7, L32.

[Key Words]: Local mixed enterprises, Performance, Governance structure.

1. Introduction

Fiscal reform of local government spending is an important policy in Japan. The slow Japanese economy has prevented a drastic increase of revenue taxation whereas fiscal expenditures on economic pump-priming measures, combined with an aging population and the diminishing number of children has left many local governments confronting a serial fiscal crisis. Additionally, local mixed enterprises (LMEs), which are jointly owned by local governments and the private sector, also face financial difficulties, coming under pressure to improve their performance. The expectation was that when LMEs were first established, the involvement of the private sector would result in greater public service efficiency. However, this has not been the case as many LMEs have been in deficit with some having gone bankrupt. The poor performance of LMEs resulted in local governments needing support further adding financial woes to the state. In response, in 2007, the national government enacted “the Local Public Finance Reconstruction Law,” aimed at leading both local governments and LMEs towards achieving fiscal soundness.

Some previous studies argue that the governance structure of a firm, which is publicly, privately, or jointly owned, is an important factor determining performance. For example, Boardman and Vining (1989) find that mixed enterprises and state owned enterprises perform substantially worse than private companies. Majumdar (1998) argues that enterprises owned by central government and the state are the least efficient in their operations than either mixed or private enterprises, while mixed enterprises are less efficient than private enterprises. Mok and Chau (2003) also find that mixed enterprises are significantly more unprofitable than fully privatized corporations. Therefore, it is clear from these studies that the degree of governance control affects performance, with greater state-owned control resulting in lower efficiencies than privately owned enterprises.

There are a few empirical studies conducted of Japanese LMEs, which investigate the relationships between government structures and their performance. Akai (2006) shows that the percentage ownership of private sectors has a negative impact on the performance. On the other hand, Matsumoto and Goto (2010) find that a lower percentage of private sector involvement, and a greater percentage of board members derived from the private sector, results in poorer performance. Therefore, although they examine the impact of governance structure on the performance, the results are not necessarily consistent.

Under these circumstances, we are under the impression that the governance structure determines LMEs performance, and this is examined by the following hypothesis. The first step is to verify whether or not local government’s percentage ownership has a negative impact on the performance of a firm, and if it does, to calculate the impact on the performance when the

percentage ownership changes by 1 %. Additionally, it is required to determine how the relationships between the compositions of the board (public or private sector derived) affect performance. For this study the data from Japanese LMEs in the tourism industry are examined, as the purpose of the LMEs is far clearer for that industry. In the light of tough market competition in the tourism industry, both private companies and partially owned local government LMEs aim to operate profitably.

This article is organized as follows: section 2 describes the overview of LMEs in Japan. In this section, we focus on the particulars of the establishment and financial conditions of LMEs. Section 3 explains the methodology and data. We explain the performance function for the analysis and then define the data used in the analysis. Finally, section 4 summarizes the empirical results of this study.

2. The Local Mixed Enterprises in Japan: Overview

LMEs in Japan were established during the late 1960s¹. During Japan's economic boom period and to achieve rapid economic growth, the government had to solve regional imbalances. However, with the government already in debt and along with a shortage of public funds, the government initiated plans to introduce private funds for regional development projects by involving local governments and private companies to establish LMEs.

During the 1980s, attention focussed on the financial woes of government due to the inefficient use of public money. For example, if a local government planned to establish an enterprise to manage leisure facilities (e.g. amusement parks) as a means of revitalizing an area, the government lacked money, know-how and talented staff to efficiently manage the facility, and it was unlikely that the facility would perform well. It was therefore encouraged for local governments to establish LMEs, which responded by setting up LMEs in several sectors: the management of leisure facilities, the development of housing estates and industrial complexes, the distribution of agricultural crops, the management of educational facilities, the operation of railways, and so on. Therefore the aim of the local government was to jointly establish an LME with the private sector, which had the skills and knowledge to manage these enterprises, leading to greater efficiencies and better use of public money.

In 1986, the national government enacted the "Private Participation Promotion Act," an act providing monetary incentives for local governments to promote to set up LMEs. In order to establish LMEs, local governments were able to receive grants from the national government as well as take low interest loans from public financial institutions. Figure 1 shows the growth of

¹ In this section, we explain the particulars of the establishment of LMEs by the reference to Idei (2002).

these newly established LMEs during the late 1980s to the 1990s.

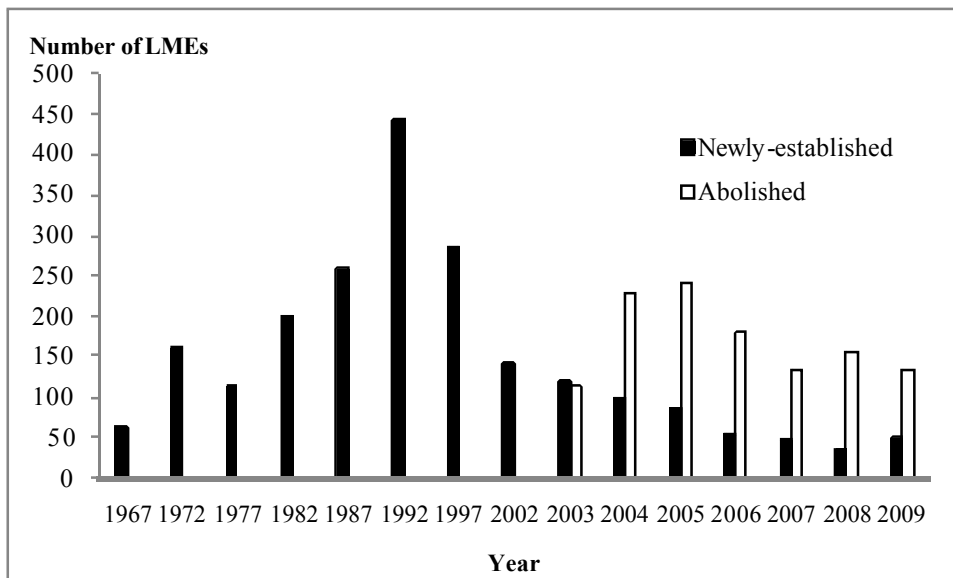


Figure 1 Numbers of newly established and abolished LMEs

Source: Reports on Local Mixed Enterprises and Local Public Corporations.

Note: The number of LMEs abolished prior to 2002 was not available.

The 2000s saw the numbers of newly established LMEs decrease rapidly from their peak, with more than one hundred LMEs being abolished in 2009. Up until 2003, the numbers of newly established LMEs was greater than the numbers abolished. It wasn't until 2004 that the numbers of abolished LMEs superseded those that were newly established. The Ministry of Internal Affairs and Communication (MIC, 2010) cites the main factors behind abolishing LMEs were due to poor performance and difficulties involved in improving performance². As for the LMEs' business conditions, MIC (2010) shows that in 2009, the percentage of loss-making LMEs was 32.3% and the percentage of LMEs that received financial support from local governments was 46.6%. Recently large numbers of LMEs have suffered the economic downturn in business and have been closed.

It is the author's belief that the performances of LMEs are closely related to the governance structure, however, the relationship between the financial situation and the percentage of local government ownership needs to be addressed further.

Table 1 details the numbers of loss-making LMEs in the tourism industry by the percentage of local government ownership. The percentage of loss-making LMEs in the tourism industry is 37.5%, slightly higher than the total of LMEs (32.3%). Local governments with a stake less than

² The other reason is that LMEs had already attained their business purpose.

20%, results in the greatest numbers of loss-making LMEs (62.5%). When the percentage of government ownership increases to over 80%, the findings show that this results in the second largest numbers of loss-making LMEs (45.4%). The least loss-making LMEs can be found when the percentage of government ownership is between 20-40%. However, by ignoring the category of less than 20% government ownership, it could be argued that the percentage of loss-making LMEs is positively correlated to the percentage of local government funded equity³.

Table 1 Number of loss-making LMEs in the tourism industry by the percentage of local government ownership

	Total LMEs	Loss-making LMEs	Percentage of loss-making LMEs
less than 20%	8	5	62.5
20 - 40%	78	22	28.2
40 - 60%	263	96	36.5
60 - 80%	149	51	34.2
more than 80%	163	74	45.4
Total	661	248	37.5

Source: Reports on Local Mixed Enterprises and Local Public Corporations.

Note: The figures in this table are calculated based on the data used in this study.

3. Methodology and Data

3.1 Methodology

Using the data of Japanese LMEs in the tourism industry, the objective of this paper is to estimate the impact of governance structure on performance. When calculating performance the productivity or the measured efficiency is frequently used. This requires accurate data relating to inputs, outputs, input factor prices, costs, and so on. However, as those data are not readily available, it makes the task of calculating the productivity or efficiency rather difficult. Nevertheless, as the data of current revenues and expenditures, current profits are readily available these provide the performance indicators required for this study.

The performance is explained by several factors. The first factor is the ownership structure

³ As there are only eight LMEs with less than 20% government ownership, it is doubtful that the smaller the ownership percentage of local governments results in the greatest percentage of loss-making LMEs.

(*OWN*). As described earlier, local governments and the private sectors jointly own LMEs. If local governments have a larger stake in an LME, then they may attach weight to fulfilling a public need in lieu of profitability. On the contrary, if the private sector owns the majority stake in an LME, then its aims will be profitability and operational efficiency. Previous studies do show that the performance of enterprises with strong government involvement tends to be worse (Boardman and Vining, 1989; Majumdar, 1998; Mok and Chau, 2003). Therefore, we expect that the percentage of local governments ownership impact negatively on enterprise performance.

The second factor is the degree of local government participation in the board, (*BOD*). The board consists of members who are from both local governments and the private sector. The greater the numbers of board members elected from local governments logically implies stronger local government control of the enterprise. Therefore in such enterprises, the pursuit of profits will not be a priority, resulting in a negative relationship between the percentage of board members from local governments and performance.

The third factor determining the LME performance are the prevailing market conditions (X_M). A large concentration of similar enterprises results in greater competition, which in turn affects performance. Therefore, the coefficient of the market condition has a negative sign. On the other hand, a large concentration of similar enterprises can have advantageous agglomeration economies, resulting in a positive effect on the coefficient of market conditions. In this study, we use the tertiary industry ratio as a proxy variable to express the market conditions, as the percentage data for the tourism industry as a whole is not available.

Finally, the characteristics for each LME factors are described. The first characteristic is the LME size (X_S). A large size equates to greater profitability. Thus, the relationship between the performance and the size of the LME is positive. The second factor in this category is the debt factor (X_D). An LME with a large debt would represent a poorly performing enterprise, for which the manager would be held responsible. However, this may in turn incentivise management to operate more profitably, and hence we expect the impact of debt to have a positive performance. The performance function can therefore be specified as follows:

$$PER = \alpha_0 + \alpha_W OWN + \alpha_B BOD + \alpha_M X_M + \alpha_S X_S + \alpha_D X_D + u, \quad (1)$$

where *PER* : firm performance,

OWN : ownership structure,

BOD : degree of local government participation in the board,

X_M : market condition,

X_S : firm size,

X_D : debt ratio,
 u : error term.

We are especially interested in two coefficients α_W and α_B measuring the impact of the governance structure on the performance.

3.2 Data

Data is obtained from several sources, the main source being “*Reports on Local Mixed Enterprises and Local Public Corporations (Dai3 Sekuta nado no Jokyo ni Kansuru Chousa Kekka)*” issued by the Ministry of Internal Affairs and Communication (MIC). This lists 662 LMEs in the tourism industry. We used a cross-section of 661 LMEs as the data set, excluding one LME because its total revenues are disproportionately larger than the others, which is therefore excluded, as we have a number of other factors that we need to take into account.

The definitions of the variables employed in this study now follows. A statistical summary of variables used in this study is shown in Table 2. As for the performance measure (*PER*), we use current profits obtained from *Reports on Local Mixed Enterprises and Local Public Corporations*. As the total revenues include grants from local governments, we exclude grants from current profits.

The explanatory variables are defined as follows. The ownership structure variable (*OWN*) is the percentage of local government funded equity in the overall equity. The board composition variable (*BOD*) is defined by the percentage of full-time and part-time board members who were transferred or retired from local governments in total board members. The data related to equity and board members is shown in *Reports on Local Mixed Enterprises and Local Public Corporations*. As for the market conditions, we consider the tertiary industry ratio (X_M). We define the percentage of employees in the tertiary industry. The numbers of employees in the tertiary industry and all industries are obtained from *The Establishment and Enterprise Census (Jigyousho Kigyo Toukei)*, issued by the MIC. There is tertiary industry ratio for 2008 as the census was carried out in 2006. Therefore, for this analysis we assume that the tertiary industry ratio in 2008 equals the 2006 value. As for a proxy variable to express the LME’s size, we use the number of employees (X_S). The debt factor (X_D) is defined by the debt-equity ratio. These measures are both obtained from *Reports on Local Mixed Enterprises and Local Public Corporations*.

Table 2 Statistical summary of used variables

Variables	Unit	Mean	Standard deviation	Minimum	Maximum
<i>PER</i>	Million yen	1.381	49.951	-336.126	977.792
<i>OWN</i>	%	61.567	20.679	2.632	99.888
<i>BOD</i>	%	23.304	21.522	0.000	100.000
X_M	%	68.279	9.469	29.800	93.600
X_S	Person	20.380	20.136	1.000	232.000
X_D	-	3.695	39.295	0.000	998.190

3.3 Estimation Results

The regression analysis is applied for the performance function (1). The OLS method estimation and the regression results are summarized in Table 3.

For the first case, the results are estimated from the data of 661 LMEs. Although the values of $\text{adj-}R^2$ are low, the F statistics values are statistically significant at 1%, an acceptable specification. The coefficient of *OWN* shows a negative sign, which is statistically significant at the 10% level. Although the impact of the ownership structure on the performance is statistically weak, it does however confirm the main hypothesis of this study. Moreover, we find that a 1% decrease in local government ownership results in a 178 thousand yen increase in profitability. This implies that decreasing local government equity stakes in an LME by 1%, results in 0.129% increase in profitability at the sample mean. The board variable (*BOD*), which shows the degree of local government participation in the board, is negative but is also not significant. As a result, the current findings show no links between local government involvement in the board and LME performance. As for the market conditions (X_M), the coefficient is positive and is statistically significant. These results show that by having a large concentration of similar enterprises contributes to the performance. The coefficient of the size variable (X_S) shows the positive sign and is statistically significant at the 1 % level, signifying that a greater the number of employees leads to better performance. However, the debt-equity ratio (X_D) has a negative impact on the performance, meaning that a large debt does not incentivise management to perform well.

In order to confirm the robustness of the results, case 2 included 58 observations of LMEs that are fully owned by local governments. The results obtained are compared with the results obtained in case 1. With the *OWN* coefficient being negative and statistically significant at the 5% level, it is apparent to conclude that the percentage local government ownership of an LME has a negative impact on performance.

However, it could be argued that the governance structure and the performance are

determined simultaneously (Boardman and Vining, 1989; Hamilton and Nickerson, 2003; Chong, et al., 2006; Ruester and Zschille, 2010). That is, if an LME is performing poorly, a greater degree of local government ownership would prevent the LME from going out of business, rather maintaining local employment than wanting to achieve operational efficiency. If the ownership structure is endogenous, econometric problems arise. We test whether or not the governance structure and the performance are determined simultaneously⁴. From the results, we can conclude that *OWN* is not endogenous and supports the results in cases 1 and 2.

Table 3 Estimation results

Explanatory Variables	Expected Sign	Case 1	Case 2
<i>Constant</i>		-29.180* (15.278)	-26.196* (13.791)
<i>OWN</i>	-	-0.178* (0.094)	-0.161** (0.082)
<i>BOD</i>	-	-0.011 (0.091)	-0.010 (0.075)
X_M	+ / -	0.539*** (0.204)	0.487*** (0.185)
X_S	+	0.259*** (0.096)	0.244*** (0.091)
X_D	+	-0.081* (0.049)	-0.084* (0.047)
Adj- R^2		0.023	0.022
<i>F</i> -statistics		4.128***	4.292***
Observations		661	719

Note: Numbers in parentheses are standard errors.

Statistically significant at 1% (***), 5% (**), 10% (*).

4. Concluding Remarks

Both local governments and LMEs in Japan face serious fiscal difficulties and the need for fiscal reconstruction is an urgent task. Policy makers are interested in the factors affecting LME performance, in particular factors that improve performance. In this study, we argue that a governance structure is an important factor determining the performance of an LME. Using econometric techniques we evaluate the impact of the governance structure on performance.

⁴ The test procedure is explained in for example Wooldridge (2002).

From our analysis we conclude:

- A 1% decrease in local government ownership results in current profits improving 0.129% at the sample mean. Thus local government ownership percentage has a negative impact on the performance.
- The composition of the board does not have an effect on the performance. It is not clear as to how the degree of local government participation in the board degrades performance.
- Other factors, such as, the tertiary industry ratio, which is a proxy variable to express the market conditions, and the size of LMEs, both have a positive effect on the performance, whereas the debt-ratio factor is negatively correlated with performance.

Reference

- Akai, N. (2006) *Economics of Administrative Organization and Governance (Gyosei Soshiki to Gabanansu no Keizaigaku)*, Yuhikaku, Tokyo (in Japanese).
- Boardman, E. A. and A. R. Vining (1989) "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises," *Journal of Law and Economics*, Vol. 32, No. 1, pp. 1-33.
- Chong, E., F. Huet, S. Saussier, and F. Steiner (2006) "Public-Private Partnerships and Prices: Evidence from Water Distribution in France," *Review of Industrial Organization*, Vol. 29, No. 1-2, pp. 149-169.
- Hamilton, H. B. and J. A. Nickerson (2003) "Correcting for Endogeneity in Strategic Management Research," *Strategic Organization*, Vol. 1, No. 1, pp. 51-78.
- Idei, N. (2002) *Urban and Regional Policies and Public Private Cooperation: A Study on PPP, PFI, NPO, Foundation, Public Trust, and Mixed Enterprise (Toshi Chiiki Seisaku to Komin Renkei Kyodo: PPP, PFI, NPO, Kikin, Koueki Shintaku, Dai3 Sekuta no Kenkyu)*, Chiiki, Keikaiku, Kenkyujo, Tokyo (in Japanese).
- Majumdar, K. S. (1998) "Assessing Comparative Efficiency of the State-Owned Mixed and Private Sectors in Indian Industry," *Public Choice*, Vol. 96, No. 1-2, pp. 1-24.
- Matsumoto, M. and T. Goto (2008) "Economic Analysis on Governance Structure of Local Mixed Enterprises in the Tourism Industry, (Kanko Sangyo niokeru Dai3 Sekuta no Gabanansu ni Kansuru Keizaibunseki)" *Transportation and Economics (Unyu to Keizai)*, Vol. 70, No. 9, pp. 60-70 (in Japanese).
- Ministry of Internal Affairs and Communication (MIC) (2010) *Reports on Local Mixed Enterprises and Local Public Corporations (Dai3 Sekuta nado no Jokyo ni Kansuru Chousa Kekka)*, Press Information of MIC (in Japanese).

- Mok, M.K. H. and S.S.M. Chau (2003) "Corporate Performance of Mixed Enterprises," *Journal of Business Finance & Accounting*, Vol. 30, No. 3&4, pp. 513-537.
- Ruester, S. and M. Zschille (2010) "The Impact of Governance Structure on Firm Performance: An Application to the German Water Distribution Sector," *Utilities Policy*, Vol. 18, No.3, pp. 154-162.
- Wooldridge, J. M. (2002) *Econometrics Analysis of Cross Section and Panel Data*, MIT Press, Cambridge.