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原　著

The Choice between Joint Ventures and Wholly Owned Subsidiaries : the Case of Japanese Direct Investment in Europe.

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This empirical study focuses on Japanese manufacturing, which established new entities in the manufacturing sector in the European Union. We are focusing on the choice of the MNE's between taking full ownership of their affiliate, and sharing it with another firm. The paper aims at providing further empirical evidence on the influence of some key variables in explaining it. Our results provide initial support for using a model which includes institutional and cultural variables, as well as transaction cost variables to predict firms' choices between joint venture and wholly owned subsidiaries in international expansion. Our findings also suggest that some host country's influence may act as a modifying or moderating variable in the diversification mode choice.

INTRODUCTION

The new rules of world economy, which started with the lowering and dismantling of customs barriers, have made continuous lookups necessary for the new markets. Globalization and internationalization have become keywords in daily business newspapers. But the accessibility of markets is not easy. It is necessary to surpass geographic, economic and even political difficulties and barriers. However, the enterprises have at their disposal means and tools for surpassing those barriers, which allow them study, penetration and establishment of their position in the markets.

Europe has often been depicted in the popular and business press as homogeneous entity, especially since the late 1980s. Managers were exhorted to pay attention to EU, or to go to Europe without regard for where their business would be located. Cultural, political regulatory, differences exist between Western European countries. Indeed, many writers have described these differences. However, much of the material about country differences in Western Europe has been neither normative nor based on single-subject case studies (Nitsch, et al., 1996).

Factors such as the launch of the Euro currency, greater investment in Eastern Europe and the increasing pace of globalization caused European FDI flows to grow in 1998. Eurostat figures indicate that EU FDI outflows (measured in ECU and excluding intra-regional flows) grew 150%, while inflows grew 160%. (JETRO 2000)

International strategies of companies are based on the decision of how to enter the foreign market: the entry mode. The impact of such decision may not be immediately and directly apparent, but it is crucial for the survival of the company in the foreign market place.

In this research, we develop and test a model of diversification mode choice, how firms decide between joint ventures and wholly own ventures using a sample of Japanese firms entering the European Union.

THEORETICAL BACKGROUND

Firms interested in foreign markets face a difficult decision with regards to the choice of an entry mode. Several factors that determine the choice of a specific foreign market entry mode have been identified in the previous literature. These factors can be classified into three categories: ownership advantages of a firm, location advantages of a market, and internalization advantages of integrating transactions.

Joint ventures and strategic alliances have developed quite rapidly in a number of sectors from the end of the 1970s. They have generally been interpreted as the types of transactions undertaken by two or more partners in cases of spot transactions on a market and mergers or acquisitions. They may actually be regarded as organizational forms that under specific circumstances allow the firm to economize on the costs associated with the use of both arm's length transactions based on market mechanisms and the administrative mechanisms. The literature on foreign direct investment (FDI) has also recently analyzed the nature of the firm's entry mode choice in a foreign market, particularly the choice between a joint venture and a wholly owned subsidiary.

While scholars have developed and tested several models of entry mode selection, deciding whether to choose a wholly owned venture, joint venture, or license agreement, no well-developed theory of diversification mode choice, using an acquisition or greenfield start-up exists (Barkema and Vermeulen 1998; Hennart and Park, 1993). Previous studies of diversification mode have examined the influence of a variety of factors, but have offered no coherent theoretical framework for exploratory variables.

Following the recommendations of previous work, we took a step toward developing a more comprehensive theory by investigating the influence of institutional, cultural, and transaction cost advantages on international diversification mode choice by adding new variables such as the power of the yen and the manager's nationality.

We also made a distinction between the types of entry mode by adding an independent variable, equal to one, if entry is made through an acquisition, and zero if it is a greenfield entry. Another distinction is that we developed three degrees of ownership of the Japanese parent company in the foreign investment and four models. For each degree, the test results are discussed for each of the four models. Ultimately, the result was compared across the three degrees, and differences between them and their potential causes were discussed.

The inability of the firm to build internally all the needed knowledge and competencies forces it to acquire these from outside, influencing their growth strategy. As resources and complementary assets are spread out, the firm has to deal with constraints, which become more crucial when the firm enters into unfamiliar markets and areas of activity. In particular, when deciding about the entry mode on foreign markets, the firm has to face transaction costs concerning factors and potential partners, their opportunism, and costs related to the need for acquiring information about new institutional environments and their workings.

According to this view, the resort to co-operative solutions and joint ventures allows firms to reduce costs and uncertainty related to foreign markets.

HYPOTHESIS DEVELOPMENT

A key difference between entry through foll ownership and entry through joint venture is that the complementary inputs needed for entry are purchased in different markets. Hence the choice between these two entry modes hinges on the relative cost of buying complementary inputs. The relative cost of the investment depends on the value of the US Dollar[1]. In our case

Hypothesis 1: The stronger the value of the Yen rela-

1) With the appreciation of the yen, about 40% of the Japanese subsidiaries in Europe increased imports of parts and materials from Asia, and more than 90% of companies reduced imports from Japan. (JETRO, 1996)

tively to the US Dollar, the higher the attractiveness of entry through full ownership relative to joint venture.

Japanese investment in Europe grew significantly in the late 1980s, but was heavily concentrate in a few industries. (Nitsch, et al. 1996). Entry mode preferences have also shifted, away from greenfield start-ups to a stronger use of joint ventures.

Hypothesis 2: The manufacturing industry of the Japanese subsidiary affects the entry mode.

When the parent company is diversifying through a FDI, uncertainty and information costs may be higher, so less-control ownership modes may be preferred. Foreign investors are also more likely to enter a foreign market through joint ventures or strategic alliances if they are diversifying into a different industry, as they need tacit industry-specific knowledge, which is subject to relevant transaction costs and is also costly to acquire on the market (Hennart and Park, 1993).

Hypothesis 3: Full owned subsidiaries will be preferred to joint ventures when the Japanese shareholder is in the same industry as the planned subsidiary.

Dimensional aspects are the key resources, which have been accumulated inside the firm over the time it has been in operating, and which are necessary to compete efficiently in certain business transactions or certain industries. A firm will enjoy competitive advantages over its rival if it owns some of those vital assets. Firms with large sizes usually possess vital assets and oligopolistic advantages, as their dominant positions have been attributed to their intensive investments in advanced technology, product differentiation and extensive advertising. (Siripaisalpipat and Hoshino, 1999)

Hypothesis 4: When the size of the parent company is large, wholly owned subsidiaries will be preferred to joint ventures.

The higher level of capital intensity of a foreign expansion demands greater resource commitment. Such a commitment not only strains a company's capital and human resources, but also increases business and political risks (Hennart, 1988). The higher costs suggest that as the investment size increases, multinationals are more likely to choose a shared control mode such as a joint venture[2].

Hypothesis 5: The higher the size of the subsidiary relative to that of the Japanese mother company, the greater the probability of an entry through joint venture.

As a firm expands its operation overseas, it has learned more about how to cope with different environments in terms of economic, political and legal systems, as well as the cultural distances. These learning skills can be applied to new foreign investment opportunities. When firms make international investments, specific knowledge of the host country is gained as is more general knowledge of conducting international operations (Barkema et al., 1998). As argued by the internationalization theorists, firms with more experience in a host country have developed organizational capabilities suited to that country, and are able to make greater commitments to foreign investments (Johanson and Vahlne, 1977).

Hypothesis 6: The higher the Japanese firm's experience in the host market, the greater its propensity to enter through full ownership.

A problem comes when foreign employers' expectations clash with local employees' expectations. With the enormous increase in cross-border corporate integration over the recent years, this problem is looming increasingly large. (Segalla, 2001). A parent's human resources endowment may also affect its mode of expansion. When a foreign firm acquires a local firm, it inherits an existing staff of employees, with their own routines and culture. Integrating such employees is difficult, particularly so if there are cultural differences between the two firms (Hennart and Reddy, 1997). The management of the joint venture's labor force can therefore be left to the local partner (Hennart and Reddy, 1997). Hence joint ventures may be preferred over greenfields by firms, which are inexperienced in managing a foreign labor

2) The size of the subsidiary may change in the future. In this research we were interested in the size of the subsidiary at the time of the operation (time of the entry).

force, and by firms venturing outside their core industry.

Hypothesis 7: Full ownership will be preferred to joint venture when the subsidiary's manager is Japanese.

Although there can be a tendency to minimize the importance of the country choice, once the decision to locate in Europe has been made, the country choice is effective. The size of a foreign market influences entry mode decisions (Buckley and Casson, 1996). The large market potential justifies the high risk and high control modes because of the benefits of economies of scale and long-term market presence.

Hypothesis 8: Full ownership will be preferred to joint venture when the Japanese company invests in a country with a high GDP.

METHODOLOGY

Scope of the study

This empirical study focuses on Japanese manufacturing firms, which established new entities in the manufacturing sector[3)] in the European Union. We are focusing on the choice of the MNE's between taking full ownership of their affiliate (establishing a wholly owned greenfield subsidiary, or making a full acquisition), and sharing it with another firm (setting up a greenfield joint venture, or making a partial acquisition)

Sample

The data used for this study was obtained from Toyo Keizai Inc., Japanese overseas investment, listed by country, (Toyo Keizai Inc., 1992-2001). The classification of the entry mode is based on the percentage of share ownership of major shareholders, reported in this database. The data for the independent variables are derived from Nikkei Kaisha Nenkan, Toyo Keizai Inc., Japanese overseas investment, listed by firms, and the Japan Company Handbook when unavailable from the Toyo Keiz Inc.. In this study, only operations in the European Union countries were examined. The basic selection criteria were that a subsidiary had to be in the manufacturing sector and established between 1992 and 2000. After adjusting for missing data and excluding countries, the final sample size was 213 subsidiaries (wholly owned and shared subsidiaries).

The database consists of 213 manufacturing affiliates; Japanese entries between 1992 and 2000 of which 84 (39.4%) were partially owned and 129 (60.6%) were wholly owned.

Dependent Variable

The proxy considered for the dependent variable is the equity share held by the Japanese parent company at the moment of entry. In order to maintain homogeneity with almost all the other empirical studies in the literature, we built the dependent variable considering the threshold between full control and joint venture as 95% ownership of the capital of the foreign unit.

To investigate further the influence of the host countries on the choice of the entry mode, we also did the same work considering the threshold between full control and joint venture as 80% ownership of the capital of the foreign unit, and after that as 51% ownership of the capital of the foreign unit. Similarly, the threshold between FDI and financial investment is assumed as 10%. Thus, the dependent variable is equal to unity in the case of a joint venture subsidiary i.e., the equity owned by the Japanese investor is at least 10% and less than 95% of the foreign unit's at the moment of entry, and zero in the case of a wholly owned subsidiary i.e., if the Japanese investor owned more than 95% of the foreign unit's equity at the moment of entry. Shared equity affiliates include both joint ventured greenfield and partial acquisition, while wholly owned affiliates are both wholly owned greenfield and full acquisitions.

Because of the nature of the dependent variable, we use a binomial logistic model, in which the regression coefficients estimate the impact of the independent variables on the probability that the affiliate will be partially owned.

3) Slightly less than 80% of Japanese companies in Europe are engaged in manufacturing and sales, close to 40% of companies have established R&D divisions. (JETRO, 1996)

Independent Variables

The regression coefficients estimate the impact of the explanatory variables on the probability that the foreign unit is a joint venture by the Japanese parent company. A positive coefficient means that the corresponding independent variable tends to increase the probability that a joint venture arrangement mode will be chosen, while a negative coefficient means that the independent variable tends to increase the probability of wholly owned entry. Concerning the explanatory effects, we use the following set of independent variables.

A dummy variable equal to one, if the exchange rate of the Yen over the US Dollar is higher than 110 yen at the year of entry (YENPOWER). The exchange rate was obtained from the Toyo Keizai Inc., Japanese overseas investment, listed by country, published in the year before the corresponding Japanese entry.

The product differentiation variable is a dummy variable equal to one, if one of the products manufactured by the subsidiary was also produced by the parent, and zero otherwise (COMMON).

Natural logarithm of the parent's global sales is used to provide more comparable scale units as other variables used in the model (LOGSALMO). This variable captures the parent size at entry. The data was obtained from the issue of Toyo Keizai Inc., a complete listing by firms; and the Nikkei Kaisha Nenkan database published in the year before the corresponding Japanese entry. This variable is a proxy of the parent company's size and a transaction-specific advantages variable. Capital intensity in a foreign invested enterprise is reflected in the total investment committed to a project (RELASIZE). It is the relative ratio of the size (investment) of the subsidiary to the size (sales) of the parent company. RELASIZE is used to provide more comparable scale units as other variables used in the model and it is a dimensional aspects variable.

A dummy variable which is equal to one if the subsidiary is in a resource-based industry, and zero otherwise is used as a resource-based industry variable (INDUSTRY).

The international experience variables are the export ratio of the parent company (EXPRATIO) and a dummy variable which is equal to one if the parent company had an experience in the same country (SAMECOUN). The greater these variables are, the lower the need to enter into a market as a joint venture.

A socio-cultural distance variable is also used. It is a dummy variable indicating whether the subsidiary's manager is Japanese or not (MANAGER). Because nationality and cultural groups are good determinants of many common managerial problems related to human resource management.

The three largest economies in the European Union (United Kingdom, France and Germany) account for more than 63.38% per cent of the subsidiaries in the sample. Because of the large number of firms available for study in each of these countries, more detailed observations can be made about them. France, Germany, United Kingdom are dummy variables used to capture the effect of these countries on the entry mode[4]. They are the country variables (Host country risk or restrictive ness)

To see if entry is effected through an acquisition or through a greenfield subsidiary, an independent variable will be modeled by a dummy variable, which is equal to one if entry is made through an acquisition and zero if it is a greenfield entry (ENTRYMOD). It is our control variable. We expect this variable to be insignificant. If the coefficient of this independent variable is significant, this suggests that Japanese subsidiaries created through acquisitions tend to be shared-equity ventures.

RESULTS

Table 1 gives statistics and the correlation matrix for the variables used in the study. The matrix of the independent variables suggests little collinearity. Almost all correlations are low, the two highest coefficients being the ones between SAMECOUN and LOGSALMO (.446) and between LOGSALMO and EXPRATIO (.399).

To investigate further the influence of the host countries on the choice of the entry mode, we devel-

5) The other countries are: Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Sweden and the Netherlands.

oped three degrees of ownership of the Japanese parent company in the foreign investment and four models. For each degree, the test results are discussed for each of the four models. Ultimately, the result will be compared across the three degrees, and differences among them and their potential causes will be discussed.

We considered the thresholds between full control and joint venture by using 95%, 80% and 51% ownership of the capital of the foreign unit. We call them:

"Cut off 95%" when the Japanese parent has a stake of 95% or more in the European subsidiary.

"Cut off 80%" when the Japanese parent has a stake of 80% or more in the European subsidiary.

"Cut off 51%" when the Japanese parent has a stake of 51% or more in the European subsidiary.

An original model (basic model) will be first studied and then will be compared to others. The original model is the model 1 when the cut off = 95%, namely the degree of ownership of the Japanese parent company in the foreign investment is 95% or more.

The results of the binomial logistic regression are presented in Tables 2 to 4.

In the binomial logistic regression analysis, four separate models were evaluated: Model (1) illustrates the regression for the full sample according to the transaction cost theory adding the country variables. Model (2) illustrates the same full sample without the variables related to the countries. Model (3) illustrates the regression of the full sample according to the transaction cost and the resource-based theories adding the product differentiation variable, the control and country variables. Model (4) illustrates the regression only for Japanese FDI in the 3 more advanced economies in Europe (UK, France and Germany) according to the transaction cost theory (Reduced sample).

Overall, the data supported the model, although

Table 1 : Pearson correlation (coefficient/ Number of cases)

	LOGSALMO	YENPOWER	RELASIZE	SAMECOUN	MANAGER	EXPRATIO	INDUSTRY	COMMON	ENTRYMOD
LOGSALMO	1 (201)								
YENPOWER	0.036 (201)	1 (213)							
RELASIZE	−0.243 (166)	−0.002 (173)	1 (173)						
SAMECOUN	0.446 (200)	−0.014 (207)	−0.049 (171)	1 (207)					
MANAGER	0.059 (177)	−0.111 (187)	0.063 (158)	−0.045 (183)	1 (187)				
EXPRATIO	0.399 (165)	0.066 (171)	−0.102 (146)	0.186 (168)	−0.062 (154)	1 (171)			
INDUSTRY	−0.102 (201)	−0.012 (213)	0.048 (173)	−0.080 (207)	−0.047 (187)	0.050 (171)	1 (213)		
COMMON	0.099 (201)	−0.095 (213)	−0.019 (173)	0.098 (207)	−0.099 (187)	0.055 (171)	−0.057 (213)	1 (213)	
ENTRYMOD	0.005 (201)	−0.001 (213)	−0.084 (173)	0.060 (207)	0.038 (187)	0.097 (171)	−0.080 (213)	−0.041 (213)	1 (213)

LOGSALMO: Sales of the parent company.
YENPOWER: The power of the yen against the dollar.
RELASIZE: Relative size: subsidiary/parent.
SAMECOUN: Experience in the host country.
MANAGER: Nationality of the subsidiary's' manager (Japanese=1; not Japanese=0).
EXPRATIO: Export revenue/sales.
INDUSTRY: Entry into resource-based industry (Resource-based=1; otherwise=0).
COMMON: Sameness of products between parent and subsidiary.
ENTRYMOD: Type of ownership.

Table 2 : The results of the binomial logistic regression: joint venture versus wholly owned subsidiary (cut off 95%)

Name	*Model 1*	*Model 2*	*Model 3*	*Model 4*
INTERCEPT	−2.264 (.065)	−2.513 (.025)	−1.342 (.400)	−2.782 (.041)
YENPOWER	−0.015 (.971)	0.019 (.962)	−0.047 (.914)	−0.311 (.556)
LOGSALMO	0.675 (.074)	0.692 (.052)	0.838 (.042)	0.776 (.075)
EXPRATIO	−0.579 (.594)	−0.950 (.357)	−0.833 (.467)	−1.642 (.213)
MANAGER	−0.948 (.030)	−0.992 (.015)	−1.190 (.011)	−0.891 (.099)
SAMECOUN	0.842 (.067)	0.665 (.097)	1.001 (.042)	0.856 (.122)
RELASIZE	2.808 (.307)	2.976 (.258)	2.997 (.279)	2.022 (.467)
FRANCE	0.167 (.800)		−0.121 (.864)	
GERMANY	−1.778 (.018)		−2.058 (.010)	
UK	−0.411 (.413)		−0.553 (.297)	
INDUSTRY			0.105 (.896)	
COMMON			−1.565 (.026)	
ENTRYMOD			0.457 (.417)	
Actual number of cases	129	129	129	87
Proportion of correct classifications	70.5	66.7	66.7	70.1
Model Chi-squared	23.876 (.005)	15.871 (.014)	30.028 (.003)	13.313 (.038)

Note: Significance in parentheses.
Original number of cases: 213
YENPOWER: The power of the yen against the dollar.
LOGSALMO: Sales of the parent company.
EXPRATIO: Export revenue/sales.
MANAGER: Nationality of the subsidiary's' manager (Japanese=1; not Japanese=0).
SAMECOUN: Experience in the host country.
RELASIZE: Relative size: subsidiary/parent.
FRANCE, GERMANY and UK: dummy variables used to capture the effect of these countries on the entry mode.
INDUSTRY: Entry into resource-based industry (Resource-based=1; otherwise=0).
COMMON: Sameness of products between parent and subsidiary.
ENTRYMOD: Type of ownership.

some specific hypotheses were not supported. The tables show the values of the coefficients and the level of significance. In addition, the number of cases correctly predicted by the model, the respective percentage of the total and the values of the likelihood function are reported as well.

The tables report the results for the full and the reduced sample. The models have a high overall explanatory power, for example, in the original model (model 1), a chi-square of 23.876 (p=0.005).

Analyzing the results of the original model.

With the exception of LOGSALMO and SAMECOUN, significant variables have the predicted signs. The coefficient of SAMECOUN, our measure of the experience, is positive but only weakly significant. Joint ventures are therefore desired when the Japanese firm already has experience in the same country.

LOGSALMO is significant at 0.10 level, but entering with a positive sign, suggesting that Japanese investors tend to prefer joint ventures to wholly ownership when the size of the parent company is large. This contradicts hypothesis 4 which conjectured that when the size of the parent company is big, full ownership will be preferred to joint venture.

As predicted by Hypothesis 7, the coefficient of MANAGER, our measure of endowment in human resources, is negative and significant. Full ownership is therefore preferd when the top manager of the subsidiary is Japanese.

The coefficient of the EXPRATIO, of the RELASIZE and the YENPOWER are insignificant, suggesting that investor's experience of the foreign

Table 3 : The results of the binomial logistic regression: joint venture versus wholly owned subsidiary (cut off 80%)

Name	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Intercept	−3.870 (.004)	−3.750 (.002)	−3.055 (.077)	−3.344 (.022)
YENPOWER	−0.353 (.442)	−0.254 (.558)	−0.374 (.420)	−0.865 (.143)
LOGSALMO	0.968 (.018)	0.893 (.022)	0.912 (.027)	0.862 (.067)
EXPRATION	0.953 (.391)	0.557 (.599)	1.134 (.317)	−0.313 (.814)
MANAGER	−0.938 (.047)	−1.091 (.015)	−0.986 (.042)	−1.281 (.032)
SAMECOUN	0.319 (.523)	0.218 (.643)	0.435 (.400)	0.552 (.371)
RELASIZE	6.082 (.032)	5.269 (.049)	5.644 (.047)	3.881 (.186)
FRANCE	0.513 (.451)		0.539 (.456)	
GERMANY	−1.282 (.098)		−1.311 (.093)	
UK	−0.694 (.221)		−0.726 (.212)	
INDUSTRY			0.018 (.983)	
COMMON			−0.671 (.373)	
ENTRYMOD			−0.474 (.459)	
Actual number of cases	129	129	129	87
Proportion of correct classifications	75.2	76.0	71.3	77.0
Model Chi-squared	22.426 (.008)	16.397 (.012)	23.812 (.022)	13.848 (.031)

Note: Significance in parentheses.
Original number of cases: 213
YENPOWER: The power of the yen against the dollar.
LOGSALMO: Sales of the parent company.
EXPRATIO: Export revenue/sales.
MANAGER: Nationality of the subsidiary's' manager (Japanese=1; not Japanese=0).
SAMECOUN: Experience in the host country.
RELASIZE: Relative size: subsidiary/parent.
FRANCE, GERMANY and UK: dummy variables used to capture the effect of these countries on the entry mode.
INDUSTRY: Entry into resource-based industry (Resource-based=1; otherwise=0).
COMMON: Sameness of products between parent and subsidiary.
ENTRYMOD: Type of ownership.

markets, the size of the subsidiary and the stronger the value of the Yen relative to the US Dollar does not increase the probability that the Japanese entrant will opt for a joint venture, as we suggested in hypothesis 1, 6, and 5.

Regarding the size, and the GDP of host country markets, and for the country dummy, only GERMANY was significant. It has the sign predicted by the hypothesis 8, suggesting that a high control mode is more likely when Japanese invest in Germany.

In the models 2 and 3, the main effect variables show similar results to those in the original model (model 1). LOGSALMO, MANAGER, SAMECOUN and GERMANY (in the model 3) are significant and have the same signs as in mode 1.

The new added product differentiation variable COMMON is significant and has the predicted negative sign. This means that when the parent also produced one of the products manufactured by the subsidiary, the Japanese investors will prefer wholly ownership entry mode. As predicted in hypothesis 3, full ownership will be preferred to joint venture when the Japanese investor is in the same industry as the planned subsidiary. Adding the variable INDUSTRY, changed nothing from the previous result, and the coefficient of INDUSTRY is insignificant. This means that the type of industry does not effect the decision of the entry mode of the Japanese investors in Europe.

The variable ENTRYMOD is not significant. We expected this variable to be insignificant. If the coefficient of this independent variable was significant, this suggests that Japanese subsidiaries created

Table 4 : The results of the binomial logistic regression: joint venture versus wholly owned subsidiary (cut off 51%)

Name	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Intercept	−4.146 (.005)	−3.769 (.006)	−2.883 (.125)	−2.651 (.082)
YENPOWER	−0.186 (.709)	−0.109 (.816)	−0.192 (.703)	−0.572 (.348)
LOGSALMO	1.012 (.025)	0.904 (.036)	0.934 (.040)	0.632 (.197)
EXPRATIO	0.393 (.750)	0.109 (.925)	0.664 (.596)	−0.842 (.557)
MANAGER	−1.553 (.003)	−1.709 (.001)	−1.602 (.003)	−1.605 (.010)
SAMECOUN	0.442 (.418)	0.342 (.506)	0.534 (.343)	0.648 (.325)
RELASIZE	5.411 (.073)	4.502 (.112)	5.048 (.098)	3.630 (.223)
FRANCE	0.817 (.251)		0.942 (.211)	
GERMANY	−0.858 (.287)		−0.851 (.294)	
UK	−0.578 (.364)		−0.569 (.385)	
INDUSTRY			−0.479 (.581)	
COMMON			−0.624 (.455)	
ENTRYMOD			−0.617 (.388)	
Actual number of cases	129	129	129	87
Proportion of correct classifications	79.79.1	76.0	79.8	78.2
Model Chi-squared	24.797 (.003)	19.927 (.003)	26.361 (.010)	13.451 (.036)

Note: Significance in parentheses.
Original number of cases: 213
YENPOWER: The power of the yen against the dollar.
LOGSALMO: Sales of the parent company.
EXPRATIO: Export revenue/sales.
MANAGER: Nationality of the subsidiary's' manager (Japanese=1; not Japanese=0).
SAMECOUN: Experience in the host country.
RELASIZE: Relative size: subsidiary/parent.
FRANCE, GERMANY and UK: dummy variables used to capture the effect of these countries on the entry mode.
INDUSTRY: Entry into resource-based industry (Resource-based=1; otherwise=0).
COMMON: Sameness of products between parent and subsidiary.
ENTRYMOD: Type of ownership.

through acquisitions tend to be shared-equity ventures. But it is not the case in our sample.

Changes appear in the reduced sample (model 4). The variable SAMECOUN is no longer significant and the variable MANAGER is weakly significant at 0.10 level. This can mean that when the Japanese decide to enter the three more advanced countries in Europe, their experience in these countries and the nationality of the manager has no effect on their choice of the entry mode.

Following a method used by some other authors, we developed, for this sample, different degrees of ownership of the Japanese parent company in the foreign investment. We regressed the dependent variable on the full set of exogenous variables where the cut off is 80% and 51%. Generally speaking, the coefficients of the explanatory variables maintain their signs. Nevertheless, some interesting aspects do emerge.

COMMON and GERMANY lose their previous strong significance and are no more significant at 51%. (COMMON is not significant at 80% too). MANAGER remains significant in both 80% and 51%, and it gains a strong significance at 0.01 level in 51%.

The same thing for the independent variable LOGSALMO. It remains positively significant and gains a strong significance at 0.05 in both 80% and 51%, while it was at 0.1 level in 95%.

The significance of RELASIZE rises in both models at 80% and 51%. The positive significance of RELASIZE suggests that the Japanese prefer joint ventures to wholly ownership when the size of the subsidiary is relatively large. This confirms our

hypothesis 5 which predicted that with higher costs and as the investment size increases, multinationals are more likely to choose shared control modes such as joint ventures.

In particular, it is worth noticing the non-significance of SAMECOUN, our measure of the experience, in both 80% and 51%. Having experience in the same country does not increase the probability that the Japanese entrant will opt for a joint venture, as conjectured in hypothesis 6. It probably depends on the foreign investments undertaken by the Japanese firms that have a very high control on the European subsidiary (more than 95%).

DISCUSSION

In this paper, we developed and tested a model of diversification mode choice (how firms decide between joint ventures and wholly owned ventures), which includes resource-based industry, product differentiation, and transaction cost variables. Using a sample of 213 Japanese firms (in mining and manufacturing industries over the period 1992－2000) entering Western Europe, our results show the model correctly predicts over 70.5% of the mode choices[5]. Thus, we provide strong initial evidence to support using resource-based industry, product differentiation and transaction cost variables to predict firms' choices between joint ventures and wholly owned subsidiaries in international expansions.

The variable related to the endowment in human resources confirms the hypothesis 7 that a manager's nationality influences the propensity of a firm to go abroad through wholly owned initiatives rather than joint ventures. The coefficient of MANAGER is negative as expected and is significant in all three degrees of ownership ("cut offs").

When nationality and cultural group assume a crucial role, when they are good determinants of many common managerial problems related to human resource management and when the competitive success of the firm depends on the capability of the company to manage them, wholly own subsidiaries represents the best solution.

Conversely, very large and highly internationalized firms show a propensity towards collaborative ventures. Although previous empirical results have been conflicting, there is some support for the position that organizations that are large, face more turbulent environments, and have a higher mass output orientation tend to be more decentralized. (Mutelli and Piscitello, 1998).

Results show also that the proxies of the different aspects of the firm's experience in managing foreign operations due to previous FDI undertaken in the same country (SAMECOUN) positively influence the propensity to use a joint venture for the foreign subsidiary at "cut off 95%".

Likewise, RELASIZE has a positive impact on the dependent variable but the influence is only for "cut off 80%" and "cut off 51%". The positive impact of RELASIZE is consistent with problems, which could arise in case of full control when there are differences in the relative size of the target firm with respect to the parent company. The higher level of capital intensity of a foreign expansion demands greater resource commitment. As the investment size increases, multinationals are more likely to choose a shared control mode such as a joint venture. When the parent company is diversifying trough a FDI, uncertainty and information costs may be higher, so that less-control ownership modes should be preferred. That is shown by the negative sign of the variable COMMON. As conjectured in hypothesis 3, wholly ownership will be preferred to joint venture when the Japanese investor is in the same industry as the planned subsidiary. COMMON, the product differentiation variable and SAMECOUN, our measure of the experience, are no more significant in both 80% and 51%. Having experience in the same country does not increase the probability that the Japanese entrant will opt for a joint venture, as conjectured in hypothesis 6. It probably depends on the foreign investments undertaken by the Japanese firms that have a very high control on the European subsidiary (more than 95%). Likewise, the fact that the affiliate produces a product also manufactured by the parent, does not seem to affect the parent's choice between wholly owned subsidiaries and joint ventures when the degree of ownership is lower than

5) The original model (model 1, cut off 95%)

95%. (80% and 51%)

The proxy of traditional resource-based industries INDUSTRY, the international experience variable EXPRATIO and the variable indicating if the Yen, in the year of entry was strong or weak, compared to the US Dollar YENPOWER have no impact on the dependent variable. ENTRYMOD is insignificant suggesting that whether entry was undertaken through greenfield or through acquisitions does not affect the level of equity taken by the Japanese investors in their European affiliates. (ENTRYMOD is insignificant in all runs).

The objective of using a reduced sample was to investigate further the influence of the host countries on the choice of the entry mode. In fact changes appear in this reduced sample (model 4).

The variable SAMECOUN is no longer significant and the variable MANAGER is weakly significant at 0.10 level. This can mean that when the Japanese decide to enter the three more advanced countries in Europe, their experience in these countries and the nationality of the manager has no effect on their choice of the entry mode. The same for the relative size (in cut off 80% and 51%) is no longer significant in model 4 when we do the regression only for Japanese FDI in the 3 countries with the highest GDP in Europe (UK, France and Germany). We can conclude that some host country influence may act as a modifying or moderating variable in the diversification mode choice. The host country GDP (level of economy and power of the market) has a significant influence on mode choice. In the 3 more advanced economies in Europe, and when the Japanese choose a high degree of ownership (more than 95%), what influences the entry mode choice is the size of the parent company. When the degree of ownership is less high but not too low (more than 80% in our case), both the size of the parent company and the socio-cultural distance variable are important in the choice of the entry mode. But when the degree of ownership is a little bit low (more than 51% in our case), the size of the parent company is no longer important in the choice of the entry mode but the socio-cultural distance variable becomes very important.

CONCLUSION

In conclusion, our results provide initial support for using a model which includes institutional and cultural variables, as well as transaction cost variables to predict firms' choices between joint venture and wholly owned subsidiaries in international expansions. Our findings also suggest that some host country influence may act as a modifying or moderating variable in the diversification mode choice. For example, we found that host country levels of economy (power of the market) affected transaction costs and had a significant influence on mode choice. We also found that firms with high level of multinational experience prefer joint venture to greenfield investment, thus we provide an empirical support for previous studies (Mansour and Hoshino, 2002).

Our result is in contradiction with the previous studies perspectives (Mutelli and Piscitello, 1998; Mansour and Hoshino, 2002) that the probability of undertaking a wholly owned subsidiary increases when the firm has a larger size.

The main findings of this paper can be summarized as follows.

The greater the Japanese firm's investment in Europe the more likely it will choose joint ventures over wholly owned subsidiaries.

Likewise, very large, and highly internationalized firms show a propensity toward joint ventures.

We also found that the probability of undertaking a wholly owned subsidiary increases when the parent company has the same product as the established subsidiary and when the manager in Europe is Japanese.

Nevertheless, this study also has limitations. The empirical study was conducted using the samples of Japanese subsidiaries in the European Union only. This restricted the study to the behavior of one-nationality parents in one host market. Future studies may be able to conduct more extensive tests with the samples including multiple-nationality parents in one host country or one-nationality parents in several host countries.

Another limitation stems from the manufacturing emphasis of this study. The investigation of other sectors (service sectors, for example) remains to be

undertaken to test the generalizability of our findings.

And finally other studies could use a firms' direct response rather than secondary data as input in conducting a relatively large-scale empirical investigation of this topic.

Although this study has its limitations, it has clearly provided a theoretical and practical insight into the factors affecting the entry mode. Other studies could use our research as a basis to extend work in this area toward a better understanding of how managers make entry mode decisions.

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REFERENCES

Agarwal, S. 1994, "Socio-cultural distance and the choice of joint ventures: a contingency perspective", *Journal of International Marketing*, 2(2), pp.63-80.

Agarwal, S. and Ramaswami, S.N. 1992. "Choice of foreign market entry mode: impact of ownership location and internalization factors", *Journal of International Business Studies*, 23(1), pp.1-27.

Andersen, O. 1997 "Internationalization and market entry mode: A review of theories and conceptual frameworks", *Management International Review*, Special issue (2), pp. 27-42.

Barkema, H. G. and F. Vermeulen 1998, "International expansion through start-up or acquisition: A learning perspective", *Academy of Management Journal*, 41(1), pp. 7-26.

Beechler, Schon L and Allan Brid 1999, *"Japanese Multinationals Abroad"*, Oxford University Press.

Brouthers K.D. and L.E. Brouthers 2000, "Acquisition or Greenfield Start-up- Institutional, Cultural and Transaction Cost Influences", *Strategic Management Journal*, 21(1): pp.89-97.

Buckley, P. J. and Casson, M. 1996, "An economic model of international joint venture strategy", *Journal of International Business Studies*, Special Issue, pp. 849-876.

Hennart, J.F. 1988, "A transaction costs theory of equity joint ventures", *Strategic Management Journal*, 9(4), pp. 361-374.

Hennart, J.F. and S. Reddy 1997, "The choice between mergers/acquisitions and joint ventures: The case of Japanese investors in the United States", *Strategic Management Journal*, 18(1), pp. 1-12.

Hennart, J.F. and Y.R. Park 1993, "Greenfield vs. acquisition: The strategy of Japanese investors in the United States", *Management Science*, 39, pp. 1054-1070.

Japan Company Handbook, Toyo Keizei Shinposha, Tokyo, 1998.

JETRO 1996, "The 12th Survey of European Operations of Japanese Companies in the Manufacturing Sector", Tokyo, Japan.

JETRO 1998, "The 14th Survey of European Operations of Japanese Companies in the Manufacturing Sector", Tokyo, Japan.

JETRO 2000 and 2001, "White paper on foreign direct investment".

Johanson, J. and Vahlne, J-E, 1977, "the Internationalization of the Firm - A Model of Knowledge Development and Increasing Foreign Market Commitment", *Journal of International Business Studies*, 8, pp. 23-32.

Kogut, B. and H. Singh 1988, "The effect of national culture on the choice of entry mode", *Journal of International Business Studies*, 19, pp. 411-432.

Kogut, B. and S. J. Chang 1991, "Technological capabilities and Japanese foreign direct investment in the United States", *Review of Economics and Statistics*, 73, pp. 401-413.

La SA Le Monde, "Bilan du Monde", edition 2001 et 2002.

Li, J. 1995, "Foreign entry and survival: Effects of strategic choice on performance in international markets", *Strategic Management Journal*, 16(5), pp. 333-351.

Li, J., Guisinger, S., 1991, "Comparative business failures of foreign-controlled firms in the United States", *Journal of International Business Studies*, 22, pp.209-224.

Lu, J.W. 2002, "Intra- and Inter-organisational imita-

tive behaviour: Institutional Influences on Japanese firms entry mode choice", *Journal of International Business Studies*, 33(1), pp.19-37.

Mahoney, J.T. and Pandian, J.R. 1992, "The resource-based view within the conversation of strategic management", *Strategic Management Journal*, 13 (5), pp. 363-380.

Mansour, M. and Hoshino, Y. 2001, "Firm-specific factors, shareholding structure and corporate performance of the Japanese manufacturing investments in Europe". *Japanese Journal of Administrative Science*, 14(3), pp. 117-127.

Mansour, M. and Hoshino, Y. 2002, "Entry mode Choice of the Japanese MNEs in Europe: Impact of Firm and Industrial Factors". *Japanese Journal of Administrative Science*, 15(3), pp. 231-247.

Mutelli, M. and Piscitello, L, 1998, "The entry mode choice of MNEs: an evolutionary approach". *Research Policy*, 27, pp. 491-506.

Nitsch, D. Beamish, P.W., Makino, S., 1996, "Entry Mode and performance of Japanese FDI in Western Europe", *Management International Review*, 36, pp.27-43.

Oliver, C. 1997, "Sustainable competitive advantage: Combining institutional and resource-based views", *Strategic Management Journal*, 18(9), pp. 697-713.

Pan Y. and D.K. Tse. 2000, "The Hierarchical Model of Entry Modes", *Journal of International Business Studies*, 31(4), pp. 535-554.

Reed, R. and R.J. DeFillippi 1990, "Causal Ambiguity, Barrier to Imitation, and Sustainable Competitive Advantage", *Academy of Management Review*, 15, pp. 88-102.

Schaefer, Axel O 2002, "Market Entry and Organizational Form", For the Seminar: "Theories and Concepts of Internationalization and FDI" Summer Term 2002, Faculty of Economics, *Professorship for Organization and International Management*, The University of Paderborn.

Segalla, Michael 2001, "Overview: Understanding Values and Expectations of Foreign Employees Creates a Better Company", *European Management Journal* Vol. 19, (1), pp. 27-31.

Siripaisalpipat, Pimonwan and Yasuo Hoshino, 1999, "Firm-specific advantages, entry modes, and performance of Japanese FDI in Thailand", *Japan and the World Economy*, 12 (2000), pp. 33-48

Toyo Keizai Inc., 1992-2001, "Kaigai Shinshutsu Kigyo Souran (Japanese Overseas Investments)", Listed by Countries, Toyo Keizai Inc., Tokyo. (In Japanese).

Toyo Keizai Inc., 1992-2001, "Kaigai Shinshutsu Kigyo Souran (Japanese Overseas Investments)", Listed by Firms, Toyo Keizai Inc., Tokyo. (In Japanese).

Zeira Y. and Newburry W. 1999, "Equity International Joint Ventures and International Acquisitions: Generic Differences in the Pre- and Post-Incorporation Stages", *Management International Review*, 39 (4), pp. 323-352.

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Appendix　List of 213 Japanese subsidiaries in the European Union

Activa Technology Ltd.	DIC Berlin GmbH R & D Laboratory	Grangemouth Chp Ltd.
Aida Bliss(Europe)Ltd.	DoCoMo Europe S.A.	Graphite Technologies Ireland Ltd.
Aisan.Vitron.Europe Corp.	DuPont Teijin Films Luxembourg S.A.	Heat Tech Induction A.B.
Aisin Europe Mfg.(UK)Ltd.	DuPont Teijin Films Netherlands B.V.	Heian Europe SRL
AIWA Wales Manufacturing Ltd.	DuPont Teijin Films U.K.Ltd.	HIRATA Corp.of Europe Ltd.
Akebono Arras S.A.	DuPont-Kansai Automotive Coatings (UK)Ltd.	HIRATA Robotics GmbH
Akzo Nobel Nippon Paint Espana S.A.	Eagle-Witzenmann S.A.S.	Hitachi Automotive Products Europe, Ltd.
Akzo Nobel Nippon Paint GmbH.	Eisai B.V.	Hitachi Home Electronics (Europe) Ltd.
Akzo Nobel Nippon Paint S.A.	EOX PaAX I.S.L.	Hitachi Koki Europe Ltd.
Akzo Nobel Nippon Paint SRL	Europtics Ltd.	Hitachi Seiki Deutschland GmbH
Alps Electric Technology Center (UK)Ltd.	Eval Europe N.V.	Hochiki Europe(U.K.)Ltd.
Anritsu Devices A.B.	exgil	Horiba Europe Automation Division GmbH
Asahi Denka Europe Gmbh	F2 Chemicals Ltd.	Hoshizaki Europe Ltd.
Asahi Glass Fluoropolymers U.K., Ltd.	FCC(Europe)Ltd.	Hoya Lens France S.A.
Asahi-Merckle Pharma GmbH	Federal-Mogul Daido HWB Co.,Ltd.	Hunting Oilfield Services(UK)Ltd.
Atunes de Levante,S.A.	Federal-Mogul TP Sunderland Ltd.	IAI Industrieroboter GmbH
BJKC-Europe S.A.	FM Technologies S.A.	IHI Europe Ltd.
Calsonic Sung Jin B.V.	Fromagerie Lorraine de Vezelise S.A.	IHI Turbo Italy S.p.A.
Canon Software Europa B.V.	Fuji Electric France S.A.	Image Polymers Europe(UK)
Chiyoda Deutschland GmbH	Fuji Electric(Scotland)Ltd.	Iris Ohyama Europe B.V.
Chugai Pharma Europe Ltd.	Fuji GE Drives	Isuzu Motors Europe Ltd.
Climatizadores Calsonic S.A.	Fujisawa SRL	Italpet Preforme S.p.A.
Contec Microelectronics Europe B.V.	Fujitsu Computers(Europe)Ltd.	ITOCHU Stahl Service GmbH
D.I.C.Graphics Ltd.	Fujitsu Siemens Computers (Holding) B.V.	JEM Europe Ltd.
Dainippon Screen Engineering of Europe Co.,Ltd.	Furukawa Baumaschinen Vertriebs GmbH	JEM France SARL
Dalphi Plast Ltd.	GC Europe S.A.	JIDECO-4e
Delphi Calsonic Compressors S.A.S.	Glaverbel Italy SRL	JSP International SARL
DENSO MANUFACTURING UK LTD.	GR Advanced Materials Ltd.	JVC Mfg.France S.A.

Kajima Design Europe Ltd.	Mitsubishi Electric Information Technology Eu.	Panasonic European Laboratories GmbH
Kansei UK Ltd.	Mitsubishi Motors R&D of Europe GmbH	Panasonic Trade Support Center (Europe)GmbH
Kao Chemicals Europe,S.L.	Mitsui Advanced Media S.A.	Parker Industries of Europe N.V.
Kawashima Italia SRL	Mitsui Gas Development Qatar B.V.	Phoenix Overseas Ltd.
Kayaba Arvin S.A.	Mitsui Kur Dashi Exploration B.V.	Piolax Ltd.
KDDI Deutschland GmbH	MQL International B.V.	Pioneer Technology Portugal S.A.
KDDI France S.A.S.	Musashi Auto Parts Europe Ltd.	Pochet Inoac
Kikkoman Foods Europe B.V.	Nichirin U.K.Ltd.	Press & Plat N.V.
Kissei Pharma Europe Ltd.	Nikon Optical U.K.Ltd.	Productos Quimicos del Mediterraneo, S.A.
Kisuma Chemicals B.V.	Nippon Electric Glass(UK)Ltd.	ROHM LSI Systems (France) S.A.S.
Kobelco Welding of Europe B.V.	Nippon Oil Exploration & Production U.K.Ltd.	R-Tek Ltd.
Kokuyo Europe GmbH	Nippon Oil Exploration & Production (MF) Ltd.	Ryobi Aluminium Casting (UK), Ltd.
Komatsu Mining Germany GmbH	Nippon Shokubai Europe N.V.	Sanko Gosei Nederland B.V.
Komatsu Utility Europe S.p.A.	Nippon Silica Glass Europe Ltd.	Sanyo Shokai Milano S.p.A.
Koyo Steering Dijon Saint Etiehne S.A.S.	Nissan Forklift Espana,S.A.	Sekisui S-Lec B.V.
Kuritec Europe GmbH	Nissin Showa UK Ltd.	Shin-Etsu PVC B.V.
Kuwayama Europe N.V.	No Cliche S.A.	Shionogi Qualicaps,S.A.
KVC UK Ltd.	NP Automotive Coatings (Europe) Ltd.	SHOTIC EUROPA-Industria de Aluminio Lda.
Makita Hellas S.A.	NTN Transmissions Europe	Silicon Sensing Systems Ltd.
Matsushita Electronics (Europe) GmbH	Obara Europe Ltd.	Societe Nouvelle de Transmissions
Matsushita Industrial Equipment Co.,(U.K.)Ltd.	Ogihara Europe Ltd.	Sony Chemicals Europe B.V.
Matsuura Machinery PLC	Olympus Software (Europe) GmbH	STADCO Takao Europe Ltd.
MC Infonics Ireland Ltd.	OMRON Fabrikautomation GmbH	Star Micronics Manufacturing Deutschland GmbH
Mec Europe N.V.	Ono Pharma UK Ltd.	Stirchley Technical Services Ltd.
Meiden Europe Ltd.	Onward Italia S.p.A.	Sud ISK-Snpe S.A.
Messer Nippon Sanso GmbH & Co.K.G.	Organo Toveko A.B.	Sumiden Automotive Technologies, GmbH
Mitsubishi Caterpillar Forklift Europe B.V.	Organo(UK)Ltd.	Sumika Color Europe GmbH
Mitsubishi Electric Air Conditioning SystemsEu.	Oshino Manufacturing(U.K.)Ltd.	Sumitomo Chemical Belgium S.A.N.V.
Mitsubishi Electric Automotive Europe B.V.	Oyo Center of Applied Geosciences B.V.	Sumitomo Pharmaceuticals UK Ltd.

Sumitomo (SHI) Cyclo Drive (Europe) Ltd.	Toho Sakata Europe GmbH	Uchiyama Portugal Vedantes,Ltda.
Taikisha Espana S.A.	TOK ITALIA S.p.A.	Uni.Charm Molnycke Baby B.V.
Takasago Europe GmbH	Tokai Carbon Italia SRL	Uni.Charm Molnycke Inco B.V.
Takeda Europe Research & Development Cent.	Tokai Vesta Hispania S.A.	Uni-Charm Molnlycke B.V.
Takihyo Italia S.p.A.	Tomen Foods UK Ltd.	Unipart Yachiyo Technology Ltd.
TD Deutsche Klimakompressor GmbH	Tomen Power Corp.(UK)Ltd.	Unipart Yanagawa Engineering
Tech Works(Ireland)Ltd.	Tomoe Tritec Ltd.	Uniparts Yutaka System's Ltd.
Tenax Fibers GmbH & Co.K.G.	Toyoda Gosei UK Ltd.	Vamo-Fuji N.V.
The Inx Group(U.K.)Ltd.	Toyoda TRW Steering Pumps Ltd.	Yakult Deutschland GmbH
Thermofil Polimeri(Italia)SRL	Toyota Motor Manufacturing France S.A.S.	Yakult Nederland B.V.
THK Manufacturing of Europe S.A.S.	Toyota Motorsport GmbH	Yamada Europe Co.,Ltd.
Three Bond U.K.Ltd.	Toyota Tsusho Ingredients (U.K.) Ltd.	Yamazaki Baking(U.K.)Ltd.
TMI Europe S.p.A.	TRB Ltd.	Yanmar Cagiva S.p.A.
TNS Spinnerei GmbH	TS Tech UK Ltd.	Zenrin Europe B.V.

Notes

A.B	Aktiebolaget	Sweden
B.V	Besloten Vennootschap	Holland
Co.	Company	English
GmbH	Gesellschaft mit beschrankter Haftung	Germany
Ltd.	Limited	English
Ltda.	Limitada	Spain
N.V.	Naamloze Vennotschap	Holland
PLC	Public Limited Company	UK
S.A.	Sociedad Anonima	Spain
S.A.	Societe Anonyme	France
S.p.A	Societa per Azioni	Italy
SRL	Societa a Responsabilita Limita	Italy

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Research Note

Measurement of Consumer's Attitude towards Brands of Color Television (CTV) in Bangladesh: An Empirical Study

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The core of the present study is to examine the attitude of consumers towards the brand of Color Television (CTV) in Bangladesh based on the Mertin Fishbein's Multiattribute Attitude Model. Some important attributes that affect the brand's choice behavior of CTV have identified where consumers give special emphasis. Total 8 brands out of 24 and ten attributes out of 29 have been taken for the convenience of the study. It reveals from the study that Samsung bears highest and National bears lowest brand image among the selected brands to the consumers. Means differences of different attributes for different brands are measured through ANOVA for test of significance. The Duncan's Multiple Range Test has been applied for assessing and comparing different mean values and find out the range from one to another. Outcomes of the paper may be used as an index by the CTV manufacturing companies for improvement of their product and formulating marketing strategies as well.

Introduction

Attitude is one of the pervasive notions in all of Marketing (Gillbert 1995). The brand attitude of the consumers of a product depends on benefit expected from the concerned product and how will the product delivering the benefit (Mia, 1999). Brand benefits are the foundation of brand image. Chiranjeeb (1997) claimed that brand name itself is the foundation of brand image. Attitudes directly affect purchases decisions and these decisions, in turn directly affect attitudes through experience for using selected products and services. In a broad sense purchase decisions are based on almost solely upon attitude existing at the time of purchase. However these attitudes might have been formed (James, 1967).

Television has become a part of the social fabric in the 20th country (Herbert, 1972). All most all spare of civilized life are influenced one way or other ways by the television (Sandage, 1963). Consumer's purchase decisions for television are always influenced by a numbers of factors, which lead them to select a particular brand preference to other (Kamal, 1992).

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At present many brands of CTV are using in Bangladesh as a medium of entertainment. Individual buyer considers some important attributes of concern brand when he / she takes buying decisions. Brand attitude is directly related to currently held relevant motivation (Mia, 1999). In fact consumers can express their attachment and loyal to a brand through variety of thought and behaviors in a variety settings (Albert, 2001). Consumers avoid those brands, which are not attributed as expected by them. Loyal users of a given brand may be driven as an important component of measuring the brand and their sense of self from their perception of competing brands and may express their brand loyalty by playful opposing those competing brands (Mia, 1999).

For the purpose of the study that consumers attitudes towards the CTV brands in Bangladesh has been measured for eight well-known brands among twenty-four brands, which are found through open questionnaire (See Table I in Appendix) based on ten attributes out of twenty-nine (See Table II in Appendix). Attributes are also called the benefits of products. (Rossister, 1987). Benefits are the surface means used in advertisement and promotion offer to connect the brand with a motivation and thus influence brand attitude. Consumer's purchase decisions

for CTV are always influenced by a numbers of attributes that lead them to select a particular brand in preference to other available brands in the market. The present study focuses on consumer's attitudes towards brand of CTV in Bangladesh based on Mertin Fishbein's Multiattribute Attitude Model.

The Context of the Study

Nowadays television is very necessary products for our every day life. Consumers mainly purchase this product for their entertainment. CTV provides natural sight for which consumers always firstly try buy the product based on a lot of attributes. The main attributes that have been considered for the study are; Good Sound System, Fine Picture, Remote Control, Good Model, Good Numbers of Channels, Color Sharpness, Reasonable Price, Guaranty / Warranty, Flat Screen and Easy to Use. Familiar brands; Sony, Singer, Philips, Samsung, L.G., Mitsubishi, National and Toshiba are considered for each attribute. But these attributes do not bear equally in all brands, which are friendly using by consumers in Bangladesh. The attitude of a customer towards of a brand is very important to the manufacturing companies and advertisement agencies for their total marketing strategy. Therefore, the consumer brand choice on the basis of brand attitude towards a specific brand of CTV depends on the product's relevant benefits provided by the manufacturing companies. Perceived ability as the brand is to provide the benefits to the consumers as well as for the uniformity of attributes of own the products.

Objective of the Study

The overall objective of the study is to measure consumer's attitude towards brand of CTV in Bangladesh on the basis of Mertin Fishbein's Multiattribute Attitude Model by taking some widely acceptable attributes. The specific objectives are;

1. To identify the popular CTV brands and attributes of concern brands which lead the benefits of its' to the consumers.
2. To examine the overall evaluation and salient belief of customers towards CTV brand which are popular in Bangladesh based on considerable attributes.
3. To identify the position of different CTV brands that are most widely used in Bangladesh based on Fishbein's Multiattribute Attitude Model.
4. To provide the guideline to the CTV manufacturing companies for highlighting different attributes those are liked by Bangladeshi consumers and for their marketing strategies.

Methodology of the Study

The core of the present study is to identify the attributes of CTV that affect the brand choice behavior and to find out why consumers give special emphasis to a particular brand based on different attributes. The study has examined the consumers' attitude towards brand of CTV in Bangladesh. It includes sample, sample size, sample selection procedures, data analysis etc. that are given in detail below;

Sample Brands and Attributes

A number of brands of CTV are presently available in Bangladesh (See Table I in Appendix). Out of these brands Sony, Singer, Philips, Samsung, L.G, National, Mitsubishi and Toshiba have regular demand, supply and sales. The respondents have cited about twenty- nine attributes (See Table II in Appendix). But only ten attributes, Good Sound System, Fine Picture, Remote Control, Good Model, Good Numbers of Channel, Color Sharpness, Reasonable Price, Guaranty Warranty, Flat Screen, and Easy to Use have been taken into consideration for the study. It is evident from the consumers' opinion that most of the cases mentioned brands and attributes are considered for buying decision process. Thus these brands and attributes (up to 20% and above) have been selected for the convenience of the study.

Sample Respondents

Student sample has been used in this study. There are many arguments in favor and against the convenience sample of students. (Beltramini 1983 and Oakes 1972) these scholars have been generally cited threats to external validity as their primary concern, arguing that students are atypical of the "general population" and that any findings based on students samples may therefore not be generalized to other population. However some scholars disagree on this issue arguing that this situation is particularly desirable when researcher are engaged in theory testing (Chowdhury, 2002). (Oakes, 1972) contends

that such arguments are specious because regardless of what population is sampled, generalization can be made only with caution to other populations. Therefore data have been collected only from the students of Marketing Department of University of Rajshahi, Bangladesh.

Sample Size

Since the population size is large enough the sample size should have been 384 (Kotheri, 1986). But for maintaining the consistency the sample size has been reduced into 376 for eight brands, 47 for each containing ten attributes (See Table Ⅲ in Appendix).

Data Collection Method and Proccdurcs

All data have been collected from BBA and MBA students of different years of Marketing Department of University of Rajshahi, Bangladesh for maintaining the uniqueness. A set of pre tested structured questionnaires have been used bearing 47 for each brand for the purpose of the study. The data has been collected from the respondents in the classroom with prior permission of the instructors. In the surface page of the questionnaire it was well described that the purpose of the study was to measure the consumers attitude towards brands of CTV in Bangladesh. After the surface of the questionnaire the respondents were asked to turn the page including information regarding the attributes of individual CTV brand that is usually using in Bangladesh. To measure the overall evaluation (ei) regarding the selected attributes for the specific brand a seven points Stapel Scale ranging from Extremely Good to Extremely Bad (+3 to −3) was used and asked to circle the point to express their opinion. The respondents were also asked through seven points Likert Scale ranging from Very Strongly Believe to Very Strongly Disbelieve (7 to 1) to know how strongly they believe (bi) that the individual brand contains the said attributes.

There were eight sets of questionnaire for eight different brands containing 47 questionnaires for each brand based on ten attributes corresponding to each of the ten attributes in measuring overall evaluation and their strength of salient belief for individual attribute. This was done for satisfying requirements of Fishbein's Multiattribute Attitude Model. ANOVA was conducted for measuring whether these means differences are statistical significant or not. Duncan's Multiple Range Test was also conducted for comparing the means differences for different brands based on different attributes.

Brand Attitude Measurement Procedures

As stated earlier that brands of CTV would have measured based on the overall evaluation of the benefits of different attributes. Some scholars used benefit composition model (Tucker 1960, Wilker and Edger 1773, Mayer 1968). Mertin Fishbein's Multiattribute Attitude Model has been used for the study that the evaluation of salient beliefs causes overall attitude. As for the model people tend to like objects that are associated with the good characteristics and dislike objects that they believe have bad attributes. In Fisbein'd Model focused on overall attitude towards an object function of two factors; the strength of the salient belief associate with the object and evaluation of those beliefs (Fishbein's 1963). It has been expressed as;

$\mathbf{Ao} = \sum_{i=1}^{n} biei$ where

Ao = Attitude towards the Objects

bi = The strength of the belief that the object has attribute (i)

ei = The evaluation of attribute (i)

n = The Number of the salient attributes (Engel, Roger, Paul 1990)

Design for the Study

To measure the attitude of customers towards CTV brands those are widely using in Bangladesh $\mathbf{Ao} = \sum_{i=1}^{n} biei$ model has been used. Selected eight brands and ten attributes are briefly indicated; X_{SA} = Samsung, X_N = National, X_S = Sony, X_T = Toshiba, X_L = L.G, X_P = Philips, X_M = Mitsubishi and X_{SI} = Singer. 1= Good Sound System, 2= Fine Picture, 3= Remote Control, 4= Good Model, 5= Good Numbers of Channels, 6= Color Sharpness, 7= Reasonable Price, 8= Guaranty / Warranty, 9= Flat Screen and 10= Easy to Use. Research question of all attributes of different brands for hypothesis

Table 1 Hypotheses for Different Attributes

Attributes	Null hypotheses (H_o)	Alternative Hypotheses (H_a)
Good Sound System (GSS)	$\overline{X}_{1j} = 0$	$\overline{X}_{1j} \neq 0$
Flat Screen (F. S)	$\overline{X}_{2j} = 0$	$\overline{X}_{2j} \neq 0$
Remote Control (R. C)	$\overline{X}_{3j} = 0$	$\overline{X}_{3j} \neq 0$
Good Model (G. M)	$\overline{X}_{4j} = 0$	$\overline{X}_{4j} \neq 0$
Good No. of Channel (G. N. C)	$\overline{X}_{5j} = 0$	$\overline{X}_{5j} \neq 0$
Color Sharpness (C. S)	$\overline{X}_{6j} = 0$	$\overline{X}_{6j} \neq 0$
Reasonable Price (R. P)	$\overline{X}_{7j} = 0$	$\overline{X}_{7j} \neq 0$
Guaranty/Warranty (G. W)	$\overline{X}_{8j} = 0$	$\overline{X}_{8j} \neq 0$
Flat Screen (F. S)	$\overline{X}_{9j} = 0$	$\overline{X}_{9j} \neq 0$
Easy to Use (E. U)	$\overline{X}_{10j} = 0$	$\overline{X}_{10j} \neq 0$

J = All Brands

testing for satisfying the requirement of ANOVA can draw as follows;

Are there any significant differences among the mean values of different brands for different attributes? The hypothesis may be, there are no significant differences among the mean values of different brands of CTV for a specific attribute (like Good Sound System) i.e. $X_{SA} = X_N = X_S = X_T = X_L = X_P = X_M = X_{SI}$. Alternatively can be said that there are significant differences among the mean values of all brands for different attributes i.e. $X_{SA} \neq X_N \neq X_S \neq X_T \neq X_L \neq X_P \neq X_M \neq X_{SI}$. Table 1 shows symbolic hypotheses for all attributes of all brands indicating H_o = Null Hypotheses and H_a Alternative Hypotheses.

Analysis Procedures

The collected data has been analyzed using Excel and SPSS (Statistical Package for Social Science) software. The analyses have been done in the light of the analysis procedures used by Fishsbein's for measuring attitude of consumers towards objects. ANOVA and Duncan's Multiple Range Test wae performed using SPSS software.

Findings of the Study

Strength of belief (bi) is the perceived probability of association between an object and its relevant attribute. Strength of belief is measured by having consumer rate this probability of association for each of their salient belief (See Table Ⅳ in Appendix). This belief associated with belief evaluation (ei) that reflects how favorably consumers perceived the attributes (See Table Ⅳ in Appendix). It is clear from the table that attitude of different models on the basis of Fishbein's model are;

Attitude for X_S **Ao** $= \sum_{i=1}^{n} biei$, i. e. 68.98,
Attitude for X_{SI} **Ao** $= \sum_{i=1}^{n} biei$, i. e. 52.78
Attitude for X_P **Ao** $= \sum_{i=1}^{n} biei$, i. e. 55.48,
Attitude for X_{SA} **Ao** $= \sum_{i=1}^{n} biei$, i. e. 72.59
Attitude for X_L **Ao** $= \sum_{i=1}^{n} biei$, i. e. 66.18,
Attitude for X_M **Ao** $= \sum_{i=1}^{n} biei$, i. e. 60.65
Attitude for X_N **Ao** $= \sum_{i=1}^{n} biei$, i. e. 46.12,
Attitude for X_T **Ao** $= \sum_{i=1}^{n} biei$, i. e. 49.79

Findings involving brands attitude suggest that brand X_{SA} is viewed top most favorable position because it has received total (biei) 72.59 on all desired attributes. X_S bears second topmost position among the brands by samples. Like these X_L, X_M, X_P, X_{SI}, X_T and X_N bearing positions respectively based on overall attitude towards object. Indeed brand X_S attains maximum rating on X_2, X_3, X_4, X_6, X_8, X_9 and X_{10}. Brand X_{SA} maximum rating on X_1, X_2, X_3, X_4 and X_9. Like these brand X_{SI} has X_3, X_8 and X_{10}. Brand X_P has X_2 & X_3; brand X_L has X_2, X_3, X_4, X_5 and X_{10}. Brand X_M has X_3, X_4, X_5, X_6 and X_{10}. Brand X_N has only X_{10} but no rating for X_T like other brands.

As a result of theme, marketers want consumers to perceive their brand possessing desirable attributes not possessing undesirable attributes (Engel, 1990). In this position generally brand X_S producer should give the emphasis to improve attributes X_7, X_9 and X_{10}. Brand X_{SI} producer should

give the emphasis to improve the attributes X_1, X_2, X_4, X_5, X_6, X_7 and X_9. Like these brand X_P producer should emphasis on X_1, X_6, X_7, X_9 and X_{10}, brand X_L producer should X_1, X_6, X_7, X_8, X_9, brand X_M producer X_1, X_2, X_7, X_8 and X_9, brand X_N producer should provide emphasis on all attributes except X_3, X_7 and X_{10}. Finally brand X_T producer should also provide emphasis on all attributes for continuing business along with other brands.

From the Fishbein's Model it can be said that overall position of consumers attitude towards the individual brand based on different attributes. But cannot say whether each attribute is statistically significant for all brands. Therefore, for overcoming this limitation ANOVA has been followed for different attributes in Table 2.

From Table 2 it is clear that for attribute X_1 of all brands p = 0.00 which is p<.05, where $\overline{X}_{ij} = 0$ is rejected and $\overline{X}_{1j} \neq 0$ is accepted, therefore, it is statistically significant and conclude that there are significant differences among the mean values of different brands for attribute X_1. Like this for attribute X_2 of all brands p =.001, X_4, p =.002, X_6, p=.011, X_7, p=.000, X_8, p=.002, X_9, p=.000 and X_{10}, p=.012 which all are p<.05. It can conclude from this standpoint that all null hypotheses of all brands for concern attributes are rejected; therefore these tests are statistically significant and can conclude that there are significant means

Table 2 Test Result of Consumers Opinion (One Way ANOVA)

		Sum of Squares	df	Mean Square	F	Sig.
Good Sound System	Between Groups	46.511	7	6.644	4.006	.000
	Within Groups	610.298	368	1.658		
	Total	656.809	375			
Fine Picture	Between Groups	35.436	7	5.062	2.662	.011
	Within Groups	699.702	368	1.901		
	Total	735.138	375			
Remote Control	Between Groups	14.423	7	2.060	1.141	.337
	Within Groups	664.809	368	1.807		
	Total	679.231	375			
Good Model	Between Groups	46.202	7	6.600	3.373	.002
	Within Groups	720.170	368	1.957		
	Total	766.372	375			
Good No. of Channel	Between Groups	8.827	7	1.261	.695	.677
	Within Groups	668.170	368	1.816		
	Total	676.997	375			
Color Sharpness	Between Groups	31.402	7	4.486	2.643	.011
	Within Groups	624.681	368	1.698		
	Total	656.082	375			
Reasonable Price	Between Groups	81.606	7	11.658	4.457	.000
	Within Groups	962.638	368	2.616		
	Total	1,044.245	375			
Guaranty/Warranty	Between Groups	46.189	7	6.598	3.257	.002
	Within Groups	745.574	368	2.026		
	Total	791.763	375			
Flast Screen	Between Groups	69.997	7	10.000	4.475	.000
	Within Groups	822.340	368	2.235		
	Total	892.338	375			
Easy to Use	Between Groups	34.128	7	4.875	2.620	.012
	Within Groups	684.723	368	1.861		
	Total	718.851	375			

differences for the mentioned attributes of the brands. But for the attributes X_3 and X_5, it is clear that p=.337 and .677 respectively which indicate that p>0.05. S_0 Ha, is accepted i. e, there are no statistically significant differences among the means values of different brand for attributes X_3 and X_5 for all brands.

From the ANOVA it can be drawn the conclusion that consumers bother all attributes individually for each brand except X_3 and X_5. Therefore, manufacturers of each brand should deeply consider rest attributes for development of their products as consumers' expectation.

Duncan's Multiple Range Test

From the ANOVA it can only say means differences are significantly different or not but cannot compare for saying how much each means are different from one another. Duncan's Multiple Range Test tells us which means rating are significantly different for CTV brands based on different attributes. According to the test, means in same column are not considered as significantly different but means are in different columns are considered significantly different. On the basis of this test it can be concluded the following decisions for each attribute of all brands in Table 3.

From the Table 3 it is clear that the means differences of brands X_P is significant but for the rest brands there are no significant differences for the attribute X_1. In this circumstance the concern brand manufacturer should take initiative to improve its sound system in comparison of the competitors brands.

Table 3 Consumers' Beliefs Regarding the Attribute 'Good Sound System'

Duncan

Brand Name	N	Subset for alpha = .05		
		1	2	3
National	47	4.4468		
Toshiba	47	4.5319		
Singer	47	4.5745		
Mitsubishi	47	4.7234		
L. G	47	4.8298	4.8298	
Philip	47	4.9789	4.9787	4.9787
Samsung	47		5.3617	5.3617
Sony	47			5.4468
Sig.		.080	.057	.096

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 4 Consumers' Beliefs Regarding the Attribute 'Fine Picture'

Duncan

Brand Name	N	Subset for alpha = .05		
		1	2	3
Singer	47	4.4681		
National	47	4.7234	4.7234	
Toshiba	47	4.7234	4.7234	
Mitsubishi	47	4.9362	4.9362	4.9362
Philip	47	5.0000	5.0000	5.0000
L. G	47	5.0638	5.0638	5.0638
Samsung	47		5.1489	5.1489
Sony	47			5.5532
Sig.		.66	.197	.052

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

From Table 4 it is clear that there are absolute significant mean differences of brands X_M, X_P and X_L for attribute X_2 but no differences for brands X_{SI} and X_S. In this situation there is a lot of scope for manufacturers of these brands to improve the attribute fine picture as their product quality strategy.

Table 5 Consumers' Beliefs Regarding the Attribute 'Good Sound System'

Duncan

Brand Name	N	Subset for alpha = .05
		1
Toshiba	47	4.872
National	47	5.021
Philip	47	5.043
Singer	47	5.191
Mitsubishi	47	5.298
L. G	47	5.340
Sony	47	5.404
Samsung	47	5.468
Sig.		.067

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

From Table 5, it is clear that for attribute X_3, there is no significant difference for mean values of different brands for the attributes. It means for X_3, all brands bear same importance to the customers. In this case the producers should monitor their competitors very intensively to observe the activities and should take the necessary marketing actions.

From Table 6 it is clear that there are significant means differences for X_4 in brands X_T and X_P, rest attributes are same. There fore X_T and X_P producers should emphasis on these attributes for improving the product quality which consumers desired.

Table 7 Consumers' Beliefs Regarding the Attribute 'Good No. of Channel'

Duncan

Brand Name	N	Subset for alpha = .05
		1
Sony	47	4.8298
Toshiba	47	4.8298
Samsung	47	4.9362
Singer	47	4.9362
National	47	4.9574
Philip	47	5.0000
L. G	47	5.2340
Mitsubishi	47	5.2553
Sig.		.200

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

From Table 7, it is clear that for attribute X_5, there are no significant differences of mean values of different brands for the attribute. It means X_5 of all brands have same importance to the customers. In this case intellectual manufacturers have scope to add extra quality for improving attributes, which may differ from other competitors.

From Table 8 it is clear that there are no differences of all mean values for X_6 for all brands except X_{SA} and X_M. Therefore, these brands manufacturers

Table 6 Consumers' Beliefs Regarding the Attribute 'Good Model'

Duncan

Brand Name	N	Subset for alpha = .05	
		1	2
Singer	47	4.3404	
National	47	4.4468	
Toshiba	47	4.6809	4.6809
Philip	47	4.7447	4.7447
Mitsubishi	47		5.1064
Samsung	47		5.1277
Sony	47		5.2553
L. G	47		5.3191
Sig.		.206	.051

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 8 Consumers' Beliefs Regarding the Attribute 'Color Sharpness'

Duncan

Brand Name	N	Subset for alpha = .05	
		1	2
Singer	47	4.5106	
Toshiba	47	4.5532	
Philip	47	4.7447	
National	47	4.8085	
L. G	47	4.8085	
Samsung	47	4.9149	4.9149
Mitsubishi	47	5.1064	5.1064
Sony	47		5.4681
Sig.		.055	.050

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 9 Consumers' Beliefs Regarding the Attribute 'Reasonbe Price'

Duncan

Brand Name	N	Subset for alpha = .05			
		1	2	3	4
Sony	47	3.7021			
Mitsubishi	47	3.9362	3.9362		
Toshiba	47	4.0426	4.0426		
Philip	47	4.1489	4.1489	4.1489	
Samsung	47	4.4255	4.4255	4.4255	
L. G	47		4.5745	4.5745	4.5745
Singer	47			4.8085	4.8085
National	47				5.2128
Sig.		.052	.089	.070	.070

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 10 Consumers' Beliefs Regarding the Attribute 'Guarantv/Warrantv'

Duncan

Brand Name	N	Subset for alpha = .05		
		1	2	3
Toshiba	47	4.0851		
L. G	47	4.4894	4.4894	
National	47		4.8085	4.8085
Samsung	47		4.8723	4.8723
Mitsubishi	47		4.9574	4.9574
Sony	47		5.0851	5.0851
Singer	47		5.0851	5.0851
Philip	47			5.2340
Sig.		.169	.076	.212

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 11 Consumers' Beliefs Regarding the Attribute 'Flat Screen'

Duncan

Brand Name	N	Subset for alpha = .05			
		1	2	3	4
National	47	4.1277			
Singer	47	4.5319	4.5319		
Philip	47	4.5745	4.5745	4.5745	
Toshiba	47	4.6809	4.6809	4.6809	
L. G	47		4.8511	4.8511	
Mitsubishi	47		4.8936	4.8936	
Sony	47			5.2340	5.2340
Samsung	47				5.6383
Sig.		.102	.305	.055	.190

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

Table 12 Consumers' Beliefs Regarding the Attribute 'Easy to Use'

Duncan

Brand Name	N	Subset for alpha = .05	
		1	2
Toshiba	47	4.7660	
Philip	47	4.8936	
Samsung	47	4.9574	
L. G	47	5.0213	
Singer	47	5.0213	
Mitsubishi	47	5.1277	
Sony	47	5.3617	5.3617
National	47		5.7872
Sig.		.067	.130

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Salple Size=47.000.

should give highly emphasis to improve color sharpness for proper marketing strategy.

From Table 9 it is clear that there are significant means differences for attribute X_7 of brands X_{SA}, X_P and X_L. Besides significant differences are noticed for X_M, X_T and X_{SI} for each that of others except brands X_S and X_N. In this position manufactures of these brands should provide the emphasis to develop the attribute X_7.

According to Table 10 there are significant mean differences for attribute X_8 of all brands except brands X_T and X_P. So, it is very essential for manufacturers of these bands to provide high concentration to develop the concern attributes as early as possible.

According to Table 11, there is significant mean difference for the attribute X_9 for the brands of X_T and X_P, which indicate the producer of these brands should emphasis to improve the quality of products. But there are no differences for the rest of the brands X_N and X_{SA}.

As per Table 12 there is only significant mean difference for attribute X_{10} of brand X_S but no differences for the rest of the brands. Therefore, it is very essential for producer of this brand to improve the concern attribute up to consumer satisfaction level.

These mean differences of almost all brands for different attributes confirm that the validity of the items has been distinguished among the level of different perceived value.

Conclusion

The study has been concluded for measuring

consumers' attitudes towards selected brands of CTV those being used in Bangladesh on the basis of Fishbein's Multiattribute Attitude Model. This model has been applied for eight CTV brands that are very popular in Bangladesh based on ten attributes for each. The analysis has provided a clear picture of the brand benefits to the customers and relatively importance of the benefits. Among the eight brands Samsung has been found to have highest attitude of consumers. Sony is the second most popular brand and the National lowest popular brand for CTV in Bangladesh as per the opinions of the respondents. The study has identified whether mean differences are statistically significant or not through ANOAV for different attributes among the said brands. It is found that out of ten attributes there are mean differences for eight attributes, which is very important for the concern producers. The Duncan's Multiple Range Test has provided a clear picture where the means differences are significant or not. It confirms the convergent validity of the items that have distinguished among the different levels of consumer perceived value. Manufacturers of CTV should understand and provide proper emphasis on the different attributes that influence the consumer's attitudes for buying behavior. The attributes that are affecting the brand of CTV in Bangladesh revealed in the study should be given due consideration by the respective producers. The findings of the study may be used as an index for an improvement of their product quality for wide acceptance and formulating marketing strategies accordingly.

Limitations and Further Rcscarch

This study shows the students respondents from the Department of Marketing, the University of Rajshahi, Bangladesh, think regarding the CTV brands and its attributes familiar to them. These students cannot represent the general buyers who have more diverse interests and experiences, which can affect their CTV usage. Furthermore, the subjects probably have different CTV usage patterns. So, their interest in CTV buying may differ from the students. As most of the time students are living different dormitories where CTV is available and have free access so, their behavior may be somewhat different from those of others. A study of a representative sample of general home CTV users can vary the findings of this study that are applicable to the general people. This is especially important for CTV manufacturers who need to determine whether the brands and attributes of CTV shown in this study are limited to this population. Besides, in this study those attributes are considered for measuring brands attitudes individually of each brand, which have ten or more strength of belief (bi) that always may not true. Further, research may be conducted to assess the executives' perceptions of different brands benefits and risks of each feature of CTV. As because of wide used of CTV in Bangladesh, it might be an effective avenue for the producers of CTV to measure the attitude of consumers. Without measuring actual perception of consumers on different attributes of CTV that are usually considered by consumers may affect CTV brands in the country. As most of the time CTV viewing is a habitual behavior, effects of enhanced CTV attributes may be cumulative and requires a longitudinal tracking to understand the relationship between CTV producers and the users. Maximizing the benefits of the convergence CTV will continue to be a challenging task to the production managers, marketing mangers and as well as researchers.

References

Albert M. Muniz Jr & Lawrence O. Hamer (2001), Us Versus Them; Oppositional Brand Loyalty and the Cola Wars, *Advances in Consumer Research*, Vol. 28, 355-361.

Beltramini R. F (1983), Students Surrogates in Consumer Research, *Journal of the Academy ofMarketing Science*, Vol. 11, 438-443.

Chiranjeeb K. & Doglas W. L (1997), Observations: Creating Effective Brand Name: A Study of the Namaing Process, *Journal ofAdvertising Research*, Vol. 37 (1)

Chowdhury M. H. K. (2002), An Empirical Study on the Concept and Measurement of Perceived Sacrificed, *Yokohama Journal ofSocial Sciences*, Vol. 7, No.1, 15-24.

Engel F. James. Roger D. Blackwell, Paul W. Miniard

(1990), *Consumer Behavior,* Sixth Edition 310-315. The Dryden Press. A division of Holt, Rincart and Winston Inc.

Churchill Gilbert A. (1995), *Marketing Research: Methodological Foundations,* Sixth Edition The Dryden Press, Harcourt Brae College Publishers, 451.

James Myers and William H (1967), *Consume Behavior and Marketing Research,* 146.

Kamal M. Moinuddin (1992), Consumers Brands Choice Behavior for Television, *Dhaka Universio, Journal ofBusiness Studies,* Vol. 13 (1), 27-44.

Kugman, Herbert E. (1972), The Impact of Television Advertising Agencies: Learning Without Involvement, *Behavioral Science Foundations of Consumer Behaviors,* 306 Cohen Joel B (Cited)

Maertin Fishbein (1963), An investigation of the Relationship between Beliefs about an Object and the Attitude towards that Object, *Human Relations,* August 16, 233-240

Mia M. Abdul Hannan (1999), Measurement of Brand Attitudes of Brands Loyals of Detergent Powders and their Advertising Implication, *Dhaka University Journal of Business Studies,* Vol.20 (2), 265-292.

Oakes, W. (1972), External Validity and the Use of Real People as Subjects, *Americal Psychologist,* Vol. 27, 959-962.

Rossister J. Peryl, (1987), *Advertising and Promotional Management,* Mc. Grow Hill Book. Company

Sandage, C. H and Fryburget, Vermon (1963), *Advertising Theory and Practice,* Sixth Edition, Richard D. Irwinlnc Homewood; Illinois Pp. 469.

Tucker L. R (1960), Intra-individual and Inter-individual Multi-dimensionally, In H. Gulliksen and S. Messick (eds), *Psychological Scaling, Theory andApplications,* New York

Wilker W.L and Pessimier E.A (1973), Issues in Marketing use of Multiattitude Model, *Journal of Market Research,* 428 to 441.

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APPENDIX

Table I

Consumer Opinions Regarding Different Models of CTV that are Usually Used in Bangladdsh

Brands	Total Respondents	Actual Response	Percentage of Response
Sony	64	64	100
Singer	64	42	65.63
Philips	64	37	57.81
Samsung	64	33	51.56
LG..	64	31	48.44
Mitsubishi	64	25	39.06
National	64	24	37.50
Toshiba	64	15	23.44
Nippon	64	9	14.06
Panasonic	64	8	12.50
Rangs	64	8	12.50
Butterfly	64	9	9.38
Tannin	64	5	7.81
Konica	64	3	4.69
BPL	64	2	3.13
Citizen	64	2	3.13
Nikon	64	1	1.56
Daewoo	64	1	1.56
Lemo	64	1	1.56
Gruendic	64	1	1.56
Vedeocon	64	1	1.56
Sharp	64	1	1.56
Royal	64	1	1.56
Aiwa	64	1	1.56

Table II

Consumer Opinions Regarding Different Attributes that Should Contain in a CTV

Features	Total Respondents	Actual Response	Percentage of Response
Good Sound System	64	58	90.63
Fine Picture	64	44	68.75
Remote control	64	27	42.19
Good model	64	21	32.81
Good No. of channels	64	18	28.13
Color Sharpness	64	17	26.56
Reasonable price	64	15	23.44
Guarantee/Warranty	64	15	23.44
Flat Screen	64	14	21.88
Easy to use	64	13	20.31
Brightness	64	6	9.38
Auto voltage stabilizing	64	6	9.38
Ray protection Glass	64	6	9.38
3D Picture	64	5	7.81
Video connection	64	4	6.25
Good Quality	64	4	6.25
Auto movement	64	5	7.81
Long Durable	64	5	7.81
Looking System	64	3	4.69
Easy control	64	3	4.69
Timer	64	2	3.13
AC DC System	64	2	3.13
Multi screen facility	64	2	3.13
Head phone	64	2	3.13
Attractive power	64	1	1.56
Video Game	64	1	1.56
External facility	64	1	1.56
Auto stop	64	1	1.56
Golden Eye	64	1	1.56

Table Ⅲ

Overall Opinions of Consumers Regarding Different Attributes for Different Models of CTV

		N	Mean	Std. Dev			N	Mean	Std. Dev
Good Sound System	National	47	4.4468	1.4417	Color Sharpness	National	47	4.8085	1.4240
	Sony	47	5.4468	1.2821		Sony	47	5.4681	1.1582
	Toshiba	47	4.5319	1.4722		Toshiba	47	4.5532	1.2821
	L.G	47	4.8298	1.3881		L.G	47	4.8085	1.3616
	Singer	47	4.5745	1.0372		Singer	47	4.5106	1.3000
	Philip	47	4.9787	1.2067		Philip	47	4.7447	1.3905
	Mitsubishi	47	4.7234	1.4401		Mitsubishi	47	5.1064	1.2021
	Total	376	4.8617	1.3234		Total	376	4.8644	1.3227
Fine Picture	Samsung	47	5.1489	1.3510	Reasonable Price	Samsung	47	4.4255	1.5428
	National	47	4.7234	1.4250		National	47	5.2128	1.6803
	Sony	47	5.5532	1.0996		Sony	47	3.7021	1.6140
	Toshiba	47	4.7234	1.6772		Toshiba	47	4.0426	1.6413
	L.G	47	5.0638	1.4656		L.G	47	4.5745	1.5707
	Singer	47	4.4681	1.2997		Singer	47	4.8085	1.5692
	Philip	47	5.0000	1.3988		Philip	47	4.1489	1.6416
	Mitsubishi	47	4.9362	1.2407		Mitsubishi	47	3.9362	1.6734
	Total	376	4.9521	1.4001		Total	376	4.3564	1.6687
Remote Control	Samsung	47	5.468	1.365	Guaranty/ Warranty	Samsung	47	4.8723	1.2268
	National	47	5.021	1.406		National	47	4.8085	1.6634
	Sony	47	5.404	1.296		Sony	47	5.0851	1.3486
	Toshiba	47	4.872	1.498		Toshiba	47	4.0851	1.3224
	L.G	47	5.340	1.372		L.G	47	4.4894	1.3331
	Singer	47	5.191	1.245		Singer	47	5.0851	1.6263
	Philip	47	5.043	1.160		Philip	47	5.2340	1.4021
	Mitsubishi	47	5.298	1.382		Mitsubishi	47	4.9574	1.3981
	Total	376	5.205	1.346		Total	376	4.8271	1.4531
Good Model	Samsung	47	5.1277	1.2958	Flat Screen	Samsung	47	5.6383	1.3093
	National	47	4.4468	1.6525		National	47	4.1277	1.6761
	Sony	47	5.2553	1.1319		Sony	47	5.2340	1.3547
	Toshiba	47	4.6809	1.4004		Toshiba	47	4.6809	1.5195
	L.G	47	5.3191	1.3205		L.G	47	4.8511	1.3984
	Singer	47	4.3404	1.4637		Singer	47	4.5319	1.5301
	Philip	47	4.7447	1.4060		Philip	47	4.5745	1.5845
	Mitsubishi	47	5.1064	1.4631		Mitsubishi	47	4.8936	1.5497
	Total	376	4.8777	1.4296		Total	376	4.8165	1.5426
Good Number of Channels	Samsung	47	4.9362	1.4356	Easy to Use	Samsung	47	4.9574	1.2151
	National	47	4.9574	1.4738		National	47	5.7872	.9986
	Sony	47	4.8298	1.5082		Sony	47	5.3617	1.3898
	Toshiba	47	4.8298	1.2908		Toshiba	47	4.7660	1.6180
	L.G	47	5.2340	1.1649		L.G	47	5.0213	1.4816
	Singer	47	4.9362	1.2922		Singer	47	5.0213	1.2936
	Philip	47	5.0000	1.4142		Philip	47	4.8936	1.6449
	Mitsubishi	47	5.2553	1.1510		Mitsubishi	47	5.1277	1.1348
	Total	376	4.9973	1.3436		Total	376	5.1170	1.3845

Table IV

Consumers' Overall Evaluations (ei) and Strength of Belief (bi) for Different Brands Based on Different Attributes

Attributes	Sony			Singer			Philips			Samsung			L.G			Mitsubishi			National			Toshiba		
	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi	ei	bi	eibi
Good Sound System	2.06	5.45	11.23	1.34	4.57	6.124	1.49	4.98	7.42	1.81	5.36	9.7	1.6	4.83	7.728	1.66	4.72	7.835	1.21	4.45	5.385	1.55	4.53	7.022
Fine Picture	2.19	5.55	12.15	1.11	4.47	4.962	1.43	5	7.15	1.66	5.15	8.55	1.57	5.06	7.944	1.7	4.94	8.398	1.21	4.72	5.711	1.45	4.72	6.844
Remote control	1.36	5.4	7.344	1.15	5.19	5.969	1.45	5.04	7.308	1.26	5.47	6.89	1.74	5.34	9.292	1.51	5.3	8.003	0.96	5.02	4.819	1.26	4.87	6.136
Good model	1.09	5.26	5.733	0.85	4.34	3.689	1	4.74	4.74	1.7	5.13	8.72	0.94	5.32	5.001	1.43	5.11	7.307	0.13	4.45	0.579	1.11	4.68	5.195
Good No. of channel	1.06	4.83	5.12	1.45	4.94	7.163	1.51	5	7.55	1.47	4.94	7.26	1.66	5.23	8.682	1.43	5.26	7.522	0.81	4.96	4.018	1.26	4.83	6.086
Color Sharpness	1.66	5.47	9.08	0.62	4.51	2.796	0.96	4.74	4.55	1.19	4.91	5.84	1.06	4.81	5.099	1	5.11	5.11	0.91	4.81	4.377	0.96	4.55	4.368
Reasonable price	−0.4	3.7	−1.59	0.91	4.81	4.377	0.26	4.15	1.079	0.74	4.43	3.28	0.68	4.57	3.108	0	3.94	0	0.91	5.21	4.741	0.3	4.04	1.212
Guarantee/ Warranty	0.94	5.09	4.785	1.11	5.09	5.65	1.17	5.23	6.119	1.38	4.87	6.72	1.23	4.49	5.523	0.96	4.96	4.762	0.7	4.81	3.367	0.68	4.09	2.781
Flat Screen	1.15	5.23	6.015	1.38	4.53	6.251	0.68	4.57	3.108	1.89	5.64	10.7	1.17	4.85	5.675	1.23	4.89	6.015	0.64	4.13	2.643	1.21	4.68	5.663
Easy to use	1.7	5.36	9.112	1.15	5.02	5.773	1.32	4.89	6.455	1	4.96	4.96	1.62	5.02	8.132	1.11	5.13	5.694	1.81	5.79	10.48	0.94	4.77	4.484
	Ao=68.98			Ao=52.75			Ao=55.48			Ao=72.6			Ao=66.18			Ao=60.65			Ao=46.12			Ao=49.79		