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STICKY SELLING, GENERAL, AND ADMINISTRATIVE COST BEHAVIOR AND ITS CHANGES IN JAPAN

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ABSTRACT

This study examines whether Japanese firms' selling, general, and administrative costs are sticky. We also investigate the determinants of cost stickiness in Japan and test whether Japanese managers changed their cost behavior after the stock market collapse in 1990. We find that similar to US firms, Japanese firms also demonstrate sticky selling, general, and administrative cost behavior; however, the stickiness of selling, general, and administrative costs in Japan is less likely to be adjusted due to temporary changes in their performance. We also find that there is a significant decrease in the magnitude of stickiness in Japan after the asset bubble burst, showing that Japanese managers adjusted their cost behavior in the post-bubble era.

JEL: M40

KEYWORDS: Cost behavior, Japanese firms

INTRODUCTION

The traditional cost behavior hypothesis assumes that costs are proportional to activity levels; costs are described as fixed or variable relating to changes in activity volume and the relationship between costs and volume is symmetric for volume decreases and for volume increases (Noreen, 1991). However, using a US sample of firms, recent studies have found that selling, general, and administrative (SG&A) costs are sticky. In other words, the magnitude of changes in SG&A costs when revenues increase is higher than the magnitude when revenues decrease (Anderson, et al, 2003).

The phenomenon of sticky costs is consistent with the argument that managers tend to deliberately adjust resources in response to changes in volume. When sales decrease, managers may purposely postpone reductions to committed resources until they are more certain about the permanence of a decline in demand. They also tend to maintain unutilized resources to avoid personal consequences of expenditure reduction. In addition, there may be a time lag between the decision to reduce committed resources and the realization of the cost reduction (Anderson, et al, 2003).

In this study, we first examine whether Japanese firms have similar sticky cost behavior to their U.S. counterparts. By investigating whether costs change at the same rate when activity rises versus when they decrease, we are able to measure the stickiness of SG&A costs for Japanese firms. Secondly, we investigate the determinants of cost stickiness in Japan. Finally, we test whether Japanese managers changed their sticky cost behavior after the stock market collapse in 1990.

It is important to study the cost behavior of Japanese firms for a number of reasons. First, the Japanese capital market is important to understand since Japan is the second largest economy. To correctly understand the cost behavior of firms on this market can help investors interpret the financial reports and forecast their operating and stock performance accurately. Second, our results can be seen as an extension of US studies. If we fail to document the sticky cost behavior of Japanese firms, the generalization of US findings will be doubtful. Third, by documenting the distinct characteristics of sticky cost behavior of Japanese firms, we are adding value to the comparative studies of cost behavior

between US and Japan. Importantly, we also examine the change of Japanese managers' cost behavior after the bubble burst in 1990, therefore, adding value to the Japanese structural change literature.

We find that similar to US firms; Japanese firms also demonstrate sticky SG&A cost behavior. For our sample of firms between 1975 and 2000, SG&A costs increased on average 0.59% per 1% increase in sales but fell only 0.45% per 1% decrease in sales. We find that Japanese SG&A costs are less sticky when revenue also declined in the preceding period and SG&A costs are stickier if managers predict the revenue of next year will increase. We also find that the higher the economic growth and asset intensity of the firms, the stickier the SG&A costs. Most importantly, we document a significant decrease in the magnitude of stickiness in Japan after the asset bubble burst. In the pre-1991 period, the SG&A costs increased on average 0.58% per 1% increase in sales but fell 0.24% per 1% decrease in sales. However, in the post-bubble era, SG&A costs decreased 0.50% per 1% decrease in sales. SG&A costs are much less sticky in the post-bubble era, showing that Japanese managers adjusted their cost behavior after the bubble burst.

We also examine the SG&A cost behavior among different industries and find that all manufacturing, merchandising, and service firms demonstrate the cost stickiness. Interestingly, merchandising firms illustrate very strong stickiness before the asset bubble burst in 1990; after the bubble burst, service firms demonstrate more flexibility (less stickiness) in SG&A costs.

The rest of the paper is organized as follows. The next section reviews the background literature and discusses the hypotheses. The third section describes the sample and our research design. The empirical results are presented in the forth section. The final section concludes the study.

LITERATURE REVIEW AND HYPOTHESIS

Firms exhibit sticky selling, general, and administrative (SG&A) cost behavior because managers deliberately adjust the resources in response to changes in sales volume (Anderson, et al. 2003). Revenue increases usually result in cost increases. However, when revenues decrease, managers may be hesitant to reduce assets, numbers of employees or other SG&A costs. Two reasons can explain this managers' behavior. First, agency theory predicts that managers tend to make decisions in order to maximize their own interest rather than firms' interest (Jensen & Meckling, 1976). Thus, managers may want to retain these unutilized resources to avoid personal consequences due to downsizing.

Another reason for managers' reluctance to reduce the SG&A costs when firms face declining revenues is that managers are not sure about the future demands. Managers may retain excess capacity if they believe that the revenue reduction is temporary. They will purposely delay reductions to committed resources until it is evident that the decline is a permanent one.

Japanese corporate governance mechanisms are quite different from those in the US (Prowse, 1990, 1992). Agency problems are mitigated in Japanese firms. Japanese financial institutions hold significant debt and equity of firms and are therefore able to maintain effective control of the behavior of managers of these firms. In addition, for keiretsu-affiliated firms, managers' behaviors are monitored and influenced by the large shareholders of the keiretsu firms. Thus, these two mechanisms mitigate the agency problem for Japanese firms in comparison to their US counterparts and may therefore reduce the stickiness of SG&A costs.

On the other hand, it was said that Japanese managers tended to focus more on long-term measures, such as market share, rather than short-term measures (Porter, 1992). Temporary reductions in sales were less likely to influence their long-term goals. They might have ignored those revenue fluctuations as "noise", thus making the cost behavior stickier. In addition, lifetime employment is common and it is unusual in

Japan for firms to lay off employees (McAlinn, 1996). This distinct feature of Japan's labor market is likely to enhance the cost stickiness. Therefore, our first hypothesis is:
H1: the relative magnitude of an increase in SG&A costs when sales increase is greater than the relative magnitude of a decrease in SG&A costs when sales decrease.

There is lagged effect on cost stickiness. Managers facing revenue decreases may wait to make sure the downsizing will be permanent before making decisions to reduce committed resources. There is also a time lag required in order to dispose of excess capacity. The stickiness observed in one period may be counteracted by reductions to committed resources in subsequent periods (Anderson et al, 2003). Therefore, our second hypothesis is:

H2: Stickiness of SG&A costs in Japanese firms reverses in the subsequent periods.

Managers are likely to consider revenue declines as more permanent if the previous year's revenue also declined. The increased probability of a permanent decline may motivate managers to reduce committed resources, resulting in less cost stickiness. Therefore, we hypothesize that:

H3a: Japanese SG&A costs will be less sticky when revenue also declined in the preceding period.

Managers are more likely to hold excess capacity in economic growth periods. In addition, facing the shortage of labor in periods of economic growth, managers may become more hesitant to scale down labor resources when sale revenues are down temporarily. Therefore, we hypothesize H3b: Japanese SG&A costs will be more sticky, the higher the economic growth.

When firms rely more on assets to generate sale revenues, SG&A costs may become more sticky. Therefore, we hypothesis that:

H3c: Japanese SG&A costs will be more sticky, the higher the asset intensity of the firms.

When managers make the decision to release excess capacity, future revenue predictions is one of the important factors to be considered. When managers predict that next year's sales will increase, they may hold excess capacity even though the firm may suffer temporary declines, therefore making SG&A costs stickier. As a result, we hypothesize that:

H3d: Japanese SG&A costs will be more sticky if managers predict the revenue of next year will increase.

Japanese corporate governance is experiencing gradual institutional changes. More than ten years of recession has forced Japanese managers to change their decision making process. When revenues decreased in the early years of the recession, firms started to accumulate excess capacity because of managers' long-term focus and mutually supportive environment. When revenue increased, firms would use the excess capacity rather than obtain more resources. Therefore, the percentage increase of SG&A costs will become relatively lower for an increase in sales revenue.

On the other hand, as the recession continued, managers would be faced with the pressure to reduce this excess capacity; otherwise, the firms may not survive. In addition, driving down costs may also allow managers to lower sales price thus helping their firm increase market share for their products. Therefore, when revenues decrease, managers may no longer hold the excess capacity as before. The magnitude of decrease in SG&A costs will become larger when sales decrease. Consequently, the magnitude of the two changes would converge and reduce cost stickiness.

In 1992, the R&D expenditures of Japanese firms were significantly cut for the first time after continuous growth since the end of World War II (Nakai, 1994 and Swinbanks, 1994). Even in three prior recessions (1973-74, 1980-82, and 1985-86), Japanese firms had increased their R&D expenditures by 20 to 50 percent (Mande, 2000). The significant cut of R&D expenditures in 1992 implies that Japanese managers may start to change their cost behaviors after the bubble burst.

Flexibility is becoming one of the most important goals firms pursue in order to meet the intensive competitiveness of the business environment (Buckley and Casson, 1998). Using contingent workers and outsourcing are increasing firms' flexibility in meeting demand fluctuations and in controlling downsizing (Hansen and Mowen, 2003). Therefore, as firms use more contingent workers and conduct more and more outsourcing, stickiness of costs becomes less.

The mindset of top management has been changing. Before the bubble, financial institution had strong governance. However, skyrocketing share prices changed the condition drastically. Every company rushed to issue shares and brought down its debt ratio. For example, the debt ratio (defined as the percentage of debt with interest / (debt with interest + equity capital)) has decreased from 0.7173 in 1993 to 0.5230 in 2008 (calculated by Financial Statistics of Japan by MOF Policy Research Institute.). Thus, Japanese companies began to focus on short-term performance for many shareholders more than ever. In addition, mutual stockholding was dissolved gradually from the middle of the 1990s. After the bubble burst, Japanese companies' mentality and behavior became more similar to their U.S. counterparts. Sakurai (2009) shows that corporate strategies that place value on shareholders came in the 1990s. This change could be one of the main factors that led to the significant declines of the SG&cost stickiness in the post bubble era.

In addition, structural changes in the Japanese labor market might also influence the firms' cost stickiness behavior. After the bubble economy burst in 1990, a need to reduce personnel in order to maintain Japanese companies' global competitiveness became a clear issue. Most companies solved this problem by either transferring their redundant employees to affiliated companies or encouraged early retirement. The unemployment rate started increasing, especially among the middle aged and elderly groups, which signaled the collapse of the lifetime employment system (Watanabe and Sato, 2000, and McAlinn, 1996). Japanese managers started to find way to reduce excess personnel capacity. Therefore, our fourth hypothesis is:

H4: Japanese SG&A costs are less sticky in the post bubble years than prior years.

SAMPLES AND METHODOLOGY

The sample firms cover all the available Japanese industrial companies from the PACAP database from 1975 to 2000. The data items are annual data including sales (items name: INC1) and Selling & Administrative Expenses (SG&A) (items name: INC4). The data is deleted for missing observations of either SG&A costs or sales in the current and previous year and if SG&A costs are greater than sales. We also eliminate those extreme observations where the value of any variables is in the upper or lower 0.5% of its distribution (Chen and Dixon, 1972). The total number of remaining observations is 35,510 firm-years for 1802 firms.

Panel A of Table 1 describes the sample size, average revenue and SG&A costs, and the percentage of SG&A costs of revenue by years and Panel B of Table 1 describes those by industry. The mean value of revenue is 139,644 million yen and the mean value of SG&A costs is 19,320 million yen. The average percentage of SG&A costs of revenue is 16.29%.

Table 1: Summary of Japanese Firms' Annual Revenue and SG&A Costs from 1975 to 2000

Panel A: Sample Size and Average Revenue, SG&A Costs and Percentage By Calendar Year

Year	Sample Size	Revenue (million yen)	SG&A Costs (million yen)	Percentage of SG&A Costs of Revenue
1975	8	72,382	7,685	0.191
1976	1,145	90,573	9,842	0.1414
1977	1,210	99,067	10,649	0.138
1978	1,225	103,206	11,562	0.1401
1979	1,237	108,445	12,463	0.1396
1980	1,245	116,533	13,301	0.136
1981	1,264	131,209	14,349	0.1357
1982	1,305	138,505	15,517	0.1415
1983	1,335	136,436	15,985	0.1465
1984	1,357	136,821	16,470	0.1481
1985	1,385	141,147	16,946	0.1487
1986	1,379	138,233	16,977	0.1537
1987	1,307	127,002	17,464	0.1626
1988	1,303	139,817	19,003	0.1634
1989	1,425	144,610	20,112	0.1611
1990	1,473	149,904	21,821	0.1634
1991	1,509	159,616	23,193	0.1646
1992	1,564	159,747	23,728	0.1716
1993	1,605	158,588	24,403	0.181
1994	1,614	144,992	22,947	0.1864
1995	1,634	147,796	23,438	0.1853
1996	1,644	156,505	24,199	0.1834
1997	1,660	160,150	24,436	0.1805
1998	1,638	158,934	24,605	0.184
1999	1,602	147,449	23,768	0.1882
2000	1,437	148,196	22,967	0.1797
Total	35,510	139,644	19,320	0.1629

Panel B: Sample Size and Average Revenue, SG&A Costs and Percentage By Industry Classification

Industry classification	Sample Size	Revenue (million yen)	SG&A costs (million yen)	Percentage of SG&A costs of Revenue
Agriculture And Forestry	18	30,640	8,164	0.2641
Fishery	142	240,428	23,057	0.0895
Mining	199	95,460	6,864	0.1114
Construction	3,154	166,240	12,713	0.0815
Foods	2,050	131,107	28,044	0.2345
Textiles	1,533	82,388	14,185	0.1603
Pulp And Paper	645	114,044	15,082	0.1203
Chemicals	3,919	101,893	24,276	0.2413
Petroleum	265	709,627	50,034	0.0967
Rubber	397	96,500	18,460	0.1648
Glass And Ceramics	999	84,488	15,308	0.1766
Iron And Steel	1,042	233,623	23,066	0.1014
Nonferrous Metals	855	137,037	12,010	0.0947
Metal Products	962	53,440	7,777	0.1327
Machinery	3,050	55,966	8,778	0.1618
Electric Machinery	3,985	111,348	19,762	0.1731
Transportation Equipment	2,595	203,181	19,487	0.099
Precision Equipment	713	77,331	14,890	0.1814
Other Manufacturing	1,125	94,528	16,642	0.2112
Wholesale	2,079	281,724	13,104	0.0897
Retail	1,948	181,391	42,417	0.2793
Financial (Except Banks,Securities And Insurance)	317	156,078	40,814	0.3529
Real Estate	536	90,303	7,707	0.1126
Land Transportation	398	159,149	5,799	0.0519
Shipping	521	91,445	4,916	0.0773
Air Transportation	123	309,714	58,298	0.1732
Warehousing And Wharfing	410	36,628	2,919	0.0759
Electric Power And Gas	361	637,918	115,972	0.2545
Services	1,169	47,544	10,191	0.206
Total	35,510	139,644	19,320	0.1629

Panel A shows the sample size, average revenue, selling, general, and administrative costs (SG&A) and the percentage of SG&A costs of revenue by calendar year. Panel B shows the sample size, average revenue, selling, general, and administrative costs (SG&A) and the percentage of SG&A costs of revenue by industry classification.

Table 2 provides information about the frequency of firm-periods when revenue decreased and firm-periods when SG&A costs decreased. Revenue of 33.23% of the firm-periods in the sample and SG&A costs of 29.22% of the firm-periods decreased. The average revenue decrease is 7.41% and the average SG&A costs decrease is 6.07%.

Table 2: Periodic Fluctuations in Revenue and SG&A Costs from 1975 to 2000

	Percentage of firm-years with negative change from previous period	Mean percentage decrease across periods	Standard deviation of percentage decreases across periods	Min of percentage decrease across periods	Max of percentage decrease across periods
Sales revenue	33.23%	7.41%	6.47%	0.00%	33.49%
SG&A costs	29.22%	6.07%	5.41%	0.00%	29.99%

Note: This table shows the statistics of periodic fluctuations in revenue and selling, general, and administrative costs from 1975 to 2000.

We use the following model developed by Anderson et al. (2003) to examine cost stickiness. Decrease_Dummy takes the value of 1 when sales revenue decreases between period t-1 and t, and 0 otherwise. The coefficient β_1 measures the percentage change in SG&A costs with a 1% increase in sales revenue. The sum of the coefficients, $\beta_1 + \beta_2$ measures the percentage change in SG&A costs with a 1% decrease in sales revenue. If our first hypothesis is correct, β_1 should greater than zero and β_2 should significantly less than zero.

Model I:

$$\text{Log}\left[\text{SG\&A}_t / \text{SG\&A}_{t-1}\right] = \beta_0 + \beta_1 * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] + \beta_2 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] + \varepsilon_t \quad (1)$$

To test the second hypothesis, we add two more variables on the right hand side of the above equation to represent the lagged reversal of cost stickiness. The coefficient, β_4, measures the reversing effect of a revenue decrease in the preceding period on cost stickiness. We predict that β_4 is positive.

Model II :

$$\text{Log}\left[\text{SG\&A}_t / \text{SG\&A}_{t-1}\right] = \beta_0 + \beta_1 * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] + \beta_2 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] + \beta_3 * \text{Log}\left[\text{Sales}_{t-1} / \text{Sales}_{t-2}\right] + \beta_4 * \text{Decrease\_Dummy}_{t-1} * \text{Log}\left[\text{Sales}_{t-1} / \text{Sales}_{t-2}\right] + \varepsilon_t \quad (2)$$

To test the third and fourth hypothesis, we use the following model (Model III):

$$\begin{aligned}\text{Log}\left[\text{SG\&A}_t / \text{SG\&A}_{t-1}\right] &= \beta_0 + \beta_1 \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] + \\ &+\beta_2 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] \\ &+\beta_3 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] * \text{PostBubble\_ Dummy}_t \\ &+\beta_4 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] * \text{Decrease\_Dummy}_{t-1} \\ &+\beta_5 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] * \text{Growth}_t \\ &+\beta_6 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] * \text{Log}\left[\text{Assets}_t / \text{Sales}_t\right] \\ &+\beta_7 * \text{Decrease\_Dummy}_t * \text{Log}\left[\text{Sales}_t / \text{Sales}_{t-1}\right] * \text{Increase\_Dummy}_{t+1} + \varepsilon_t \end{aligned} \quad (3)$$

$\text{PostBubble\_Dummy}_t$ equals 1 in the observations from calendar year 1992 and later, 0 otherwise. $\text{Decrease\_Dummy}_{t-1}$ equals 1 if sales decreased from the preceding year, 0 otherwise. Growth is the percentage change in real Japanese GDP and $\text{Log}\left[\text{Assets}_t / \text{Sales}_t\right]$ is used to measure asset intensity. We assume that the actual direction of revenue change is highly correlated with that of the predicted change. Therefore, $\text{Increase\_Dummy}_{t+1}$ is equal to 1 if actual revenues increased, 0 otherwise. We hypothesize that β_3, β_4 are positive and β_5, β_6, β_7 are negative.

TESTS AND RESULTS

The results of estimating Model I are presented in Table 3. The estimated value of β_1= 0.5935 indicates that selling, general, and administrative (SG&A) costs increased 0.59% per 1% increase in sales. The β_2 (-0.1393) is significantly less than zero (t = -9.12), demonstrating that similar to US firms, Japanese firms also demonstrate sticky SG&A cost behavior. The combined value of $\beta_1 + \beta_2 = 0.4542$ indicates that SG&A costs decreased only 0.45% per 1% decrease in sales.

Table 3: Results of Regression Changes in SG&A on Changes in Sales of One-Year Periods

	Model I	Model II
β_0	0.0201	0.0163
	(30.13)	(20.04)
β_1	0.5935***	0.5482***
	(75.93)	(66.8)
β_2	-0.1393***	-0.1296***
	(-9.12)	(-8.16)
β_3		0.13***
		(16.88)
β_4		0.037**
		(2.06)
Adj. R^2	0.388	0.4231
N	35,510	33,698

Notes: 1. This table shows the regression estimates of the equation: Log [SG&A t / SG&A t-1] = β0 + β1 Log [Sales t / Sales t-1] + β2 * Decrease_Dummy t * Log [Sales t / Sales t-1] (Model I) and the equation: Log [SG&A t / SG&A t-1] = β0 + β1* Log [Sales t / Sales t-1] + β2 *Decrease_Dummy t * Log [Sales t / Sales t-1] + β3 *Log [Sales t-1 / Sales t-2] + β4 * Decrease_Dummy t-1 * Log [Sales t-1 / Sales t-2] (Model II). The first figure in each cell is the regression coefficient. The second figure in each cell is the t-statistic.*
*2. ***, **, and * indicate significance at 1, 5, and 10 percent levels respectively.*

Table 3 also presents the results of estimating Model II. The significance and estimated values of β_1 (0.5482) and β_2 (-0.1296) are similar to those results for Model I. The β_3 (0.13) indicates the lagged effect to SG&A costs for changes in sales. The β_4 (0.037) is positive and significant, showing that SG&A cost stickiness reverses in the subsequent periods. The percentage reversal in the U.S. is more than 50% (Anderson et al, 2003); however, the percentage reversal in Japan is less than 30%. In addition, similar to Anderson et al (2003), we also performed multi-period tests by believing that the stickiness decreasing with the length of the aggregated period. The results are reported in Table 4. We found that β_2 decreases as the aggregated period increases. However, the extent of the decrease is much less than that found in US firms by Anderson et al (2003). Both results from Model II in Table 3 and Table 4 demonstrate that Japanese managers are reluctant to adjust their excess capacity. This is consistent with their long-term perspective and the lifetime employment system.

Table 4: Results of Regression Changes in SG&A on Changes in Sales of Multiple Year Periods

	One year period	Two year period	Three year period	Four year period
β_0	0.0201	0.0416	0.0595	0.0734
	(30.13)	(29.06)	(26.49)	(22.74)
β_1	0.5935***	0.6493***	0.6924***	0.7346***
	(75.93)	(72.1)	(68.02)	(62.92)
β_2	-0.1393***	-0.1141***	-0.1004***	-0.0865***
	(-9.12)	(-5.59)	(-3.95)	(-2.90)
Adj. R^2	0.388	0.4864	0.532	0.5918
N	35,510	16,817	10,967	8,115

*Notes: 1. This table shows the regression estimates for multiple year periods of the equation: Log [SG&A t / SG&A t-i] = β0 + β1 Log [Sales t / Sales t-i] + β2 * Decrease_Dummy t * Log [Sales t / Sales t-i]. The first figure in each cell is the regression coefficient. The second figure in each cell is the t-statistic. 2. ***, **, and * indicate significance at 1, 5, and 10 percent levels respectively.*

Table 5 provides evidence on the factors that influence SG&A cost stickiness. The coefficient β_4 =0.1276 in Model III is significant and positive, showing that managers would consider the revenue decrease more permanent if revenue in the successive year also decreased. Therefore, they are more willing to reduce their excess capacities.

The coefficients β_5 and β_6 in Model III are not significant. This may be due to the long-term perspectives of Japanese managers who are not willing to adjust their SG&A cost based on temporary economic changes and their asset intensity.

The coefficient of β_7 =-0.0431 is significant and negative indicating that Japanese managers are less willing to adjust their unutilized resources if they think that revenue will be recovered next year. This finding supports our hypothesis H3d.

The coefficients β_1 is significant and positive and has similar magnitude to Model I and Model II. The coefficients β_2 is negative and significant and the magnitude of β_2 = -0.3411 is much greater than that in Model I and Model II, indicating that pre-1991, Japanese firms do demonstrate greater SG&A cost stickiness. Prior to 1991, SG&A costs increased 0.58% per 1% increase in sales but fell only 0.24% per 1% decrease in sales. The coefficient of the dummy variable for the post bubble era (β_3 =0.2638) is significant and positive indicating that Japanese managers did adjust their SG&A cost behavior during the post-bubble era. The SG&A cost stickiness becomes much less in the post-bubble era ($\beta_2 + \beta_3$ =-0.0773).

Table 5: Results of the Determinants of Cost Stickiness

	Aggregated sample	Manufacturing firms	Merchandising firms	Service firms
β_0	0.0219	0.0228	0.0157	0.0199
	(31.52)	(28.86)	(9.61)	(8.44)
β_1	0.5818***	0.5713***	0.7027***	0.5527***
	(70.63)	(59.97)	(35.03)	(23.20)
β_2	-0.3411***	-0.3178***	-0.7013***	-0.2633**
	(-8.56)	(-7.32)	(-5.37)	(-2.00)
β_3	0.2638***	0.2699***	0.3461***	0.2508*
	(7.46)	(7.19)	(2.74)	(1.92)
β_4	0.1276***	0.1111***	0.2097***	0.2009***
	(7.01)	(5.55)	(3.97)	(3.20)
β_5	0.0075	0.0109	0.0496**	-0.0178
	(0.85)	(1.14)	(2.00)	(-0.59)
β_6	-0.0221	0.004	0.0852	-0.1266***
	(-1.27)	(0.16)	(1.26)	(-3.73)
β_7	-0.0431**	-0.0410*	-0.1070	-0.0578
	(-2.20)	(-1.90)	(-1.47)	(-0.91)
Adj. R^2	0.3988	0.4029	0.5529	0.2925
N	32240	25216	3574	3450

*Notes:1. This table shows the regression estimates of the equation: Log [SG&A $_t$ / SG&A $_{t-1}$] = β_0 + β_1 Log [Sales $_t$ / Sales $_{t-1}$] +β_2 *Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$] +β_3 *Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$] *PostBubble_ Dummy $_t$+ β_4 *Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$] * Decrease_Dummy $_{t-1}$+ β_5 *Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$] * Growth$_t$+ β_6*Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$] * Log [Assets $_t$ / Sales $_t$] + β_7*Decrease_Dummy$_t$ * Log [Sales $_t$ / Sales $_{t-1}$]*Increase_Dummy $_{t+1}$+ ε_t*

2. The first figure in each cell is the regression coefficient. The second figure in each cell is the t-statistic.

*3. ***, **, and * indicate significance at 1, 5, and 10 percent levels respectively.*

The results show that Japanese managers' attitude is changing in the post-bubble era. If they think sales will be decreasing, they strive to cut SG&A cost to increase profits that they have promised their shareholders. If they think sales will increase, they maintain or increase SG&A cost to make much more profit. This is definitely different from their behavior during the bubble economy.

Industries may demonstrate different patterns of sticky behavior. Table 5 also shows the regression results for manufacturing, merchandising, and service firms. All industry groups show SG&A cost

stickiness. Interestingly, merchandising firms demonstrate very strong stickiness before the asset bubble burst in 1990. The SG&A costs of merchandising firms increase 0.70% per 1% increase in sales but do not decrease almost at all when sales decrease. After the asset bubble burst, service firms show they have much flexibility in managing SG&A costs. The SG&A costs of service firms increase 0.55% per 1% increase in sales and fall 0.54% per 1% decrease in sales in the post-bubble era.

CONCLUSIONS

This study investigates whether Japanese firms demonstrate sticky selling, general, and administrative (SG&A) cost behavior. The study also examines the determinants of cost stickiness in Japan and tests whether Japanese managers changed their cost behavior after the asset bubble burst in 1990. We examine all the non-financial firms included in the PACAP database using methodology developed in Anderson et al. (2003).

We find that similar to those of U.S. counterparts, SG&A costs in Japan also demonstrate sticky behavior. However, we find that the stickiness of SG&A costs in Japan is less likely to be adjusted due to temporary changes in firm performance. This may indicate that some characteristics distinct to Japan, such as a long-term perspective and lifetime employment system, may influence Japanese managers' decision on adjusting their SG&A costs. Most importantly, we find that in the pre-bubble period, SG&A costs of Japanese firms are very sticky; however, in the post bubble era, the stickiness of SG&A costs in Japan declined significantly. This provides evidence that Japanese managers adjusted their cost behavior after the bubble burst. We also examine the SG&A cost stickiness for manufacturing, merchandising, and service firms and find that they all demonstrate cost stickiness. Before the asset bubble burst, manufacturing firms show very strong cost stickiness and after the bubble burst, service firms demonstrate much flexibility in managing SG&A costs.

Although all Japanese manufacturing, merchandising, and service firms demonstrate cost stickiness, the level of stickiness is different. Caution should be used to apply the stickiness concept to different industries. Future research can investigate the additional quantitative factors that influence the cost stickiness in each Japanese industry to better understand cost behavior.

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SURRENDER EFFECTS ON POLICY RESERVES: A SIMULATION ANALYSIS OF INVESTMENT GUARANTEE CONTRACTS

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ABSTRACT

The assumption of dynamic lapse behavior is path-dependence related to the performance of underlying assets. This causes the pricing and reserving of investment guarantee products to be more difficult to deal with. The lack of actual experience of such policyholders' behavior is also an essential problem when launching such guarantee products. The purpose of this paper is to attempt to measure the impact of dynamic surrender assumptions on policy reserves of investment guarantee contracts. We consider a single-premium version of a variable annuity, deducted periodically by a fixed percentage of policyholders' account as margin offset, with six-year deferred maturity benefit. This deferred maturity benefit is a kind of investment guarantee. Utilizing two dynamic policyholders' lapse formula suggested by American Academy of Actuaries and the Swiss Reinsurance company, the simulation results show markets condition assumptions have a tremendous effects upon the magnitude of reserves. This implies that it is a crucial part of risk management considerations for such products. Reserves adequacy testing is necessary when market condition shifts dramatically. The numerical implementation of the simulation results allow us to identify some comparative statistical properties and to identify the appropriate reserving routine of variable annuity with investment guarantee.

JEL: G22; C50

KEYWORDS: Policyholders' Behavior; Dynamic Lapse; Variable Annuity; Guaranteed Minimum Accumulation Benefit (GMAB)

INTRODUCTION

An accurate analysis of policyholder behavior is one of the main challenges in the business of investment guarantee products. Surrender behavior of policyholders, also called lapse, happens if the premium is not paid by a policyholder within a grace period. From a conventional viewpoint, there are several reasons why life insurance business actively seeks to encourage timely premium payment. First, surrendering policies makes the insurance companies unable to fully recover their initial acquisition expenditures. Second policyholders who have poor health tend to lapse less than the healthy ones. More voluntary termination of healthy policyholders worsens the adverse selection issue. Under such circumstances insurance companies receive more claims and incur more losses than expected. Third, insurance companies face a liquidity constraint due to early surrender. They are forced to adopt a short term investment strategy which generates lower returns to meet surrender demands. During the early 1980s, most U.S. life insurance companies suffered from disintermediation resulting from the negative cash flows and excessive surrenders. Focused on traditional insurance products, many previous researchers note that lapse rates have a substantial effect on life insurance prices (e.g., Albizzati and Geman, 1994).

This study uses investment guarantee products as example to describe the relationship between policy reserves and surrender behavior. Policy reserves which are the largest liability item on the balance sheet are critical to risk management and solvency of life insurance companies. The uncertainty in reserves arises from uncertain cash flow which are contingent upon factors like mortality, disability, and early

surrender. In actuarial practice, calculation of GAAP reserves and Canadian statutory reserves require two decrements with use of mortality and rate of surrender. The challenge arises when these contracts contain provisions which allow the policyholder to surrender the policy early at his discretion. The policyholder's option to demand the policy's cash value at any time before policy termination can have considerable impacts upon life insurers. Consequently, the accurate modeling of lapse behavior becomes crucial to valuation. However, pricing this kind of surrender option is difficult as it involves modeling lapse decisions which may be contingent on market conditions. Furthermore, the fact that policyholders may not act rationally make modeling policyholders behavior more ambiguous.

The objective of this study is to construct a simulation analysis to explore the effect of dynamic surrender behavior on policy reserves. The paper is organized as follows. In Section 2 we discuss earlier relevant studies about modeling surrender effects, most focused on traditional insurance products. Next, taking a pseudo case of variable annuity with investment guarantees, we consider two dynamic lapse functions to model dependencies between lapse behavior and market conditions which could explain how the lapse decisions can be linked to market innovations. In Section 4 we present numerical results of policy reserves under various combinations of market conditions which clearly demonstrate the importance of modeling such relations. Section 5 we conclude the paper and provide some suggestions for further studies.

LITERATURE REVIEW

Despite the importance of policy surrenders, most insurance companies do not have reliable surrender models and have not yet tracked or organized their lapse data in a manner that allows them to accurately predict surrendering dynamics (Santomero and Babbel, 1997). The classic survey of Richardson and Hartwell (1951) is the first study to consider the relationship between surrender behavior and macroeconomic effects. They note that termination behavior in later years have more severe economic impact than the first two policy years since it accumulates more cash values as policy matures. For empirical models, Outreville (1990) finds consistent support for the relationship between unemployment and surrender behavior in both the United States and Canada. Similar results are found by Kuo et al. (2004) and Kim (2005). Furthermore, higher lapse rates also erode benefits of the remaining policyholders. Carson and Dumm (1999) find that insurance companies with higher surrender rates end up offering products with poor performance. Policyholders who carry participating policies would get lower bonuses when the lapse rate rises dramatically.

For traditional products, the forms of dependencies of the lapse decision on the current interest rate are intuitively obvious. The interest rate hypothesis, which says that higher interest rates will be a strong incentive for policyholders to lapse, has emphasizes on the arbitrage needs of policyholders at time of higher interest rates. (Schott, 1971; Pesando, 1974) When the market interest rate is lower than the policy credit rate, policyholders are not supposed to exercise surrender options because the fixed credit rate provision is valuable. When the interest rate is higher than the credit rate, policyholders should surrender their policies to take advantage of the higher-yield alternatives in the financial markets. Such interest-rate-induced surrender induces a serious ALM problem. Interest-rate-induced surrender and prepayment of assets raise the sensitivity of duration mismatch between assets and liabilities. When the interest rate goes down, so does the surrender of liabilities, but the asset prepayment rate stays high. In this case the duration of liability cash flows increases, but that of asset cash flow decreases and causes a mismatch problem.

Grosen and Jorgensen (2000) assume that policyholders optimally exercise their surrender options in accordance with changes in the interest rate. They also demonstrate that the surrender option would account for more than 50% of the contract value if exercised optimally with changes in the interest rate. However, policyholders may not act in an optimal way to lapse depending on interest rate movements.

Based on an empirical model of lapse rates rather than theoretical optimal interest-rate-induced surrender, Tasi et al. (2002) incorporate early surrender into the distribution estimation for policy reserves. They find that early surrender reduces the risk for policy reserves due to surrenders in low interest rate periods. Their findings also imply that minimizing the lapse rate might not be optimal because early surrender could benefit insurers in reducing the risk of reserves, which is different from the conventional view.

Compared with traditional insurance products, surrender effects become more explicit for investment products because insurance companies directly provide protection of underlying funds rather than a pre-specified insurance amount. Capital market risk is not diversifiable as insurable risks. The dynamic lapse behavior due to market innovation, which is more critical than an implicit interest-rate-induced surrender mentioned above, become a crucial part of pricing and reserving issues for such products. Such a guarantee breaks the boundary between derivative and traditional insurance product and requires blending financial engineering and actuarial techniques. Dynamic lapse behavior path-dependency is similar to MBS prepayment on the asset side. This implies that the time of contract termination is not independent of market movement. Kolkiewicz et al. (2006) illustrate a marked point process approach by presenting a general framework for valuation of unit-linked products where terminations can be either due to death or caused by stochastic volatility of the underlying fund. They indicate that there was a strong relationship between insurance price and lapse behavior. In this study, we perform a simulation analysis to portray the surrender effect upon policy reserves under various market conditions. We consider a basic form of variable annuity. Specifically we consider a short-term annuity with a single premium paid at time zero. Only Guaranteed Minimum Accumulation Benefit (GMAB), which is a kind of living benefit at maturity date, has been discussed in this study.

CALCULATION OF POLICY RESERVES

The method to calculate policy reserves is presented in this section. To simplify the analysis, the only stochastic component in our analysis is the projections of underlying fund portrayed by standard geometric Brownian motion:

$$ds_t = \mu dt + \sigma dz \qquad (1)$$

where represents the underlying fund in policyholders' account balance. We assume the initial value of the underlying fund is 100 and a maturity guarantee, K , equal to 110:

$S_0 = 100$, and $K = 110$

The next step is to calculate the present value of the accumulated deficiency at each date. The accumulated deficiency at each date is determined as the negative of the net accumulated asset amount, which includes premiums received minus any benefits incurred during the coverage period. In this study, the only existing policy benefit is the maturity benefit and no death benefit (GMDB) implying that there would be only negative accumulated deficiency before maturity. In practice, mortality risk is much easier to manage by pooling large numbers. Living benefits are much more challenging such as our maturity benefit in this study.

Present value of accumulated deficiency, $PV_t(AD)$, at date t' could be shown as follows

$$PV_t(AD) = -\sum_{t=0}^{i-1} cS_t(1-c)^t \, {}_t p_x^{(t)} v^t \qquad \forall t^t < T \text{ and}$$

$$PV_i(AD) = (K - S_T(1-c)^T)^+ {}_T P_x^{(t)} v^t - \sum_{t=0}^{T-1} cS_t(1-c)^t \, p_x^{(x)} v^t \text{ for } t^t = T \quad (2)$$

where T represents the maturity date and c represents margin offsets. According to the actuarial equivalence principle, the margin offsets, c, has to be set to satisfy the following equation:

$$E_Q[(K - S_T(1-c)^T)^+ {}_T p_x^{(x)} v^T] = E_Q[\sum_{t=0}^{T-1} cS_t(1-c)^t {}_t p_x^{(x)} v^t \quad (3)$$

For each projection, we have to find out the largest present value of accumulated deficiency for each date t, $GPVAD^{(i)}$, as the scenario reserves:

$$\text{GPVAD}^{(i)} = \max\{\text{PV}_t(\text{AD})^{(i)} | \ t = 1,2,...T\} \quad \text{for each projection i} \quad (4)$$

In this study, the simulation analysis generates 100,000 paths for the underlying fund which means there are 100,000 projections (i=1, 2… 100,000). Finally, the policy reserves for an x-year-old policyholder, ${}_0V_x$, is derived by averaging the highest 35% of scenario reserves, which is the CTE (Conditional Tail Expectation) measure at 65%.

Assume that policyholders have two contingencies: death and surrender. The survival effects in equation (2), ${}_t P_x^{(x)}$, is composed of mortality and surrender effects:

$${}_t p_x^{(\tau)} = (1 - {}_t q_x^{(d)})(1 - {}_t q_x^{(e)}) \quad (5)$$

where ${}_t q_x^{(d)}$ represents the mortality effect and ${}_t q_x^{(l)}$ represents the surrender effect. The surrender problem is essential in running an insurance business hence modeling the surrender behavior properly is a crucial task.

The surrender effect, ${}_t q_x^{(l)}$, in which we are interested, is expressed as a base lapse rate multiplied by a specified lapse multiplier λ_t:

$${}_{t|} q_x^{(e)} = {}_{t|} q_x^{(e)base} \lambda_t \quad (6)$$

The base lapse rate, ${}_t q_x^{(l)base}$, is usually constructed by insurance company's own experience. In this paper, we use two different lapse multiplier formula constructed by American Academy of Actuaries (AAA) and Swiss Reinsurance Company (Swiss Re) separately:

AAA model:

$$\lambda_t = \min\{1, \max[0.5, 1 - 1.25 * (ITM_t - 1.1)]\} \quad (7)$$

Swiss Re model:

$$\lambda_t = \min\{1.2, \max[0.2, (ITM_t - 1) * e^a]\}$$

where $a = 1$ when $ITM \le 1$, and $a = 0.22$ when $ITM \le 1$ (8)

and $$\text{ITM}_t = \frac{AccountValue_t}{GuaranteeValue_t}$$

In-the-moneyness (ITM) formula, which is the ratio of account value to guarantee value, are used to describe the degree of "moneyness" for investment guarantee. As ITM increases, surrender rates fall, as the value of the guarantee becomes significant to more policyholders. Notice that the guarantee value at each date is used for any cash out flow at each date such as GMDB. In our case, we determine guarantee value at each date as the present value of maturity benefit at each date. This implies interest rate movement is inherent. In the next section, policy reserves are calculated for various combinations of market conditions as well as some comparative static properties are tackled.

NUMERICAL ILLUSTRATIONS

In this section discuss reserves effect of variable annuity with investment guarantees in different market conditions. The relation of expected return and volatility is utilized to describe various market conditions. As mentioned above, the lapse rate of variable annuity with investment guarantees could change when market conditions shift. And, the surrender effect is affects the policy reserves of variable annuity with investment guarantees. In order to describe the relationship between market conditions, lapse behavior, and the policy reserves, this research uses two type dynamic lapse models: AAA dynamic lapse model and Swiss Re dynamic lapse model. These two dynamic lapse models have a similar framework, however, the models have discrepancy between parameter sensitivity. It helps to understand the influence of the lapse rate when market conditions shift.

This research analyzes the policy reserves of a single premium six-year variable annuity with maturity investment guarantees. We assume that all the policy of prospects account values is $100 initially without any cash surrender charge. There is an addition rider GMAB guarantee that the investor could get minimum 110 dollar account values at the expiration date. This research considers a 45 years old with no sex distinction. To simplify the subject, the discounting procedure in this analysis utilizes a determined term structure at a specific date rather than projecting a series of short rates. Yield curve data in March, 2009 is utilized for discounting purpose. Further, we must determine an appropriate margin offset, to satisfy equation (3). The margin offset is set to be 252 bps by specifying Monte Carlo simulation. The following are the summary of relevant parameters used.

Table 1: Summary of Assumptions

Initial account value: $100				**Surrender charge: $0**		
Minimum maturity benefit: $100				**Margin offset: 252 bps**		
Policy year	1	1	2	3	4	5
Base lapse rate	2%	2%	3%	5%	5%	5%
Mortality rate	0.241%	0.241%	0.263%	0.282%	0.298%	0.319%
Yield rate	0.67%	0.67%	0.98%	1.36%	1.62%	1.87%

Note: This table shows the assumptions utilized for simulation in this paper.

The performance of the underlying fund will affect the accumulate rate of account value. If the underlying fund performs well, the accumulate rate of account value will increase faster. If the accumulate rate of account value is over the original account value in the short time, the policyholders will rescind ahead of time, and apply the cash surrender value. The reserves for future risk in an ordinary insurance company might be reduced. To measure the lapse effect on reserves, we firstly calculate the slope between each adjacent pair of cells in the following tables. For each level of μ and σ, we average out the slopes as the

sensitivity measure, $\frac{\partial_0 V_x}{\partial \sigma}$ and $\frac{\partial_0 V_x}{\partial \mu}$, separately. Table 2 and Table 3 show the policy reserves in two different dynamic lapse models.

Figures provide clearer descriptions of the findings in Table 2 and Table 3. Figure 1 shows that at the same level of volatility, if the expected returns of underlying funds is high, the reserves is lower. We also find if expected returns higher the trend will get smoother. It means, when volatility increases one unit, if the expected returns of underlying fund is high, the policy reserves will reduce. One the other hand, if the expected returns of underlying funds are lower, the reserves will increase.

Table 2: Policy Reserve of AAA Dynamic Lapse Model

$\frac{\mu}{\sigma}$	0.05	0.1	0.15	0.2	0.25	$\frac{\partial_0 V_x}{\partial \sigma}$
0.1	4.99	4.64	4.19	4.14	3.86	-4.53
0.2	5.76	5.31	4.76	4.65	4.46	-5.22
0.3	6.50	5.89	5.65	5.26	4.88	-6.50
0.4	7.40	6.74	6.39	5.90	5.40	-7.98
0.5	8.23	7.55	7.02	6.51	6.07	-8.65
$\frac{\partial_0 V_x}{\partial \mu}$	6.48	5.81	5.66	4.73	4.42	

Note: This table describes policy reserves estimate when using AAA dynamic lapse model. When expected return gets higher, the policy reserves estimates gets lower because it becomes less risky. On the other hand, when volatility go higher, the policy reserves estimates gets higher because it becomes more risky.

Table 3: Policy Reserve of Swiss Re Dynamic Lapse Model

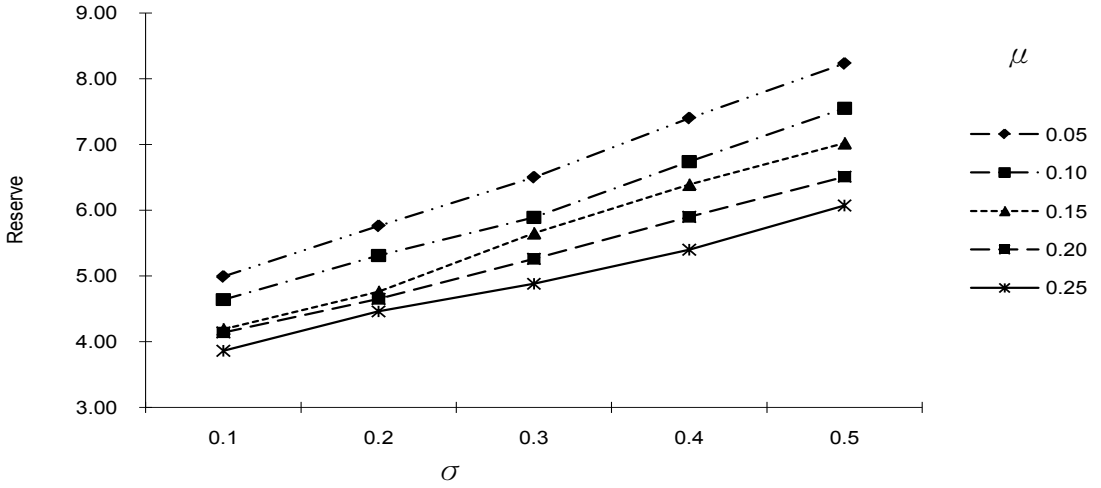
$\frac{\mu}{\sigma}$	0.05	0.1	0.15	0.2	0.25	$\frac{\partial_0 V_x}{\partial \mu}$
0.1	5.03	4.52	4.36	3.89	3.79	-6.19
0.2	5.55	5.16	4.81	4.58	4.24	-6.52
0.3	6.32	5.98	5.63	5.26	4.77	-7.78
0.4	7.41	6.79	6.28	5.86	5.40	-10.06
0.5	8.24	7.68	7.02	6.52	6.03	-11.04
$\frac{\partial_0 V_x}{\partial \sigma}$	8.02	7.90	6.65	6.58	5.60	

Note: This table describes policy reserves estimate when using Swiss Re dynamic lapse model. When expected return gets higher, the policy reserves estimates gets lower because it becomes less risky. On the other hand, when volatility go higher, the policy reserves estimates gets higher because it becomes more risky

In Figure 2, we also find at the same level of volatility, if the expected returns of underlying funds are higher, the policy reserves will reduce. Higher expected returns make the trend smoother. This implies that, when expected returns is higher, the influence of volatility on the reserves is smaller.

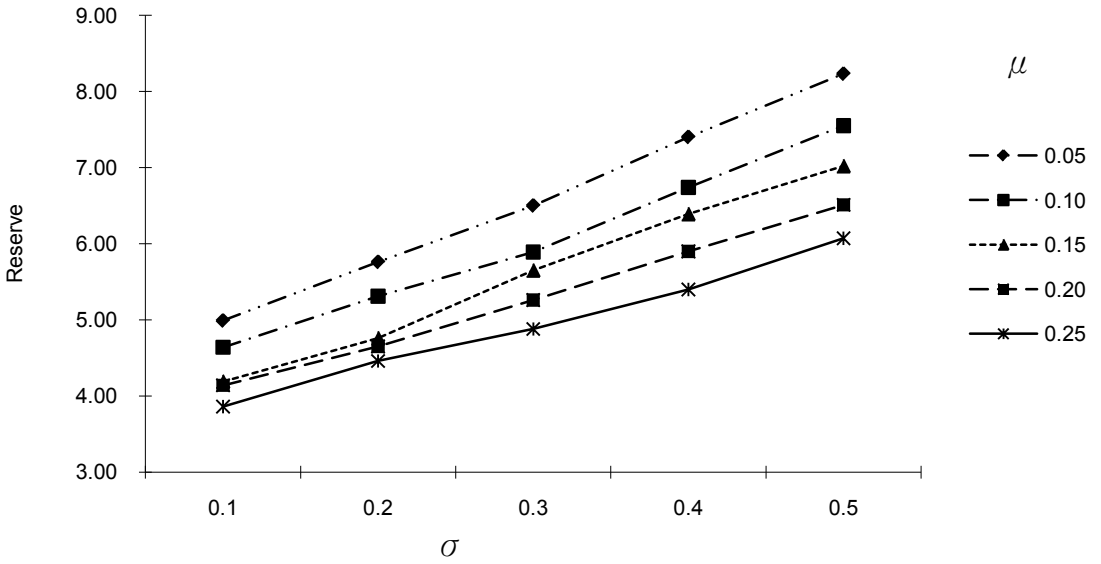
High volatility of the underlying fund means that the performance of the underlying fund has instability as well as higher risk. The account value of a variable annuity with investment guarantees is associated with the performance of the underlying fund. If the performance presents well, the accumulated account value will increase. The insurance company which issued the variable annuity with investment guarantees assures quota reward guarantees. Therefore, the insurance company has damage risk. This research assumes that investors could receive at least 110% of the premium (capitalization) when the policy expires. If the account value reduces to the original capitalization 110%, the insurance company should be able to afford this damage. So the risk of volatility will affect the policy reserves.

Figure1: The Relationship between the Volatility and Reserves under AAA Dynamic Lapse Model



This figure describes policy reserves estimate in Table 2. Every path denotes policy reserves under different level of expected return. When volatility goes higher, the policy reserves estimates gets higher.

Figure2: The Relationship between the Volatility and Reserves under Swiss Re Dynamic Lapse Model



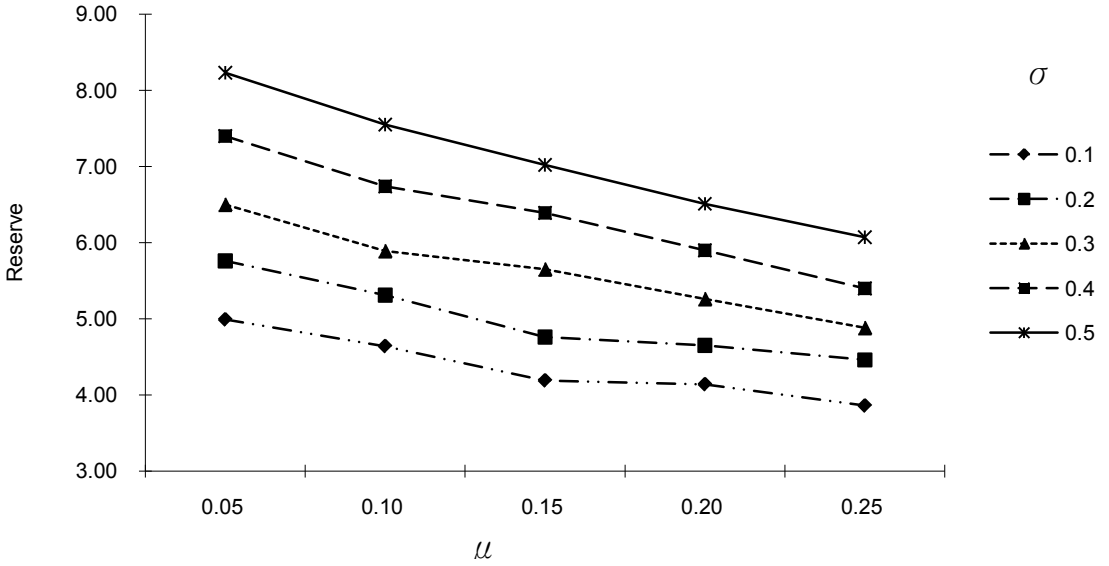
This figure describes policy reserves estimate in Table 3. Every path denotes policy reserves under different level of expected return. When volatility goes higher, the policy reserves estimates gets higher.

We also find the opposite relation between expected returns and reserves from Figure 3. If the underlying fund performs much better, the policy reserves will reduce. This relationship is similar to the one between expected returns and reserves. With the same expected returns, when volatility increases, more reserves are required. This implies, the risk of the underlying fund is high. Thus, it need more reserves at the same level of expected returns. We find that the lower the volatility, the smoother the trend presented. Figure 4 shows the results of the Swiss Re dynamic lapse model is similar to the AAA dynamic lapse model. It shows an opposite relation between reserves and expected returns. Higher expected returns of underlying fund require fewer reserves. At the same level of expected returns, higher volatility of underlying funds need more reserves. At different expected returns, the lower the volatility of the underlying fund, the

smoother the trend presented. It means that increases in each unit of expected return could require fewer policy reserves.

In Figure 3, we also could find the kinked phenomenon with the returns volatility and reserves. Consider the expected return, 0.15, as a benchmark. The left side of the line is steeper than the right side. The kinked phenomenon of reserves become clearer when volatility gets lower, and gets smoother at high return volatility. This implies, at different levels of volatility, changing expected returns have different influence on reserves. Therefore we know that there exists interaction effects between both variables. To sum up, when the volatility of underlying funds and expected returns are small, adding each unit of expected returns, the required reserves have substantial space to decline. In contrast, if the volatility of the underlying fund and expected returns gets higher, than adding each unit of expected returns gives reserves less space to reduce. Although we can find this phenomenon in the AAA dynamic lapse model, as shown in Figure 4, the Swiss Re dynamic lapse model does not show an obvious kinked phenomenon. It might mean that, in the Swiss Re dynamic lapse model, links between return volatility and reserves are more progressive than in the AAA dynamic lapse model, so it is not as sensitive to different changes of relevant variables.

Figure 3: The Relationship of Expected Returns and Reserves under AAA Dynamic Lapse Model

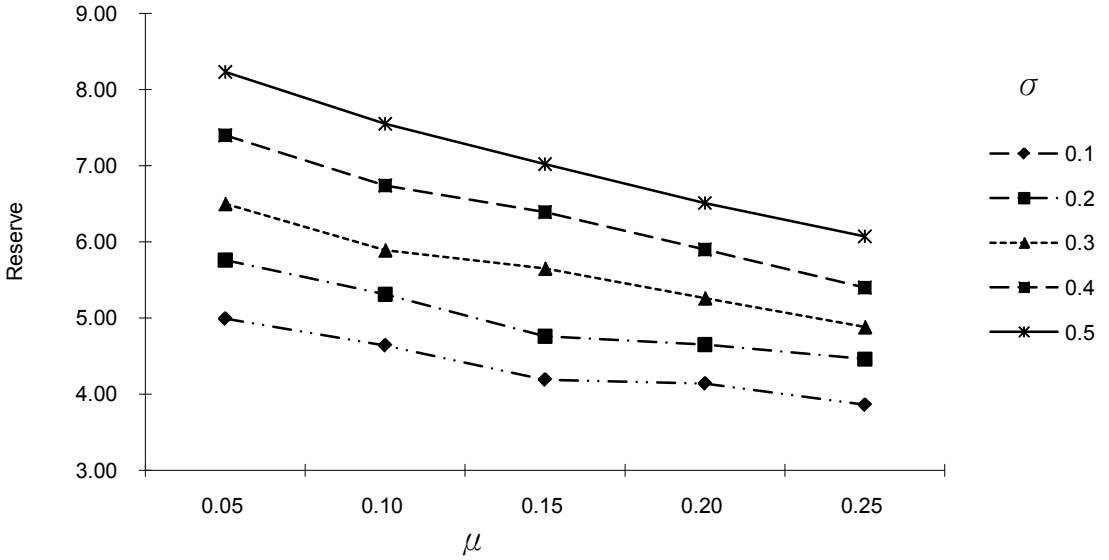


This figure describes policy reserves estimate in Table 2. Every path denotes policy reserves under different level of volatility. When expected return goes higher, the policy reserves estimates gets lower.

Finally, we examine the relationship between the coefficient of variation and policy reserves. As noted above, we find a positive relationship between reserves and volatility and a negative relationship between reserves and expected rate of return. When policyholders decide their choice of investments, they usually would generally consider both return expectations and volatility. Therefore it is necessary to understand the impact of reserves taking into account both the volatility and expectations of return. The kinked phenomenon discussed previously implicitly revealed the importance of taking into account the two variables. The coefficient of variation is used to simultaneously consider these two variables. Figure 5 shows the coefficient of variation and reserves relationship graphics. The coefficient of variation is positive between the policy reserves, which means that when the underlying fund has a greater coefficient of variation, the required reserves are increasing. At a similar coefficient of variation level, the reserves requirement shows little difference between the two dynamic lapse models. In addition, we take the coefficient of variation of 2.0 as the benchmark thereby dividing the graph into two parts. The results

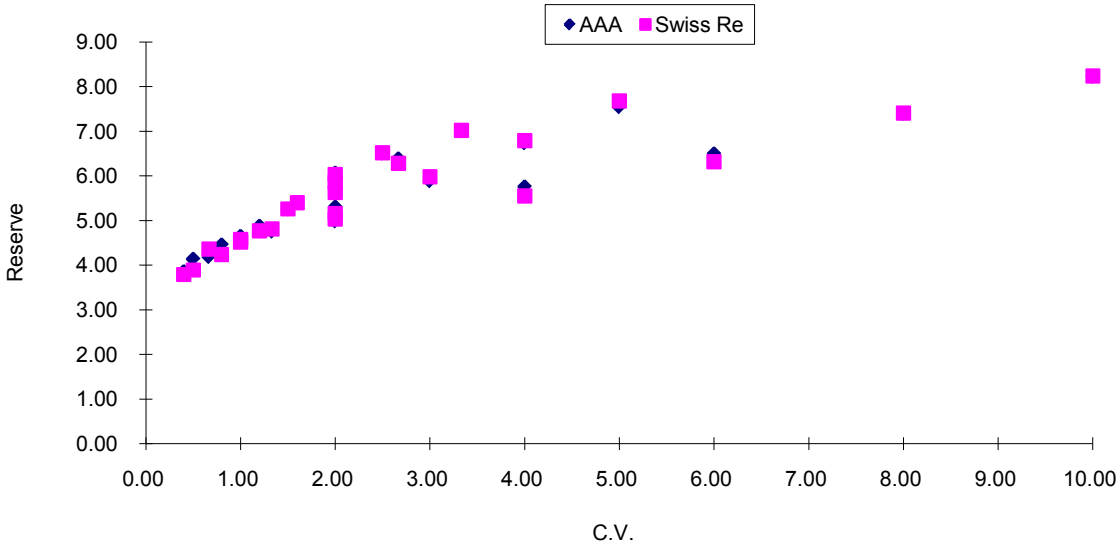
show that less fluctuation on left side of the graph. But, the right side shows larger fluctuate in the level of reserves requirements. This implies that when the coefficient of variation gets smaller, the variation of reserves requirements is smaller. In contrast, if larger coefficient of variations are present reserve requirement have greater fluctuations.

Figure 4: The Relationship of Expected Returns and Reserves under Swiss Re Dynamic Lapse Model



This figure describes policy reserves estimate in Table 3. Every path denotes policy reserves under different level of volatility. When expected return goes higher, the policy reserves estimates gets lower.

Figure5: The Relationship between the Coefficient of Variation and Reserves



This figure denotes two kinds of policy reserves (both AAA and Swiss Re) under different level of coefficient of variation. Policy reserves will go higher when coefficient of variation goes higher.

CONCLUSIONS

The value of investment products is connected with the performance of underlying funds and have an impact on the amount of reserves. This research utilizes two types of dynamic lapse models, which are frequently used in the insurance industry, to identify the impact of changing market conditions on reserves. Not surprisingly, the study finds a positive relationship between volatility and required policy reserve, and negative relationship between expected return and required policy reserve. However, at the fund selection time, policyholders likely consider both expectations returns and volatility. To take into account both the expected rate of return and volatility the coefficient of variation is calculated. We find positive relations between coefficient of variation with policy reserve. The greater the coefficient of variation, the more required reserves. Also, when the coefficient of variation is bigger, each unit change in the coefficient of variation implies larger variation in policy reserves than when the coefficient of variation is smaller. The numerical implementation of the simulation results allow us to show some comparative statistical properties of reserves and to address the problem of suitably reserving these investment products.

In this study, a pseudo six-year variable annuity with investment guarantees is taken as research example. Taking into account the general insurance policy with longer period, possible fluctuations in the account value and volatility might be increased enormously because the longer insurance period affects the amount of reserve requirements. In addition, this study uses a relatively simple GBM model to describe market conditions. Future research may consider more complex models such as the RSLN or SV models. Finally, this study considers only the assurance mechanisms in the maturity date, however in the real world, most insurance policies are accompanied by the death guarantee (GMDB). Investment guarantees are paid at the death thereby increasing the insurance company uncertainty.

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A NEW HEDGE FUND REPLICATION METHOD WITH THE DYNAMIC OPTIMAL PORTFOLIO

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ABSTRACT

This paper provides a new hedge fund replication method, which extends Kat and Palaro (2005) and Papageorgiou, Remillard and Hocquard (2008) to multiple trading assets with both long and short positions. The method generates a target payoff distribution by the cheapest dynamic portfolio. The work here extends the work of of Dybvig (1988) to a continuous-time framework and dynamic portfolio optimization where the dynamic trading strategy is derived analytically by applying Malliavin calculus. It is shown that cost minimization is equivalent to maximization of a certain class of von Neumann-Morgenstern utility functions. The method is applied to the replication of a CTA/Managed Futures Index in practice.

JEL: G11, G20, G23

KEYWORDS: Hedge Fund Replication, Dynamic Portfolio Optimization, Martingale Method, Malliavin Calculus

INTRODUCTION

Hedge fund replication products appeared in the financial markets recently. Investment banks and asset management companies launched the products one after another. Some of these institutions developed replication techniques collaborating with the pioneers in hedge fund research. Therefore, these products have gained increased attention. Hedge fund replication overcomes the following difficulties in hedge fund investing: high cost, low transparency, and low liquidity. The importance of transparency and liquidity was recognized after the subprime and Lehman shocks.

Existing methods of hedge fund replication can be categorized in three ways: rule-based, factor-based, and distribution replicating approaches. Our method is categorized as distribution replicating approach. The previous studies are Kat and Palaro (2005) and Papageorgiou *et al.* (2008). Kat and Palaro (2005) tried to replicate the return distribution of the target hedge fund and its dependence structure on an investor's existing portfolio through the dynamic trading of the portfolio (proxied by a portfolio of stock index and bond futures) and another asset. Papageorgiou *et al*. (2008) proposed an alternative way to perform Kat-Palaro's replication methodology by utilizing a hedging scheme of options in an incomplete market.

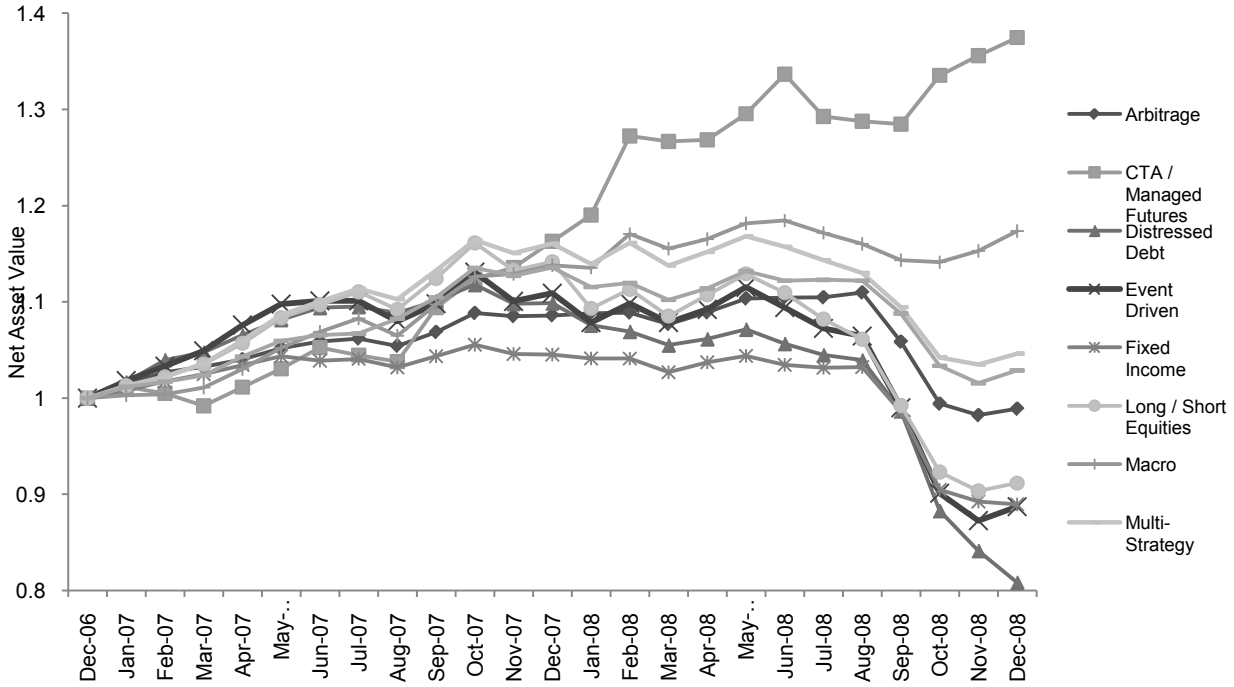
This article extends these previous works. The methods developed by the two earlier research papers use only one asset as a replication tool. Moreover, they can take only long positions. Therefore, the user of the methods should pay attention to asset choice. On the other hand, our new method allows multiple assets with both long and short positions for creating a replicating portfolio. When the investment universe is extended to multiple assets, a criterion that chooses a payoff should be introduced because there are infinitely many payoffs that have the same statistical properties as the target hedge fund. This paper proposes to choose the cheapest one. By extending the work of Dybvig (1988) to continuous-time framework, the cheapest payoff is obtained. Then, the dynamic trading strategy is derived analytically by applying Malliavin calculus. For replicating the marginal distribution of the target hedge fund return, it is shown that cost minimization is equivalent to maximization of a certain class of von Neumann-Morgenstern utility functions.

In the subprime and Lehman shocks, CTA/Managed Futures funds enjoyed high returns by controlling their exposures efficiently. (See figure 1.) This paper replicates CTA/Managed Futures Index. Other

approaches and existing distribution replicating methods do not work for this replication. Since most CTAs or managed futures funds employ system trading strategies based on some trading rules, rule-based replication ends up as a managed futures fund itself. Factor-based replications for such funds are impossible or very tough to develop, because it is difficult to find factors that drive the return of CTAs or managed futures funds (See, for example, Hakamada *et al.* (2007)). As will be shown, the existing distribution replicating methods fail to replicate high performance in the recent credit crisis, because they can trade only one replicating tool and cannot take short positions.

Many CTAs or managed futures funds are seeking attractive investment opportunities in financial markets around the world. They employ dynamic trading strategies including leverage and short sales to exploit them. Our methodology is also able to reflect their investment behaviors while the existing methods are not. A historical out-of-sample simulation shows that our scheme provides a much better performance than the existing method especially in the recent credit crisis.This paper is outlined as follows. The following section briefly discusses the relevant literature. Section 3 describes the theory of our replication method is explained. Section 4 describes data and empirical procedures. Section 5 provides the replication result and compares it with the replication result by the existing method. Finally, section 6 concludes the paper.

Figure 1: Eurekahedge Hedge Fund Indices by Investment Strategy 2007-2008



This figure shows the performance of Eurekahedge Hedge Fund Indices by investment strategy from January 2007 to December 2008. The initial net asset values for all the strategies are normalized to 1 in 31 December, 2006. The hedge fund indices is downloadable from the homepage of Eurekahedge or Bloomberg. This paper uses the data downloaded from the homepage for the analysis.

LITERATURE REVIEW

The emergence and existing methods of hedge fund replication are described in Takahashi and Yamamoto (2009a). As mentioned in the previous section, the methodologies can be categorized in the following three approaches. The first is a rule-based approach that mimics trading strategies the target hedge fund employs. This is the most primitive way. The method of Duarte *et al.* (2007) can also be regarded as rule-based fixed-income hedge fund clone techniques.

The second approach is a factor-based clone that tries to replicate risk exposure of the target fund. If this

method succeeds, then the return of the replica tracks that of the target fund on a month-to-month basis. This is the ideal replication, but this method requires finding tradable market factors that drive the return of the target hedge fund. Lo and Hasanhodzic (2006) and Fung and Hsieh (2007a, 2007b) studied a factor-based approach. The techniques of factor analysis for hedge funds that have been developed from the late 1990s such as that of Fung and Hsieh (1997, 2000, 2001) and Agarwal and Naik (2004) are directly applied to the replication.

The third approach is distribution replication that gives up month-to-month return replication, and aims to replicate the distribution of hedge fund returns. Amin and Kat (2003) first tried the replication. However, an attractive character of hedge fund returns is low dependence with returns of traditional asset classes. Further, Kat and Palaro (2005) and Papageorgiou *et al.* (2008) developed modified method to replicate the dependence structure with the investor's existing portfolio, too.

This paper extends the methods developed by Kat and Palaro (2005) and Papageorgiou *et al*. (2008) to multiple trading assets with long and short positions. The dynamic replicating portfolio is obtained by applying Malliavin calculus. See, for example, Nualart (2006) for the introduction to Malliavin calculus. By extending theorem 2 in Dybvig (1988) to continuous-time framework, it is shown that generation of a target marginal distribution is equivalent to maximization of certain class of von Neumann-Morgenstern utility functions.

In a complete market, martingale method is a powerful approach to obtain the dynamic portfolio that maximizes a von Neumann-Morgenstern utility function. See, for example, Karatzas and Shreve (1998) for the basics of martingale method. To obtain the concrete expression of the optimal portfolio, Clark-Ocone formula in Malliavin calculus is useful. For example, Detemple *et al*. (2008) surveyed the Monte Carlo methods for the computation of the optimal portfolio policies. Takahashi and Yoshida (2004) applied an asymptotic expansion method to the optimal investment problems in the analytic approximation methods. Our method can be also considered as an alternative dynamic portfolio optimization assuming not an agent's utility but a target payoff distribution.

THE THEORY

First, we review the distribution replication method of hedge fund returns proposed by Kat and Palaro (2005). Consider an investor who has been investing in traditional assets such as stocks and bonds, and plans to invest in a hedge fund. It is assumed that he is attracted to the hedge fund because the distribution of returns and the dependence structure in his existing portfolio of bonds and stocks. Suppose that S^0 is a risk-free asset, S^1 is an investor's existing portfolio, and S^2 is a risky asset (replicating tool). Assume that S^1 is also tradable. (It is proxied by a portfolio of stock index and bond futures.) Let 0 and T be the start and terminal dates of the investment, respectively. Kat-Palaro's approach tries to the return distribution of the hedge fund and dependence structure with the investor's existing portfolio by the dynamic trading strategy of the investor's portfolio S^1 and another risky asset S^2.

To implement the replicating strategy, we need to proceed with the following steps. First, the stochastic processes $\{S_t^1\}_{t=0}^T$ and $\{S_t^2\}_{t=0}^T$ are inferred. The initial asset values are normalized so that $S_0^1 = S_0^2 = 1$. Following that, the joint distribution of $R_T^1 = \log S_T^1$ and $R_T^2 = \log S_T^2$ is also obtained. Let R_T be the random variable that represents the log return of the target hedge fund. Second, the joint distribution of the investor's portfolio and hedge fund returns (R_T^1, R_T) is estimated. This is the target joint distribution

to replicate. Third, the payoff function, which transforms the joint distribution of (R_T^1, R_T^2) to that of (R_T^1, R_T), is determined. Finally, the payoff is priced is replicated through the dynamic trading of S^1 and S^2.

In the first step $(\text{inference of } \{S_T^1\}_{t=0}^T \text{ and } \{S_T^2\}_{t=0}^T)$, Kat and Palaro (2005) and Papageorgiou *et al.* (2008) modeled by Gaussian and non-Gaussian distributions, and selected the best-fitting one. As hedge funds exhibit skewness and fat-tails, and are non-linearly related to traditional asset classes, in the second step $(\text{estimation of } (R_T^1, R_T))$, Kat and Palaro (2005) proposed to model R_T^1 and R_T separately, and then connect them by a copula. For hedge fund returns, it is desirable to use the distribution class that can capture its skewness and fat-tails. For example, Kat and Palaro (2005) and Papageorgiou *et al.* (2008) used Gaussian, Student-t, Gaussian mixture and Johnson distributions. Some copulas can capture the asymmetric dependence structure flexibly.

After estimating the parameters and selecting models of the asset returns and price processes, a payoff function is determined. To obtain the joint distribution of the investor's portfolio and hedge fund returns through the dynamic trading of the investor's portfolio and the replicating tool, a function $\tilde{g}$ that satisfies the following equation is required.

$$P(R_T^1 \le a, \tilde{g}(R_T^1, R_T^2) \le b) = P(R_T^1 \le a, R_T \le b) \quad \text{for any } a, b, \tag{1}$$

or equivalently,

$$P(\tilde{g}(R_T^1, R_T^2) \le b \mid R_T^1 = a) = P(R_T \le b \mid R_T^1 = a) \quad \text{for any } a, b. \tag{2}$$

Then, $\tilde{g}$ is given by

$$\begin{aligned} \tilde{g}(a, b) &= F_{R_T|a}^{-1}(F_{R_T^2|a}(b)), \\ \tilde{g}(a, b) &= F_{R_T|a}^{-1}(F_{R_T^2|a}(b)), \end{aligned} \tag{3}$$

where $F_{R_T|a}$ and $F_{R_T^2|a}$ are the conditional distribution functions of R_T and R_T^2 under $R_T^1 = a$. In terms of the asset prices, the payoff function is represented as

$$\hat{g}(S_T^1, S_T^2) = \exp\left\{\tilde{g}(\log S_T^1, \log S_T^2)\right\}. \tag{4}$$

If one obtained the payoff function, the replicating strategy encounters the same problem with pricing and hedging of derivatives. The dynamic replicating strategy is given by the *delta*-hedging strategy of the payoff $\hat{g}(S_T^1, S_T^2)$.

If the initial cost for the trading strategy is less (more) than 1, then the target payoff can be realized by a lower (higher) cost. The remaining (shortage of) money is invested (funded) in the risk-free asset. The shape of the probability density can be replicated, but the mean return is higher (lower) than the target fund by the difference of the initial cost. In this case, the replicating tool does (does not) include greater investment opportunity than the target hedge fund. Note that the payoff function $\hat{g}(\cdot,\cdot)$ is an increasing function with respect to the second argument. Then, the *delta*-hedging strategy never takes a short position for S^2. In page 17-18 of Kat and Palaro (2005), the authors claim that users of this method should choose the replicating tool S^2 that has the positive expected return factor uncorrelated to the return of the investor's portfolio. Then, the long position for S^2 is justified. In this case, the choice of a replicating tool is crucial.

As described here, this methodology can replicate the shape of the probability density, but cannot fit the mean. If you found a greater investment opportunity than the target fund, the mean return would be superior and vice versa. Therefore, the usage of only one risky asset is restrictive. Papageorgiou *et al.* (2008) synthesized multiple assets to create a replicating tool by equal-weighing, but there would be inefficiencies in the *ad hoc* fixed weighted portfolio. The extension of the investment universe would bring in higher mean returns.

Let us extend the replication method to multiple assets. See Takahashi and Yamamoto (2009b) for a rigorous argument. Suppose that $S^2, \cdots, S^n$ are risky assets (replicating tools). Suppose that the price processes of the financial assets $\{S_t^i\}_{t=0}^n$ ($i = 0, \cdots, n$) follow stochastic differential equations (SDEs)

$$dS_t^0 = r_t S_t^0 dt, \tag{5}$$

$$dS_t^i = \mu_t^i S_t^i dt + \sum_{j=1}^{i} \sigma_t^{ij} S_t^i dW_t^j \quad (i = 1, \cdots, n), \tag{6}$$

where $W_t = (W_t^1, \cdots, W_t^n)'$ is n-dimensional standard Brownian motion. r_t, μ_t^i, and σ_t^{ij} satisfy appropriate measurability and integrability conditions. All of the initial asset values are normalized, so that $S_0^0 = \cdots = S_0^n = 1$. The following notations by n-dimensional vectors and a $n \times n$ matrix are introduced: $S_t = (S_t^1, \cdots, S_t^n)'$, $\mu_t = (\mu_t^1, \cdots, \mu_t^n)'$, $\vec{1} = (1, \cdots, 1)'$, and

$$\sigma_t = \begin{pmatrix} \sigma_t^{11} & & O \\ \vdots & \ddots & \\ \sigma_t^{n1} & \cdots & \sigma_t^{nn} \end{pmatrix}. \tag{7}$$

Suppose that σ_t is invertible almost surely. Then, there exists the unique market price of risk $\theta_t = \sigma_t^{-1}(\mu_t - r_t \vec{1})$. In other words, the financial market is complete. The financial market is denoted by $M = (r, \mu, \sigma)$.

In complete market *M*, the unique state price density process is given by

$$H_t = \exp\left\{-\int_0^t r_u du - \frac{1}{2}\int_0^t \|\theta_u\|^2 du - \int_0^t \theta_u' dW_u\right\}. \tag{8}$$

The no-arbitrage price of any measurable payoff *X* at *T* is given by $x = E[H_T X]$. By the standard argument of martingale method, *X* can be replicated by a dynamic trading of the financial assets with initial cost *x*. For convenience, the minus logarithm state price density process L_t is introduced:

$$L_t = \int_0^t r_u du + \frac{1}{2}\int_0^t \|\theta_u\|^2 du + \int_0^t \theta_u' dW_u. \tag{9}$$

Let ξ be a positive payoff at time *T*. Let $F_{\xi|s}$ and $F_{L_T|s}$ be the conditional distribution functions of ξ and L_T under condition $S_T^1 = s$. Assume that $F_{\xi|s}$ and $F_{L_T|s}$ are continuous and strictly increasing for any $s > 0$. If *X* is defined as follows, (S_T^1, X) has the same joint distribution as (S_T^1, ξ):

$$X = g(S_T^1, L_T), \tag{10}$$

where

$$g(s, l) = F_{\xi|s}^{-1}(F_{L_T|s}(l)). \tag{11}$$

The next theorem asserts that *X* is the unique cheapest payoff among the random variables whose joint distributions with S_T^1 are same as (S_T^1, ξ). Theorem 1 in Dybvig (1988) is the equally probable finite state setting version of the theorem.

Theorem 1 *Assume ξ is a positive payoff at time T, and $F_{\xi|s}$ and $F_{L_T|s}$ are continuous and strictly increasing for any $s > 0$. In a complete market M, the unique cheapest payoff X among the random variables whose joint distributions with S_T^1 are same as (S_T^1, ξ) by equation (10).*

See Takahashi and Yamamoto (2009b) for the proof. If condition $S_T^1 = s$ is not taken account, the following claim can be proven. Let F_ξ and F_{L_T} be the distribution functions of ξ and L_T respectively. Assume that F_ξ and F_{L_T} are continuous and strictly increasing. If *X* is defined by $X = F_\xi^{-1}(F_{L_T}(L_T))$, *X* is the unique cheapest payoff among the random variables that has the same marginal distribution with ξ.

The next theorem asserts that the cost minimization for the marginal payoff distribution is equivalent to an expected utility maximization. Theorem 2 in Dybvig (1988) is the equally probable finite state setting version of the theorem. To state the theorem in continuous-time framework, two additional conditions are required for the utility function.

Theorem 2 *Assume ξ is a positive payoff at time T, and F_ξ and F_{L_T} are continuous and strictly increasing. If X is the cheapest payoff that has the same distribution with ξ, then, in a complete market M, there exists a strictly increasing and strictly concave von Neumann-Morgenstern utility function $u(\cdot)$ such that (a) $\lim_{z\to+0} u'(z) = +\infty$, (b) $\lim_{z\to+\infty} u'(z) = 0$, and the dynamic trading strategy that attains payoff X*

is the optimal investment strategy for $u(\cdot)$. *Conversely, if a dynamic trading strategy maximizes a strictly increasing and strictly concave von Neumann-Morgenstern utility function* $u(\cdot)$ *that satisfies conditions (a) and (b), it attains the cheapest payoff for some distribution.*

See Takahashi and Yamamoto (2009b) for the proof. This theorem supports our method theoretically. Moreover, it ensures that our method is applicable to not only hedge fund replication but also dynamic portfolio optimization in investment management.

Let us see the dynamic portfolio that replicates the cheapest payoff. Let π_t^i ($i = 0,..., n$) represent the money amount invested in asset *i* at time *t*. *n*-dimensional vector π_t^i is defined by $\pi_t = (\pi_t^1, \cdots, \pi_t^n)$, which denotes the portfolio of risky assets. Let *x* be the initial cost required to realize the cheapest payoff X_T for some payoff distribution. The initial cost *x* is invested in the financial assets by a dynamic self-financing trading strategy to generate payoff X_T. In other words, the portfolio value at time *t*, X_t, satisfies

$$X_t = \pi_t^0 + \pi_t' \vec{1} \tag{12}$$

for any *t*. In a differential form this is,

$$dX_t = r_t X_t dt + \pi_t'(\mu_t - r_t \vec{1})dt + \pi_t' \sigma_t dW_t. \tag{13}$$

The dynamic portfolio can be obtained for the case of Markovian coefficients. (See Takahashi and Yamamoto (2009b).) This paper assumes that r, μ, σ are deterministic functions of *t*. By applying Malliavin calculus, the dynamic portfolio generating the cheapest payoff is obtained.

Proposition 1 *Assume that r,* μ *and* σ *are deterministic functions of t. Then, in a complete market M, The dynamic portfolio generating payoff* $X = g(S_T^1, L_T)$ *is given by*

$$\pi_t = \sigma'(t)^{-1} \phi_t, \qquad (14)$$

where $\phi_t = (\phi_t^1, \cdots, \phi_t^n)'$ *is given by*

$$\phi_t^1 = \frac{\theta^1(t)}{H_t} E_t[H_T g_2(S_T^1, L_T)] + \frac{\sigma^{11}(t)}{H_t} E_t[H_T g_1(S_T^1, L_T) S_T^1], \tag{15}$$

$$\phi_t^i = \frac{\theta^i(t)}{H_t} E_t[H_T g_2(S_T^1, L_T)] \quad \text{for } i = 2, \cdots, n, \tag{16}$$

where g_j *represents the partial derivative of g with respect to argument j.*

The interpretations for the optimal portfolio constituent factors are as follows. $\frac{1}{H_t} E_t[H_T g_2(S_T^1, L_T)]$ is the present value of the sensitivity of the terminal payoff to the change of L_T.

This quantity corresponds to *delta* in the option theory. The volume of the risky asset portfolio increases in this quantity. This factor contributes to generating the target distribution. In addition, the replicating strategy allocates wealth to tradable assets according to the market price of risk $\theta^i(t)$. Through this operation, the cheapest strategy is realized. The second term of ϕ_t^1 is the present value of the sensitivity of the terminal payoff to the change of W_T^1. This term contributes to the generation of the dependence structure on the investor'sexisting portfolio.

DATA AND METHODOLOGY

Let us replicate Eurekahedge CTA/Managed Futures Index. The replication test is conducted on an out-of-sample basis. This paper uses the following investor's existing portfolio and risky assets. Assume that the investor's portfolio S^1 is composed of 50% Japanese stocks and 50% Japanese government bonds (JGB). Since these assets are traded dynamically, TOPIX futures and long-term JGB futures were used as the proxies. Both of these securities are listed on the Tokyo Stock Exchange. The S&P 500 futures, NYMEX WTI crude oil futures, COMEX gold futures, and JPY against USD spot currency are used as replicating tools. It is considered that CTAs and managed futures funds invest in these assets. All the data are obtained from Bloomberg. The log returns on futures are calculated by rolling the front contract. The front contract is rolled on the last trading day of the maturity month. Our base currency is USD. Since TOPIX and JGB futures are denominated in JPY, a currency hedge is applied. Accordingly, the log returns of these assets are adjusted by the difference between the interest rates of USD and JPY. Libor rates are used for the interest rates.

Using past data, the following procedures were performed on a monthly basis to estimate and select the best-fitted model of the target return distribution and its dependence structure on the investor's portfolio. First, the parameter estimation and model selection for the marginal distribution of monthly log returns of the CTA/Managed Futures Index are performed using the same method as with Papageorgiou *et al.* (2008). The best-fitted model is chosen from a Gaussian mixture with m regimes (m = 1, 2, 3, 4, 5) and Johnson unbounded distribution. Next, the copula model between the monthly log returns of the replication target and the investor's portfolio is estimated and selected in the same manner as that in Papageorgiou *et al.* (2008), which is based on the ranking of the time-series data. The copula is selected from the Gaussian, Student, Clayton, Frank and Gumbel.

In this example, it is assumed that the coefficients of the investor's portfolio and the replicating tool price processes are constant during a month. The parameters for the investor's portfolio and the replicating tools are estimated by maximum likelihood. The daily data in the previous month are used for the estimation in order to reflect the trend-following investment strategy. Finally, payoff function (10) is replicated by dynamic replicating portfolio (14). The portfolio is rebalanced on a daily basis. The conditional expectations in equations (15) and (16) can be numerically calculated by Monte Carlo simulations with two-dimensional Gaussian distributions. Therefore, the computational burden to obtain the dynamic replicating strategy is not different from that of the one replicating tool case.

For the purpose of comparison, the replication result of only one asset with only long position (Kat-Palaro's method) is also shown. Here, the replicating tool is the equally weighted portfolio of the four assets used by our method. The transaction costs are assumed to be one basis point for the sale and purchase of all assets.

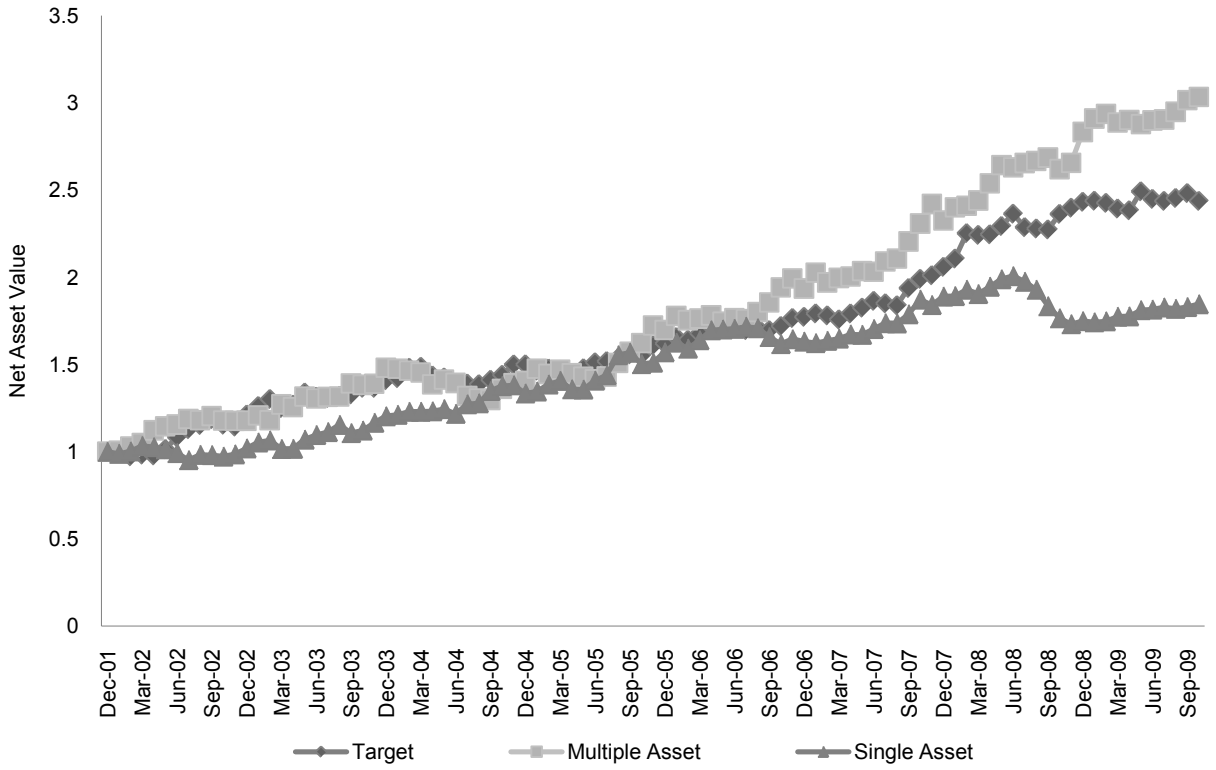
The inception month of Eurekahedge CTA/Managed Futures Index is January 2000. The data from the first two years since inception are used to estimate the return distributions while the monthly log returns from January 2002 to October 2009 were replicated by multiple assets (our method) and single asset (Kat and Palaro's method), which is composed by the equal-weighted portfolio of the four replicating tools.

RESULTS

Figure 2 shows the growth of net asset values of the target and two replication strategies. The replication by multiple assets performed better than the target. However, note that the performance of the replication target is after deduction of management and performance fees, while those of replications are not. Although the replication by single asset with only long positions performed well before July 2007, it incurred a large drawdown after this period. This is because the replicating tool substantially declined but the method could not take the short position for the asset. CTAs or managed futures funds attract investors because they enjoy high returns during the financial market crises. However, the replication by single replicating tool with only long position failed to reproduce the character. On the other hand, the

replication by multiple assets attained near the return level to the target even under the subprime and Lehman shocks.

Figure 2: Performance of the Target and the Replicated Strategies during Jan 2002-Oct 2009



This paper shows the growth of the net asset values of the target and its two replicas from January 2002 to October 2009. The target is Eurekahedge CTA/Managed Futures Index. The replicas are created by multiple and single asset. The replication method by multiple asset is developed by this paper. The replication by single asset is based on Kat and Palaro (2005) and Papagerogiou et al. (2008) where replicating tool is the equally weighted portfolio of assets used by our method. The initial net asset values for all the strategies are normalized to 1 in 31 December, 2001.

Table 1 shows the summary monthly statistics of the target and replicated returns from January 2002 to October 2009. As seen in figure 2, the replication by multiple replicating tools resulted in higher mean return than the target, while that by single replicating tool with only long position did not. Moreover, extension to the multiple assets succeeded in replicating the positive skew and negative excess kurtosis, while single asset did not. It also made the correlation with the investor's existing portfolio closer to the target. This confirms that the extension of Kat and Palaro (2005) and Papageorgiou et al. (2008) to multiple trading assets with both long and short positions improves the performance of the replication.

Let us see the replication performance by splitting the total period in 2008 and other periods. As seen in figure 1, most hedge fund strategies incurred drawdown in this year especially after the Lehman shock, while our replication target CTA/Managed Futures index performed very well. Table 2 and 3 exhibit the summary statistics for the year and the total period excluding 2008 respectively. Comparing mean log returns in 2008 to other periods, CTA/Managed Futures index performed better in the 2008's financial crisis than other periods. The replication by multiple assets succeeded in replicating this character. However, the replication by single asset with only long positions incurred loss in 2008, because this strategy cannot take short position for the replicating tool in the bear market. Especially, the clone with single asset recorded the minimum return in 2008. Even splitting the period, the replicating strategy by

multiple assets succeeded in replicating skew and excess kurtosis, while the replication with single asset did not. The improvement of the replication performance in 2008 indicates that our extension to multiple assets with long and short positions is significant in practice.

Table 1: Monthly Statistics of the Target and Replicated Log Returns in Total Period

	Target	Multiple Asset	Single Asset
Mean	0.87%	1.18%	0.65%
Std. Dev.	2.24%	2.64%	2.41%
Mean/Std. Dev.	0.39	0.45	0.27
Skew	0.35	0.16	-0.14
Excess Kurtosis	-0.04	-0.17	0.26
Max	6.77%	7.39%	7.69%
Min	-4.05%	-5.45%	-5.03%
Correlation with Investor's Portfolio	-0.01	0.17	0.38

This table shows the summary monthly statistics of the target and replicated log returns from January 2002 to October 2009. The target is Eurekahedge CTA/Managed Futures Index. The replicas are created by multiple and single asset. The replication method by multiple asset is developed by this paper. The replication by single asset is based on Kat and Palaro (2005) and Papagerogiou et al. (2008) where replicating tool is the equally weighted portfolio of assets used by our method. Excess kurtosis means kurtosis minus 3. That is, the excess kurtosis of normal distribution is 0.

Table 2: Monthly Statistics of the Target and Replicated Log Returns in 2008

	Target	Multiple Asset	Single Asset
Mean	1.25%	1.64%	-0.65%
Std. Dev.	2.49%	2.39%	2.40%
Mean/Std. Dev.	0.50	0.69	-0.27
Skew	0.39	0.45	-0.43
Excess Kurtosis	0.98	0.42	-0.87
Max	6.42%	6.47%	2.18%
Min	-3.28%	-2.49%	-5.03%
Correlation with Investor's Portfolio	-0.21	0.66	0.76

This table shows the summary monthly statistics of the target and replicated log returns in 2008. The target is Eurekahedge CTA/Managed Futures Index. The replicas are created by multiple and single asset. The replication method by multiple asset is developed by this paper. The replication by single asset is based on Kat and Palaro (2005) and Papagerogiou et al. (2008) where replicating tool is the equally weighted portfolio of assets used by our method. Excess kurtosis means kurtosis minus 3. That is, the excess kurtosis of normal distribution is 0.

Table 3: Statistics of the Target and Replicated Log Returns during the Total Period Excluding 2008

	Target	Multiple Asset	Single Asset
Mean	0.83%	1.11%	0.84%
Std. Dev.	2.20%	2.68%	2.36%
Mean/Std. Dev.	0.38	0.41	0.36
Skew	0.34	0.16	-0.10
Excess Kurtosis	-0.06	-0.20	0.38
Max	6.77%	7.39%	7.69%
Min	-4.05%	-5.45%	-4.68%
Correlation with Investor's Portfolio	0.07	0.12	0.23

This table shows the summary monthly statistics of the target and replicated log returns from January 2002 to October 2009 excluding 2008. The target is Eurekahedge CTA/Managed Futures Index. The replicas are created by multiple and single asset. The replication method by multiple asset is developed by this paper. The replication by single asset is based on Kat and Palaro (2005) and Papagerogiou et al. (2008) where replicating tool is the equally weighted portfolio of assets used by our method. Excess kurtosis means kurtosis minus 3. That is, the excess kurtosis of normal distribution is 0.

CONCLUDING COMMENTS

This article presented a new hedge fund replication method with the dynamic optimal portfolio by extending Kat and Palaro (2005) and Papageorgiou *et al.* (2008) to multiple trading assets with both long and short positions. It generates a target payoff distribution by the cheapest dynamic portfolio. By extending Dybvig (1988) to continuous-time framework, it was shown that cost minimization is equivalent to maximization of a certain class of von Neumann-Morgenstern utility functions. The dynamic trading strategy was derived analytically by applying Malliavin calculus.

The method was applied to the replication of CTA/Managed Futures Index. The replication performance was examined on an out-of-sample basis. Our statistical procedure is the same as Papageorgiou *et al.* (2008). The result showed that the performance of the replication was dramatically improved compared to the existing method (investing in only one replicating tool with only long position). Most notably, our replication method was able to obtain high returns after the subprime and Lehman shocks as the replication target while the replication based on the one replicating tool with only long position incurred a large loss during this period.

Any change or extension of the investment universe would affect the performance of the replication. In our empirical replication, it is assumed that the stochastic processes of trading assets have deterministic coefficients. The implementation for the Markovian coefficients case including a stochastic volatility model as well as a stochastic interest rate model is also a challenging task. Also, the application of our method to creating new attractive trading strategies represents an avenue for future research.

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DOES CORPORATE GOVERNANCE AFFECT INSTITUTIONAL OWNERSHIP AND SHARE REPURCHASE DECISIONS?

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ABSTRACT

This study investigates the relevance among corporate governance mechanism, institutional ownership and share repurchase decisions. Examining 220 exchange-listed companies in Taiwan during 2004 to 2006, the main findings are as follows. First, corporate governance mechanisms affect share repurchase decisions as well as institutional investor ownership. Next, the ownership of institutional investor depends on the interaction between corporate governance mechanisms and share repurchase decisions. Additionally, the share repurchase decision is influenced by interaction between corporate governance mechanisms and ownership of institutional investors. Finally, when the company size is incorporated as a control variable, the adjusted R-square for the multiple regression is improved.

JEL: G32; G34

KEYWORDS: Corporate governance, institutional ownership, share repurchase

INTRODUCTION

This study investigates whether corporate governance can affect institutional ownership and share repurchase. On July 2000, share repurchase was allowed in Taiwan stock market[1]. There were 385 exchange-listed companies declaring the implementation of share repurchase for a total of 1366 cases from 2000 to 2006. The amounts of share repurchase have increased each year; this indicates share purchase is an important financial decisions[2]. To strengthen the transparency of information and establish the direction of corporate governance, "the code of best practice for corporate governance" was established on May 2002; this leads to investors' attention on corporate governance[3].

Relatively fewer studies examine the relationship among corporate governance, institutional ownership, and share repurchase. Since share repurchase involves the interests of shareholders and stakeholders, it should be accompanied with adequate corporate governance mechanisms for mitigating their conflict. In addition, because institutional investors usually have more information and professional knowledge, they could play an important role in supervision, and would hold those stocks with well corporate governance mechanism. Therefore this study attempts to investigate a rarely discussed issue: the associations among corporate governance, share repurchase, and ownership of institutional investors.

Based on the mentioned motivations, this study will suggests four hypotheses to be verified in Section 3. This paper is organized as follows. Section 2 briefly discusses the relevant literature. Section 3 states the four hypotheses and the description of the related variables. Subsequently, the multiple regression results for these hypotheses are exhibited in Section 4. Finally, conclusions are presented in Section 5.

LITERATURE REVIEW

Numerous researchers have discussed the issue of share repurchase. Some concentrate mainly on the motivation and market reaction for share repurchases. For example, Jensen (1986) proposed reducing idle funds through share repurchase can decrease company agency cost. Ikenberry et al. (1995) found that under-pricing is the most important motivation for share repurchase; also, the declaration of share

repurchases had a positive impact on company's long-term performance. Gompers et al. (2003) suggested that share repurchases can lead to a strong controlling shareholder rights, and hence reduce agency costs. Tsai and Guo (2004) found that when the company announced share repurchase, there would be positive market reaction.

Corporate governance issue have been widely studied in recent years; however, these discussions often focused on the institutional investor's roles. For example, Brickley et al. (1988) found that on the voting of a takeover case, institutional investors and external controlling shareholders are more aggressive in voting; also, when institutional investors have very close relationship with the company, their monitoring capacities would be reduced. Hartzell and Starks (2003) found that the involvement of institutional investors could achieve the better supervision and corporate governance.

Variables Description and Hypotheses Suggested

First, this section introduces the calculation of control rights and cash flow rights. Subsequently, we present the selection of corporate governance variables. Finally, four hypotheses are suggested. Based on La Porta et al. (1999), *direct control* is defined as the right to vote registered under the name of the largest shareholder. *Indirect control* is the right to vote registered under the name of other business entities, but these entities are controlled by the largest shareholder. According to Yeh et al. (2002), the indirect control rights of the largest shareholder can be accumulated through multiple control chains, then the control rights are the sum of the smallest share right in each of the control chain. Additionally, cash flow rights are measured from multiplying mutually all the share rights ratio in control chain. If the largest shareholder owns a company through a number of control chains, the cash flow rights are the sum of the cash flow rights in each of the control chain.

Table 1 summarizes the symbols and definitions of various variables in this study, where these variables primarily refer to Yeh et al. (2002). The explained variables include share repurchase variable (Policy) and the ownership of institutional investors (Hold). The explanatory variables are the corporate governance variables which are classified into 5 dimensions and 17 variables. Additionally, this study uses company size (Size), debt ratio (Debt) and export ratio (Exp) as the control variables, which are referred to Falkenstein (1996), Dittmar (2000) and Lin and Shiu (2003), respectively.

Based on the motivations in Section 1, this study proposes four hypotheses, namely H1 through H4, as follows. H1 states that corporate governance would affect share repurchase. H2 states that corporate governance would affect the ownership of institutional investors. H3 states that the interactions between corporate governance and ownership of institutional investor would affect the share repurchase decision. Finally, H4 states that the interactions between corporate governance and share repurchase would affect the ownership of institutional investors repurchase.

EMPIRICAL RESULTS

The data were obtained mainly from the Taiwan Economic Journal (TEJ) and the "Market Observation Post System" in Taiwan Stock Exchange. Three criteria are adopted to select companies for the empirical sample. First, the companies must be the exchange-listed companies in Taiwan Stock Exchange during the sample period of 2004 to 2006. Second, they had announced share repurchase during the sample period. Third, those companies would be removed if their information were not complete in testing the four hypotheses. Accordingly, there are 220 sample companies per year, and hence the total observations equal 660 over 3 years.

This study utilizes multiple regression analysis to test these four hypotheses. Using stepwise regression, we select 5 corporate governance variables as the explanatory variables for H1 and H3 and select 6 corporate governance variables as the explanatory variables for H2 and H4. The results by the EViews software are presented in Table 2. First, the null hypotheses $\alpha_1 = \ldots = \alpha_5 = 0$ for Model (1),

$\alpha_4 = \ldots = \alpha_9 = 0$ for Model (2), $\beta_1 = \ldots = \beta_5 = 0$ for Model (3), and $\gamma_4 = \ldots = \gamma_9 = 0$ are rejected significantly, this empirical result indicates that all four hypotheses are verified. Second, different from Gompers et al. (2003), the coefficient of X2 (ratio of stocks collateralized by major stockholders) in Model (1) is significantly positively related to share repurchase. Third, different from "the optimal leverage ratio hypothesis" in Dittmar (2000), the result demonstrates that the impact of debt ratio (Debt) on share repurchase is not significant in Model (1). Fourth, consistent with Falkenstein (1996), company size (Size) has a significantly positive impact on institutional ownership in Model (2). Fifth, both export ratio (Exp) and debt ratio (Debt) have no noticeable effects on ownership of institutional investor; this disagrees with Lin and Shiu (2003).

Table 1: Symbols and Definitions of Various Variables

Corporate Governance Variables
A. board of directors (supervisors) composition (weight 40%)
No. of controlling shareholders / No. of directors
No. of professional managers / No. of directors
No. of other shareholders as directors / No. of directors
No. of other shareholders as supervisors / No. of supervisors
No. of controlling shareholders as supervisor / No. of supervisors (X6)
No. of supervisors
B. ownership structure (weight 20%)
ratio of cash flows owned by controlling shareholders (X1)
controlling shareholders control rights minus their cash flow rights (X7)
cash flow rights / control rights of controlling shareholders
C. management style (weight 10%)
shares owned by second largest shareholder / outstanding shares (X4)
Is chairman also the general manager? (X8; Yes = 1, No = 0)
D. related party transaction (weight 20%)
sales from related party / net sales (X9)
account receivable from related party / equity (X5)
account payable from related party / equity
non-operating income from related party / net sales
E. major shareholders involvement in stock market (weight 10%)
No. of stocks collateralized by major stockholders / No. of outstanding shares (X2)
long-term and short-term investment / total assets (X3)
Shares repurchase variable
planned number of share repurchase / outstanding shares in the beginning (Policy)
Ownership of Institutional investor variable
shares owned by institutional investors / outstanding shares (Hold)
Control variables
natural logarithm of total assets in thousands (Size)
total debts / total assets (Debt)
total exports / total assets (Exp)

This table is mainly based on Yeh et al. (2002). However, the share repurchase variable and the ownership of institutional investor variable are according to Tsai and Guo (2004) and Chow et al. (1996), respectively. The related variable symbols are shown in parentheses. Performing the stepwise regression, this study chooses 9 variables from the 17 corporate governance variables as the explanatory variables, namely, X1, X2,…, and X9. Additionally, we use company size (Size), debt ratio (Debt) and export ratio (Exp) as the control variables, which are referred to Falkenstein (1996), Dittmar (2000) and Lin and Shiu (2003), respectively.

CONCLUDING COMMENTS

This study investigates the relationship between corporate governance mechanism, institutional ownership and share repurchase decisions. Examining on 220 exchange-listed companies in Taiwan

during 2004 to 2006, the main findings are as follows. First, corporate governance mechanisms affect share repurchases. Meanwhile, the influence of debt ratio on share purchase is not significant; suggesting a violation of the optimal leverage ratio hypothesis. Second, excluding the insignificant variables, corporate governance mechanism increases ownership of institutional investor. Third, the interactions between corporate governance mechanism and institutional investor ownership would affect share repurchase decisions. Fourth, the interaction between corporate governance mechanism and share repurchase decision would affect the institutional investor ownership. Finally, we find that company size has significant impact on share repurchase decisions and institutional investors ownership; whereas debt ratio and export ratio have no significant influences.

Some extensions of this work can be considered for future research. First, data can be stratified by industry or some other variable to see if the results hold in various industries. Additionally, different proxy variables for corporate governance, shares repurchase and ownership of institutional investor can be used to examine the robustness of the results.

Table 2: Regression Results of Share Repurchase and Institutional Investor Ownership

		Explained Variables			
Explanatory	**Regression**	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**
Intercept	α_0	6.1205***	-61.55***	5.8224***	-59.57***
X1	α_1	-0.0138		-0.0093	
X2	α_2	0.0539**		-0.0040	
X3	α_3	0.0125*		0.0437***	
X4	α_4	-0.0640*	1.1273***	-0.2220***	0.9679***
X5	α_5	-0.0127	-0.1224	-0.0295	-0.2232**
X6	α_6		0.0982***		0.1174***
X7	α_7		0.4677***		0.3791***
X8	α_8		-1.5120		-4.0288**
X9	α_9		0.0835**		0.1405***
X1 × Hold	β_1			-0.0002	
X2× Hold	β_2			0.0037**	
X3 × Hold	β_3			0.0004	
X4 × Hold	β_4			0.0011	
X5 × Hold	β_5			-0.0008**	
X4 × Policy	γ_4				-0.0074
X5 × Policy	γ_5				0.0453
X6 × Policy	γ_6				0.0551
X7 × Policy	γ_7				1.2328**
X8 × Policy	γ_8				-0.0315**
X9 × Policy	γ_9				0.0577*
Hold	δ_H			-0.0039	
Policy	δ_P				-0.4789
Size	δ_S	-0.2247**	5.2754***	-0.1944*	5.2062***
Debt	δ_D	-0.0025	0.0039	-0.0014	0.0135
Exp	δ_E	-0.0002	0.0024	0.0001	0.0024
R^2		0.0282	0.2426	0.0450	0.2595
Adjusted R^2		0.0163	0.2321	0.0242	0.2410
F-statistic		2.3618	23.1248	2.1690	14.0806
Prob (F-statistic)		0.0165	0.0000	0.0078	0.0000
F Test: H_0		$\alpha_1 = \ldots = \alpha_5 = 0$	$\alpha_4 = \ldots = \alpha_9 = 0$	$\beta_1 = \ldots = \beta_5 = 0$	$\gamma_4 = \ldots = \gamma_9 = 0$
F-statistic		2.8751	12.2338	2.4155	2.2901
Prob (F-statistic)		0.0141	0.0000	0.0349	0.0523

*This table shows the multiple regression results for examining four hypotheses. According to the stepwise regression, we select 5 corporate governance variables as the explanatory variables for H1 and H3 and select 6 corporate governance variables as the explanatory variables for H2 and H4. Models (1) through (4) are respectively used to test the hypotheses H1 through H4. ***, **, * indicate significance at the 1, 5 and 10 percent levels respectively.*

ENDNOTES

[1] On July 2000, the code of "Regulations Governing Share Repurchase by Exchange-Listed and OTC-Listed Companies" was announced.

[2] The source is from "Compilation Table of Company Stock Buyback Data" in Market Observation Post System of Taiwan Stock Exchange.

[3] In 2004 Pulse Tech scandal happened, which indicated that corporate governance mechanism for Taiwan's listed companies was defective and inadequate. Pulse Tech first purchased its own stocks to lift its stock price. Simultaneously Pulse Tech converted the oversea Euro Convertible Bonds to common stocks and then sold them for huge profits.

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A ROADBLOCK TO US ADOPTION OF IFRS IS LIFO INVENTORY VALUATION

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ABSTRACT

A roadblock exists between International Financial Reporting Standards, (IFRS) and United States Generally Accepted Accounting Standards, (US GAAP) in the area of acceptable methods of inventory valuation. IFRS recognizes the First In First Out Method, FIFO, and the Weighted Average Method of Inventory Valuation as acceptable methods of inventory valuation. It does not recognize or allow the Last In First Out Method of Inventory Valuation, LIFO, as currently used in the United States. Canceling LIFO would require most large US companies to pay excessive amounts of additional income tax to the Internal Revenue Service, IRS. In order for the United States to adopt IFRS Accounting Standards, the elimination of LIFO would have to occur.

JEL: M41, M48

KEYWORDS: IFRS, LIFO, FIFO, Inventory Valuation, LIFO Conformity Requirement

INTRODUCTION

In 2006 the International Accounting Standards Board, (IASB) created the following objectives as stated in its International Financial Reporting Standards, (IFRS):

> *To develop in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in various capital markets of the world and other users of information to make economic decisions (Alexander-Archer, 2008*).

It is apparent that acceptance by the US Securities and Exchange Commission to allow financial reporting of foreign registrants for US listings has been a crucial element in the IASB's acceptance as the global accounting standard setter. The IASB and the Financial Accounting Standards Board, (FASB) have, as a result, worked on convergence with an ultimate goal of a single set of standards and a conceptual framework common to both bodies (Alexander & Archer, 2008).

On November 21, 2008, the SEC published a roadmap toward the mandatory use of IFRS by U.S. issuers that could lead to IFRS among U.S. filers by the year 2014 (Fed. Reg. 70816, 2008). The SEC also finalized rules allowing the submission by foreign firms of financial statements prepared in compliance with IFRS, without reconciliation to U.S. GAAP (Fed. Reg. 70816, 2008).

In its executive summary, the SEC has clearly shown support for the international convergence of GAAP. For example, the Commission has long viewed reducing the disparity between the accounting and disclosure practices of the United States and other countries as an important objective for both the protection of the investors and the efficient use capital. The use of a single set of high quality globally accepted accounting standards by issuers will help investors understand investment opportunities outside the United States more clearly and with greater comparability than if those issuers disclosed their

financial results under a multiplicity of national accounting standards. The globally accepted standards will enable issuers to access capital markets worldwide at a lower cost. Moreover, the SEC has undertaken several measures to foster the use of International Financial Reporting Standards, (IFRS) as issued by the International Accounting Standards Board (IASB) and fully supports the efforts of the IASB and the Financial Accounting Standards Board (FASB) to convergence of their accounting standards (SEC release 33-8831, 2007).

The process of convergence of US GAAP with IFRS Standards has made a great deal of progress. Many issues remain to be addressed including the destiny of the LIFO Inventory Valuation Method. In general, the issue of LIFO Inventory Valuation is not on the list of active or research agendas of either the Financial Accounting Standards Board (FASB) for US GAAP or the International Accounting Board (IASB) for IFRS. However, Robert Herz, the chairman at FASB states that at some point the LIFO Valuation issue will have to be resolved (Herz, 2007). A recent exposure draft of the IASB,QC19, states that:

> *Although a single economic phenomenon can be faithfully represented in multiple ways, permitting alternative accounting methods for the same economic phenomenon can diminish comparability and, therefore, may be undesirable" (IASB, 2008).*

FASB has also stated that it would disapprove creating a US variant of an IFRS rule (Denham, 2007). From an economic standpoint the IASB for IFRS and the FASB for US GAAP are both in agreement on the requirement for only one set of accounting rules in financial reporting.

LITERATURE REVIEW

As early as 1919 the Treasury Department permitted taxpayers to use only First In First Out, FIFO and Average Cost methods of inventory valuation. The LIFO method of inventory was obtained from the Base Stock method of inventory accounting which originated in England in the middle of the nineteenth century. The Base Stock Method was also referred to as the Normal Stock Method (Peloubet 2000).

The Base Stock Method was developed from the concept that some businesses had to keep a constant level of inventory in order for the firm to operate normally. The Base Stock Method controlled sharp movements of inventory profits and losses. As items were sold, the cost was taken from the last items added to the inventory. The items were not removed from the Base Stock Inventory, which was left intact. During periods of rising prices profits were reduced and when a decline in prices occurred losses were reduced.

The LIFO Method is similar to the Base Stock Method. The cost removed when items are sold is the most recent addition. The cost of remaining inventory is the beginning inventory and additional items that follow. Thus, the cost of goods sold is reported on the income statement at current market prices and reduces profits accordingly (Cotter, 1935).

As early as 1903 the American Smelting and Refining Company was the first company to use the Base Stock Method in the United States. By 1921, 10% of United States Corporations were noted as using a cost record of earnings by using these inventory methods (Author Unknown, 1935).

The IRS required inventories to be valued at cost or at the lower of cost or market. Firms using LIFO or Base Stock Methods for inventories had to keep two sets of records, one for financial reports for stockholders and the other set for maintaining tax reporting (Cotter, 1935).

In a case before the Supreme Court involving the IRS v. Kansas City Structural Steel Company, the Court denied the propriety of the Base Stock and other methods in favor of the Internal Revenue's FIFO requirement (Peloubet, 2000).

The defeat of the Kansas City Structural Steel case with the Supreme Court motivated LIFO supporters to head to Congress for support (Peloubet, 2000). Leading the fight was a business journalist joined by a growing accounting profession (Peloubet, 2000).

As a result of the losses caused by the Depression of 1929, businesses opted for the FIFO Method. However, as the recovery from the Depression developed and prices began to rise, supporters of the Base Stock and LIFO methods returned. Since the U.S. Treasury and the U.S. Supreme Court rejected the Base Stock method but did not explicitly eliminate the LIFO method a battle ensued. Arundel Cotter, an editor of the *Wall Street Journal* campaigned in the court of public opinion by writing several books and articles in which he supported corporate America and the LIFO method of inventory valuation. To justify LIFO Inventory valuation, he argued that the creation of the Securities and Exchange Commission by the Roosevelt Administration was a demonstration of the need for accurate financial reports for stockholders and investors (Cotter, 1936). Some Accountants considered Cotter as a partner in the struggle to have LIFO recognized by Congress.

Government regulation by the Roosevelt Administration led to the Securities Act of 1933. The Securities and Exchange Commission created in the SEC Act of 1933, cooperated with the accounting profession and asked for their advice in creating securities laws (Berle, 1938).

In 1936 the merging of the American Institute of Accountants (AIA) and the American Society of Certified Public Accountants (ASCPA) created a national organization to fight government control. Accountants fought to shape accounting policies in income tax legislation and securities regulation. One of the first issues to be addressed was the Undistributed Profits Tax supported by the Treasury Department in 1936. The Undistributed Profits Tax required the use of the FIFO inventory method so consideration of the LIFO inventory was eliminated (Miranti, 1990).

Concerned with the backlash against the New Deal Program created by his administration, Roosevelt feared the intrusion of a tax reform program. As a recovery began to occur, he became less concerned with the opposition of business to his tax policies. However, in 1936 a fiscal emergency occurred because for World War I Veterans a bonus was created despite the fact that the president had vetoed it. As a result, the Treasury Department recommended the elimination of the existing corporate income tax replacing it with a tax on undistributed profits (Brownlee, 2004).

Strong opposition from corporate business resulted. In 1936 supporters of LIFO and those challenging the Undistributed Profits Tax appeared before Congress. Maurice E. Peloubet a CPA with Pogson, Peloubet, and Company formerly with Price Waterhouse and Company testified before Congress on the need for the LIFO method for pricing inventories (Moonitz, 1965). The Senate Finance Committee took no action, referring the proposal to the Treasury Department.

Citing the Supreme Court decision, the Treasury Department decided against adopting the method. A further reason presented was that taxpayers would switch from LIFO to FIFO as prices went up or down (Watson, 1937). It became very obvious that a regulation to reform the valuation of inventories would not come from the Treasury Department. Instead any regulation would have to come from Congress. In March 1938 the supporters of LIFO returned to Congress and reappeared before the Senate Finance Committee. At the same time a recession weakened the Roosevelt administration and faced opposition from Roosevelt's tax program by his own party. However, the Treasury Department rejected the adoption of the LIFO inventory stating that it would result in millions of lost revenue (Haas, 1938).

An attack on the Treasury's forecast was presented by George O May, senior partner with Price Waterhouse pointing out that Secretary Morgenthau of the Treasury Department had made errors in the figures used to support the Undistributed Profits Tax in 1936. The error caused Morgenthau to drop his support of the Undistributed Profits Tax (Congressional Record, 1938). Congressional leaders might have wanted to remind the Treasury Department that Congress dictates the tax policy and LIFO inventory was created.

The Revenue Act of 1939

The INTERNAL REVENUE CODE under Sec.472 (a) provided for the authorization for the LIFO CONFORMITY requirement Sec.472 and (c) passed by Congress mandated that if LIFO was used for in determining taxable income for tax purposes, it must also be used in reporting financial statements. (Hoffman 2009). Both remain in existence today. The decision that LIFO would be required for both calculating income tax and for financial reporting was determined by a three member committee appointed in 1938 by the Treasury Department. The members included Carman G. Blough, Arthur Anderson and Company, formerly the first chief accountant of the Securities and Exchange Commission, SEC, Edward Kracke, Haskins and Sells, and Roy B. Kester, a Professor at Columbia University. The Committee's final recommendation was that companies should be allowed to use LIFO, provided they used it both for financial reporting and tax reporting (Cooper, 1996).

The Treasury department lawyers took into account the recommendations of the committee when drafting the LIFO legislation that became law in the Revenue Act of 1939. John Wanes, the new Under Secretary of the Treasury, stated to the Senate Finance Committee, that the Treasury had no objection to amending the law that was previously objected to. He also stated that the Treasury Department agreed to make the LIFO method available for income tax purposes to any taxpayer using the LIFO method in its financial accounting system. A motion was agreed to without objection. Congress authorized the use of LIFO for both income tax law and financial reporting with the passage of the Revenue Act of 1939 (Senate Finance Committee, 1939).

DATA AND METHOLOGY

Reporting Example of How LIFO Decreases Taxes under Rising Prices

First In First Out Inventory Valuation, FIFO, uses the actual method of production in costing its products. LIFO does not follow the actual production of its products. LIFO instead retains the older inventory values on the balance sheet. In periods of rising prices LIFO results in higher costs and as a result lower profits than would occur under FIFO.

Consider the following example of FIFO and LIFO and the effect on Net Income with the use of either method. A firm selling shoes purchases five pairs of shoes at the following prices:

Pair	Cost Price
Pair #1	$10
Pair #2	$10
Pair #3	$20
Pair #4	$30
Pair #5	$30
Total	$100

The company sold three pair of shoes to a customer for $100 each. The total of the sales is $300. In the first example, FIFO inventory with respect to sales means that pairs #1, #2, and #3 were sold, the inventory consists of pairs #4 and #5. The resulting income statement is:

Sales of 3 pairs of shoes @ $100		$300
Cost of Goods Sold		
Purchases of 5 pairs of shoes	$100	
Less FIFO Inventory	60	
Cost of Goods Sold		40
Net Income		$260

The cost of goods sold is calculated to be $40 after subtracting the FIFO inventory of $60 from the $100 purchase of the shoes. The net income is $260.

LIFO Inventory (LIFO with respect to sales) means that pairs #3, #4, and #5 were sold; the inventory consists of pair #1 and pair# 2 and are at the top. If the LIFO inventory method is used the resulting income statement is:

Sales of 3 pairs of shoes @ $100		$300
Cost of Goods Sold		
Purchases of 5 pairs of shoes	$100	
Less LIFO Inventory	20	
Cost of Goods Sold		80
Net Income		$220

The cost of goods sold is calculated to be $80 after subtracting the LIFO inventory of $20 from the $100 purchase of the shoes. The net income is $220. Thus the FIFO income statement shows a lower cost of goods sold and higher net income. As a result of the higher net income, income taxes will also be higher using the FIFO method than would occur under LIFO. FIFO results in higher income taxes when goods are purchased at a higher price later in time. Hence, the argument that FIFO results in higher taxes is true under the assumption that goods purchased for sale in the future cost as much or more than goods held in inventory. Based on the assumption that energy prices will remain high because of the reliance on imported oil increasing prices of goods is tenable.

Effect of Switching to FIFO on Corporate Taxes

To determine whether income taxes increase in practice, rather than in theory, data of the impact of a FIFO adoption by companies was from reviewed from a Georgia Institute of Technology Study that was completed in 2008 (Mulford & Comiskey, 2008). The results of the study are listed in Table 1. The company name is listed in the first column of the table and taxes due after switching to FIFO as a part of IFRS convergence are listed in the second column of the table in millions of dollars. The increase in taxes ranged from $2,000,000 to $8,890,000 (Mulford & Comiskey, 2008). The companies that have the highest dollar increases in taxes are the petroleum refining companies that include Exxon Mobil, Marathon Oil Corporation, Valero Energy Corporation, and Sunoco. This study supports the hypothesis that switching to FIFO as part of IFRS convergence will have large tax increases for companies.

Further data about the FIFO and LIFO pre-tax income of the Petroleum Refinery Companies is shown in Table 2. The FIFO pre-tax income was higher than the LIFO pre-tax income for all of the companies. The average percent change was 48.7%. Sunoco had a 113.2% increase in pre-tax income when

switching to FIFO. The potential of the elimination of LIFO as a part of IFRS convergence reveals higher taxable income and a major increase in US income taxes for these companies (Mulford-Comiskey, 2008).

Table 1: Taxes Due for Corporations by Using the FIFO as Part of IFRS Convergence

Company	Taxes due on Switch Over to FIFO (millions)
A.K. Steel	16
Allegheny Technology	131
Applied Industrial Technologies	49
Carpenter Technology Corporation	175
Castle (A.M.) & Company	50
Eastman Chemical Corporation	179
Encore Wire Corporation	26
Exxon Mobil	8890
Friedman-Industries	2
Gorman-Rupp Company	16
Grainger Inc.	101
Graybar Electric	40
Hancock Fabrics	13
Holly Corporation	70
Longs Drug Stores	72
Marathon Oil Corporation	1,412
North American Galvanizing & Coating	3
Sifco Industries	2
Solutia Inc.	84
Spartan Stores	16
Standard Register Company	12
Starrett Company	10
Sturm, Ruger & Company	16
Sunoco	1354
Tennant Company	10
Tesoro Company	490
Twin Disk, Inc.	8
United Refining Company	22
Valero Energy Corp	2170
Winnebago Industries	12

The impact of a FIFO adoption by Companies was reviewed from a study by Mulford &Comiskey, (2008). The data shows that companies will have taxes ranging from $2,000,000 to 8,890,000 as a result of switching to FIFO inventory valuation as part of IFRS convergence (Mulford &Comiskey, (2008).

Table 2: Percent Change in FIFO and LIFO Income for Petroleum Companies

Company	LIFO Pre-Tax Income	FIFO Pre-Tax Income	Percent Change In Pre-Tax Income
Exxon Mobil	$70,474	$79,974	13.5%
Holly Corp.	499	562	12.6%
Marathon Oil Corp	6,849	9,201	34.3%
Sunoco Corp.	1,409	3,004	113.2%
Tesoro Corp	905	1,535	69.6%
Valero Energy Corp	6,726	10.026	49.1%
Overall Average			48.7%

Table 2 lists data from a study by Mulford &Comiskey, (2008) about the FIFO and LIFO pre-tax income of the Petroleum Refinery Companies. The FIFO pre-tax income is higher than the LIFO pre-tax income for all of the companies (Mulford &Comiskey, 2008).

RESULTS

In 2008 the AICPA reported that more than a third of the companies surveyed used a combination of cost flow assumptions. More than 65% used FIFO for a significant portion of their inventories. About 35% use LIFO. Less than 30% use weighted average or specific identification methods.

The industries with the greatest percentage of firms using LIFO include firms in the chemical industry and firms that manufacture industrial and farm equipment. Retailing firms use LIFO extensively. The

industries with the smallest proportions of firms using LIFO include technology based firms which experience decreasing production costs such as computer and other electronic equipment (AICPA, 2008).

The general impact of LIFO for income tax reporting in the United States becomes a momentous decision. In the 2007 tax reform proposal H.R.3970, the House Ways and Means Committee estimated that the provision to repeal LIFO for income tax reporting would raise approximately $106 Billion in ten years. The Bill was not acted on by the full Ways and Means Committee (House Ways and Means Committee, 2007). If LIFO were repealed for United States income tax purposes, companies would have higher income taxes.

RECOMMENDATIONS

For the last seventy years companies have had the benefit of LIFO Inventory valuation and as a result paid lower income taxes. In considering the destiny of LIFO, it is necessary to note that the objectives of the Internal Revenue Code and the objectives of financial reporting (GAAP) are not necessarily similar. Taxable income for income tax purposes does not have to be calculated in accordance with GAAP. Furthermore, GAAP does not have authority over US tax laws. However, it is the LIFO CONFORMITY REQUIREMENT that threatens the continued use of LIFO for income tax purposes. Thus, the creation of the LIFO CONFORMITY REQUIREMENT by the Securities and Exchange Commission, SEC has mandated that if LIFO is used in financial reporting, it must also be used in calculating income taxes.

A repeal of the LIFO CONFORMITY REQUIREMENT and a continuation of LIFO income taxes is a possibility, but it is highly unlikely. After seventy years of lower taxes, Congress is not likely to permit companies to continue with paying lower tax bills.

President Obama's Tax Proposals

The Obama budget for 2010 would repeal the election to use LIFO for income tax purposes. Taxpayers that currently use the LIFO method would be required to write-up that is to revalue their beginning LIFO inventory to its FIFO value in the first taxable year beginning after December 31, 2011. This one time increase in gross income would be taken into account ratably over the first taxable year and the following seven taxable years. Repealing LIFO and making companies pay tax on the accrued difference between LIFO and FIFO inventory valuations would impose a substantial one time tax and a smaller permanent tax as long as prices are increasing. In HR3970 Ways and Means Committee Chair Charles Rangel proposed to allow firms to spread income from the initial adjustment from LIFO to FIFO over eight years. (Urban Institute and Brookings Institution, 2009). Already proposed is the elimination of the LIFO inventory valuation beginning in 2012 by the Treasury department (Kiplinger, 2009).

CONCLUDING COMMENTS

The benefits of repealing LIFO and adoption of IFRS accounting standards will probably include financial statements that present higher figures. For example, balance sheets and income statements presenting better financial results will make companies more worthy of credit, expand opportunities for growth, help to create more jobs and as a result growth in the economy.

On a global basis, improved reporting consistency, enhanced global competition, and improved financial reporting transparency will occur. Many multinational companies will have cost savings because they will not have to report under several sets of standards (Lee & Smith, 2009). Congress will probably eliminate both the LIFO TAX RULE and the LIFO CONFORMITY REQUIREMENT and allow a period of several years to effect the change. With this action the roadblock for US adoption of IFRS will be removed.

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OPINION LEADERS AND THEIR INFLUENCE ON CONSUMER PURCHASING BEHAVIOR IN SAUDI ARABIA

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ABSTRACT

Current thinking on opinion leaders varies with respect to key features distinguishing these individuals. Some studies emphasize influence as the crucial determinant, others stress knowledge, and still others focus primarily on information transmission. Most research, however, see a combination of knowledge or expertise and influence as characterizing the opinion leader. From a marketing perspective in some product categories, opinion leaders appear to be more knowledgeable about and involved with the product class. This study examines the existence of TV opinion leadership and the purchasing of TV sets in Saudi Arabia, and the characteristics opinion leaders and non-leaders have. In addition, the study re-examines the Two-Step Flow model to assess its validity in Saudi Arabia. The findings reported in this article indicated that the concept of TV opinion leadership exists in Saudi Arabia. And those opinion leaders were more likely to have some social characteristics than followers. In addition, those opinion leaders were found to be both information givers and seekers. The validity of the Two-Step Flow model of communication was also re-examined in Saudi Arabia. The findings support the existing literature on the inaccuracy of this model and, therefore, a multi-step model of communication would be relevant for the Saudi context.

JEL: C80; D91; M16; M31

KEYWORDS: Data collection, consumer choice, international business administration, marketing and advertising

INTRODUCTION

This introduction provides a background on the Saudi environment to help the reader appreciate the study, followed by major sections on literature review, data and methodology, empirical results, and conclusion.

Until in the late 1980s, most Saudis observe traditional Saudi gender roles. Men are more active in public and commercial spheres, and women are engaged in the home and family environment. Early in the 1990s primarily as a result of the intense economic developments in the urban centers in Saudi Arabia, and internal migration from rural areas to major cities in search of better work opportunities have impacted the Saudi society. As more families migrate to urban centers, rural areas experience population decline. This population shift strained the traditional values within the Saudi home, and has added to altering women's role into a participant in economic development. The socio-economic developments in the Saudi society have also been affected by the tremendous improvement in the educational sector. The educational system in Saudi Arabia has been broadened and modified to conform to new standards. Schools were opened in even the remotest parts of the country. The number of schools, community colleges and universities (Public & Private) has increased dramatically. The Saudi government and families encourage women to enroll in higher education and, therefore, women's role in socio-economic development has been enhanced. The educational progress in Saudi Arabia must be recognized as being both positive and remarkable for males and females. As in many other countries, the impact of modernization on Saudi Arabia is seen as in the best interest of the country. Radical change has been

introduced in many areas of the Saudi economy and society. The strict social divisions between men and women are becoming less emphasized. At wedding celebrations, for example, wealthy families with members educated at Western institutions are more likely to relax social restrictions.

Even though the public workforce in Saudi Arabia is still dominated by men, many Saudi women can be found working in various occupations such as secretaries, administrative assistants, bank tellers, school teachers, physicians, professors and in an expanding realm of jobs outside the home. There is a large and growing number of young Saudi women enrolled in universities throughout the country and abroad, studying a variety of subjects including, business and medicine. Nevertheless, Saudi families are proud of their traditions and thus Saudi women wear long-black-dresses (black Abayah) with dark scarves covering their hair, which leave no part of their bodies visible to the eye. Foreign women residing in Saudi Arabia are not expected to dress in this manner. They, however, should be prepared to act in a reserved and conservative manner while in public, consistent with society's values and traditions.

With this state of socio-economic development in mind, this study was conducted in Saudi Arabia on opinion leadership of home appliances (TVs). The study was conducted to find out the differences, if any, between information givers and seekers with regard to certain social characteristics such as innovativeness and the level of influence on others' purchase decisions; determine whether or not the concept of TV opinion leadership exists in Saudi Arabia based on a certain social characteristics; and re-examine the validity of the Two-Step Flow model in Saudi Arabia.

To effectively provide the necessary information by Saudi consumers, marketers need to know how much Saudis know about finding information, product knowledge, information use, and ability to search for information. This knowledge could help in designing an effective information strategy for Saudi consumers. A proper assessment of Saudi needs of product information must be carried out before the development of any marketing strategy. In the planning stages of designing an information strategy for Saudis, marketers may not find the required data to guide their thinking on what type of information Saudis need. It is also not known how Saudis go about gathering information in order to make their purchase decision. This study investigates the following research questions: Does the concept of TV opinion leaders exist in Saudi Arabia? Do TV opinion leaders differ from non-leaders (follower) regarding certain social characteristics? To what extent do information givers have opinion leaders' characteristics? What differences exist between TV information givers and non-givers regarding opinion leadership characteristics? Is the Two-Step Flow model of communication valid for Saudi Arabia, as this concept was never examined in this country? What are the demographic differences between opinion leaders and followers (opinion seekers)?

LITERATURE REVIEW

The implicit assumption, when examining the personal influence of opinion leaders, is that they are motivated to talk about the product because of their involvement with it. Frank van Rijnsoever and Rogier Donders, 2009; Ronald Clark and Ronald Goldsmith, 2006; Tanawat Hirunyawipada and Audhesh Paswan 2006; Barbara Lyons and Kenneth Henderson, 2005; Ronald Clark and Ronald Goldsmith, 2005 view opinion leadership as a manifestation of enduring involvement in a product class. Though some writers have criticized this orientation, as undervaluing the communication component and overvaluing the product interest component of opinion leadership, product involvement remains the predominant explanation for opinion leaders' conversations about products. Consequently, opinion leadership has been viewed as being product class specific (Kelly Cowart, Gavin Fox, Andrew Wilson, 2009; Alexander Serenko, Nick Bontis and Brian Detlor, 2007; Barbara Lyons and Kenneth Henderson, 2005; Byoungho Jin and Yong Gu Suh, 2005; Ronald Clark and Ronald Goldsmith, 2005; Gianfranco Walsh, Kevin Gwinner and Scott Swanson, 2004; and David Atkin, Kim Neuendorf and Leo Jeffres, Paul Skalski, 2003). There is evidence to support that interest in a number of products

can lead to opinion leadership to more than one product category, but research suggests there is no general (i.e., multiple product category) opinion leader (Devon Johnson, 2009; Jiyeon Kim and Sandra Forsythe, 2009; David Burns, 2007; Heath McDonald and Frank Alpert, 2007; Martin Schreier, Stefan Oberhauser, Reinhard Prügl, 2007; Barbara Lyons and Kenneth Henderson, 2005; Maria Saaksjarvi, 2003; M. McCarthy, O'Reilly, and M. Cronin, 2001; and David Burns 1992).

It could be said that buyers are more likely to seek product information when they have little knowledge or experience to make a purchase decision. Although the level of information search may vary from one person to another, this relationship has been widely documented (Monica Hernandez, Yong Jian Wang, Michael Minor and Qian Liu, 2009; Martin Schreier, Reinhard Prügl, 2008; Jana Bowden and David Corkindale, 2005; Helen Salavou, 2004; Raji Srinivasan, Gary Lilien, and Arvind Rangaswamy, 2002; and Pamela D. Morrison, John H. Roberts, and Eric von Hippel, 2001). This factor was found to be one of the most important motives for western consumers to search for product information.

Previous research has indicated that buyers make much use of personal sources because they are non-purposive, flexible, trustworthy and entail minimal cost in both time and money(Frank van Rijnsoever and Rogier Donders, 2009; Yu Henry Xie, 2008; Heath McDonald and Frank Alpert, 2007; Subin Im, Charlotte Mason and Mark Houston, 2007; Ronald Clark and Ronald Goldsmith, 2006; Sangeeta Singh, 2006; Barbara Lyons and Kenneth Henderson, 2005; Gianfranco Walsh, Kevin Gwinner and Scott Swanson, 2004; and David Atkin, Kim Neuendorf and Leo Jeffres, Paul Skalski, 2003). It was also reported that the social integrity of individuals within their community and their social contacts/relationship to friends, will affect the nature of their information search. Therefore, it is quite reasonable for researcher to argue that buyers would choose sources which yield an optimum combination of information cost and value. Cost depends on time and effort and financial outlay, value depends on the amount and type of information needed, as well as the buyer's perception of source adequacy, competency and trustworthiness.

Advertising is frequently used to create awareness, cultivate interest and prompt product inspection. Due to ease of access, advertising is likely to be widely heard or seen. However, advertising content is limited by space time and cost constraints, in addition to advertiser objectives and criteria for communication effectiveness. Consumer may regard information in advertising as accessible and easy to see or hear but not necessarily trustworthy because it represents the seller (Hye - Jung Park, Leslie Davis Burns and Nancy Rabolt, 2007; Jonathan Hartman, Soyeon Shim, Bonnie Barber and Matthew O'Brien, 2006; Walfried Lassar, Chris Manolis and Sharon Lassar, 2005; and Carolyn Lin, 2003). Books, pamphlets and articles may provide good information but their use requires time and patience coupled with the ability to comprehend and evaluate them.

The literature reviewed indicated a positive relationship between social contacts and information search. Further, studies of consumer satisfaction have reported that consumers who are dissatisfied with products they have purchased would complain, thus dissatisfaction and complaint behaviors are positively linked (Martin Schreier, Reinhard Prügl 2008; Byoungho Jin and Yong Gu Suh, 2005; Chuan-Fong Shih and Alladi Venkatesh, 2004; David Atkin, Kim Neuendorf and Leo Jeffres, Paul Skalski, 2003; and M. McCarthy, and O'Reilly, M. Cronin, 2001). Also, the literature indicated that consumers continue to both buy and tell others about products with which they are satisfied.

Numerous researchers have acknowledge the impact of social groups on consumer behavior (Martin Schreier, Reinhard Prügl, 2008; Martin Schreier, Stefan Oberhauser, Reinhard Prügl, 2007; Ronald Clark and Ronald Goldsmith, 2006; Sangeeta Singh, 2006; Byoungho Jin and Yong Gu Suh, 2005; David Atkin, Kim Neuendorf and Leo Jeffres, Paul Skalski, 2003; and M. McCarthy, O'Reilly, and M. Cronin, 2001). They have reported that individuals do compare themselves to others and employ certain criteria when selecting a referent for comparison. It was also indicated that factors such as income,

occupation, education and opinions or values are usually considered by individuals (with some variation) when selecting a referent for such a comparison. The existing literature indicates that opinion leaders are more frequently exposed to different sources of information and in greater depth than those who are information seekers (Heath McDonald and Frank Alpert, 2007; Martin Schreier, Stefan Oberhauser, Reinhard Prügl, 2007; Ronald Clark and Ronald Goldsmith, 2006; Barbara Lyons and Kenneth Henderson, 2005; Ronald Clark and Ronald Goldsmith, 2005; Gianfranco Walsh, Kevin Gwinner and Scott Swanson, 2004; Stacy Wood and Joffre Swait, 2002; and Ronald Goldsmith, François d'Hauteville and Leisa Flynn, 1998).

The literature on demographics did not indicate clear differences between opinion leaders and other individuals/followers with regard to the above. There is a great deal of documentation on the dependence of opinion leader characteristics on social situation and product category (Frank van Rijnsoever and Rogier Donders, 2009; Martin Schreier, Stefan Oberhausen, Reinhard Prügl, 2007; Ronald Clark and Ronald Goldsmith, 2005; Barbara Lyons and Kenneth Henderson, 2005; Gianfranco Walsh, Kevin Gwinner and Scott Swanson, 2004; and M. McCarthy, O'Reilly, and M. Cronin, 2001).

DATA AND METHODOLOGY

This study is part of an ongoing research in the area of consumer behavior in Saudi Arabia. This study focuses on the above four research questions. To address these questions, the scope of the study was narrowed to address specifically the TV opinion leadership, then a questionnaire was developed, followed by data collection. The following are the reasons why the scope of this study was narrowed to TV opinion leadership. First, it was believed that a single study like this could not cover all issues related to durable goods as each one of them requires a separate study (e.g., cars differ from televisions) and, therefore, it would be better to narrow the scope to a single product. It was hoped a narrow scope would make the findings of this study more clear, reliable and accurate. The second item is related to the subject matter itself. Again, a single study like this one could not cover all issue related to opinion leadership of durables/appliances (e.g., impact of interpersonal communication and reference groups on the purchase of durables/appliances). Further, being focused on a single issue should be of great importance to Saudi manufacturers and sellers if they wish to successfully compete with foreign products. Saudis view locally-made products as inferior to their imported rivals. Saudi manufacturers and sellers need to gain better understanding of their advertising campaigns in order to successfully market their locally-made products.

Questionnaire development. The constructs used in this study were borrowed from previous research or operationalized being guided by their previous uses and definitions in the literature. In addition, personal interviews were carried out by the researcher with marketing/sales managers and customers, to ensure that all constructs are developed in the proper manner and suitable for the Saudi context. This action has secured an acceptable level of validity and minimized measurements' errors. Reliability analyses were carried out and the results were promising (Alpha value were >0.72). The questions used in the questionnaire were, mainly, 5-point rating scales, and "yes and no" type of questions (dichotomous).

Data collection. 1500 questionnaires were distributed evenly to five shopping centers in various parts of Saudi Arabia. Questionnaires were hand-delivered to every third shopper (i.e., 3, 6, 9, 12, 15, 18, etc). The completed questionnaires were returned to a specific person/location in every shopping center. The first two years (2007-2008 inclusive) were spent on designing the questionnaire and collecting the data. The statistical tests were run and results were analyzed in 2009. The paper was completed in August 2009, and revised in January 2010 and again in March 2010. Of the 1500 distributed questionnaires, only 495 were usable. Further, some imputations had to be conducted to handle some questionnaires with missing data of less than three values. Therefore, any questionnaire with 3 or more missing values was eliminated. Thus, 495 questionnaires were used in the statistical analysis, which means that the response rate was 33 %.

EMPIRICAL RESULTS

To investigate the characteristics of information givers and information seekers, Saudi TV buyers were asked different questions. Table 1 indicates that the majority, i.e., 73.9% of respondents gave information to their friends, relatives, colleagues or neighbors about their TVs. These findings show the intensity of word-of-mouth communication used by Saudi TV buyers, and the importance that they place on the purchase of such a product.

Table 1: Saudis Giving Information to Others (Friends, Relatives, Colleagues or Neighbors)

	Response			
Issue	**Yes**		**No**	
Giving TV Information	366	73.9	129	26.1

495 cases, 0 missing value This table shows that 74% of respondents gave information to their friends, relatives, colleagues or neighbors about their TVs.

Table 2 summarizes Saudis' answers of measuring the level of information given by respondents to other people when they were considering buying their latest TVs.

Table 2: Level of Information Given by Saudis to Others

Level of giving information	**A very large amount**		**A large amount**		**Uncertain**		**A small amount**		**Not at all**		**N**	**Mean Value**
Those who gave information	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**		
Friends, relatives, colleagues, neighbors, etc.	195	39.4	149	30.1	80	16.2	19	3.8	52	10.5	495	3.84

N = 495 cases, n= number of valid observations, 0 missing value. This table summarizes level of information given by respondents to other people when considering buying TVs.

It is clear from Table 2 that the majority of respondents have given what they consider to be a great deal of information to their friends, relatives, colleagues, or neighbors when they were considering buying their latest TVs. As the same Table shows, 69.5% stated that they did this with a mean value of 3.84.

Characteristics of Information Givers and Seekers in Saudi Arabia

Before proceeding to identify the characteristics of information givers (among the respondents), it should be noted that in order to identify information givers, a comparison between information givers and seekers must be made with respect to the validity of opinion leaders' characteristics. To identify information givers (among respondents) according to special characteristics, the literature suggested that, in general, opinion leaders have certain special characteristics. Compared to non-leaders or "followers," opinion leaders are seen to have greater exposure to mass media and greater social participation. They are also regarded as more innovative or early adopters or buyers of new products, more influential, more experienced, have a higher level of self-confidence, and take more interest or tend to know more about an area of interest than non-leaders. However, it has been suggested that no differences exist between opinion leaders and non-leaders with respect to certain demographic traits. Table (3) shows Saudis' answers regarding certain characteristics of information givers.

Table 3 reveals the findings in order of frequency of mention and the mean values. These findings will be used, in turn, when investigating if there are any differences between information givers and seekers regarding opinion leaders' characteristics.

Table 3: Characteristics of Information Givers in Saudi Arabia

Level of agreement / Statement	Strongly Agree		Agree		Uncertain		Quite Disagree		Strongly Disagree			Mean
	n	%	n	%	n	%	n	%	n	%	N	Value
a. I always listen to radio and watch TV programs.	157	31.7	134	27.1	66	13.3	62	12.5	76	15.4	495	3.47
b. I always read newspaper, and magazines (e.g., hard & electronic copies).	178	36.0	113	22.8	63	12.7	62	12.5	79	16.0	495	3.50
c. I always attend or participate in social events (e.g. Weddings, and birthdays) my friends, relatives, colleagues or neighbors have.	210	42.4	157	31.7	45	9.1	37	7.5	46	9.3	495	3.91
d. I always attend national ceremonies (e.g., Saudi's Independence Day, graduation ceremonies).	222	44.8	148	29.9	49	9.9	38	7.7	38	7.7	495	3.97
e. I would like to belong to a social club (e.g., The Muslim Youth Club, Employees Social Club).	223	45.1	133	26.9	57	11.5	36	7.3	46	9.3	495	3.91
f. I like to buy the latest model of TVs.	222	44.8	142	28.7	52	10.5	32	6.5	47	9.5	495	3.93
g. I always plan to replace my TV with a new one.	202	40.8	154	31.1	53	10.7	34	6.9	52	10.5	495	3.85
h. I normally influence my friend's, relative's or neighbor's decision of buying their TVs.	201	40.6	147	29.7	52	10.5	38	7.7	57	11.5	495	3.80
i. My friends, relatives or neighbors always take my advice into consideration when buying their TVs.	*211*	*42.6*	*145*	*29.3*	*61*	*12.3*	*29*	*5.9*	*49*	*9.9*	*495*	*3.89*
j. I have a great deal of experience in selling and purchasing TVs.	218	44.0	140	28.3	56	11.3	32	6.5	49	9.9	495	3.90
k. I have a great deal of experience in repairing TVs.	199	40.2	141	28.5	72	14.5	36	7.3	47	9.5	495	3.83
l. I am always confident about my abilities when buying TVs.	195	39.4	160	32.3	45	9.1	42	8.5	53	10.7	495	3.81
m. I am always confident about myself in terms of judging TVs.	212	42.8	150	30.3	46	9.3	36	7.3	51	10.3	495	3.88
n. I always like to join discussions on TVs.	211	42.6	145	29.3	66	13.3	29	5.9	44	8.9	495	3.91
o. I always like to gather information and know about the latest makes of TVs (I, therefore, collect information from hard & electronic sources).	212	42.8	136	27.5	62	12.5	38	7.7	47	9.5	495	3.86

N = 495 cases, n= number of valid observations, 0 missing value This table reports the levels of agreement which have been subsequently used to determine if there is a difference between information givers and seekers regarding opinion leaders' characteristics.

To examine whether information givers have the characteristics of opinion leaders (greater exposure to mass media, greater social participation, more innovative or early adopters or buyers of new products, more influential, more experienced, have higher level of self-confidence, and take more interest or tend to

know more about the area of interest) than information seekers, a cross-tabulation analysis was carried out between Saudis who searched for information and those who gave information to others. This was done to identify information givers and seekers. Table 4 shows the following results:

Table 4: Saudis' Who Searched for Information by Saudis' Who Gave Information

Give Information / Search For Information		Yes	No	Total
Yes	*No.*	*254*	*89*	*343.0*
	% of total	*51.3*	*18.0*	*69.3*
No	No.	112	40	152.0
	% of total	24.8	5.9	30.7
Total	No.	366	129	495
	% of total	73.9	26.1	100.0

495 cases, 0 missing value *This table reports the categories of questionnaire respondents.*

Table 4 indicates that the respondents fall into the following categories, respondents who give and seek information from others (254 respondents); only seek information from others (89 respondents); only give information to others (112 respondents); and, . Neither gives nor seeks information from others (40 respondents). A t-test was carried out between information givers and seekers to see if there are significant differences between them against opinion leaders' characteristics (these characteristics are mentioned earlier in this paper). Table 5 shows the following results

Table 5: Information Givers by Opinion Leaders' Characteristics

Attributes	Level of Influence	N	N	t-Value	Df	Level of Significance
a-Exposure to Mass Media	H	201	112	1.396	199	NS
b- Social Participation	H	201	112	1.422	199	NS
C-Early Adopters or Buyers of New Products	H	201	112	2.351	199	*
d- Level of Influence on Others	H	201	112	4.882	199	**
e- Experience	H	201	112	4.336	199	**
f- Self Confidence	H	201	112	2.388	199	*
g – Interest in the Product	L	201	112	1.234	199	NS

*N = 495 Case 0 Missing value n = number of valid observations NS indicates no significant difference H = High L= Low ** Significant difference at the 0.01 level * Significant difference @ 0.05 This table shows the level of statistical significance between information givers and seekers.*

Exposure to mass media. The A and B statements in Table 3 were designed to investigate respondents' exposure to mass media within the Saudi context. As can be seen from Table 3 the majority (58.8% and 58.8%) of respondents agreed with statements A and B with an overall mean value of 3.48 for the two statements. In order to decide whether to examine exposure to mass media using those scales individually or combined together, reliability analysis was carried out and the results suggested the use of the responses to the scales (i.e., A and B) combined together. The analysis gave a Cronbach Alpha of 0.74.

Table 5 shows that a T-test was used to examine if there is a significant difference between information givers and seekers regarding their exposure to mass media. The results showed no significant difference. This insignificant difference between TV information givers and seekers might be related to the general lack of technical TV information in Saudi Arabia. This lack of information might have prevented information givers to make greater use of it than information seekers. In the West, for example, product information is available at a large scale and, therefore, information givers in this part of the World have a better chance to read and hear about any product than Saudi TV information givers. Further, this finding differs with what is reported in the literature, which suggested that the extent to which opinion leaders read in the media related to their topics/products, will be significantly greater than among non-leaders.

Social participation. Three statements (c, d, and e of table 3) were used to examine respondents' social participation. As Table 3 shows, the majority (74.1%, 74.7%, and 72%) of respondents agreed with the statements, with an overall mean value of 3.93 for the three statements. Reliability analysis for the three statements was conducted and this gave a Cronbach Alpha of 0.73 which suggested the use of the responses to the scales combined together. A T-test was carried out to examine if there is a significant difference exists between information givers and seekers regarding their social participation. The results, revealed in Table (5), indicate that no significant difference was found. The lack of significant difference between TV information givers and seekers could be related to the fact that, almost all Saudis tend to have high social participation. For example, regular visits to friends and relatives, and participation in weddings and birthdays are very common in Saudi Arabia. Probably, this is why this study could not detect any difference between the two groups. This finding seems to differ from the results of other studies which stressed that, in order for opinion leaders to spread messages about an innovation, they must have interpersonal networks with their followers. Opinion leaders must be accessible. One indication of such accessibility is social participation as face-to-face communication about new ideas occurs at meetings of formal organizations and through informal discussions.

Early Adopters or New Product Buying

Two statements (f and g of Table 3) were designed to examine if respondents are early adopters or tend to buy the product when it is new to the Saudi market. Table 3 shows that Saudis have agreed with the two statements with percentages of 73.5% and 71.9%, and overall mean value of 3.89 for the two statements. Reliability analysis was carried out and the results suggest the use of the response to the two scales combined together (Cronbach Alpha= 0.81). Table 5 shows that a T-test was used to examine if information givers have perceived themselves to have a significantly higher level of adopting or buying new TVs than information seekers at the 0.05 level. Therefore, information givers in Saudi Arabia tend to be early purchasers of TVs than information seekers. The early adoption of new TVs might be related to their willingness to enhance their self-image and reputation. For example, Saudis, usually, perceive those who buy new products as rich, confident and have high social class. These results are consistent with those in the literature. The literature suggested that innovativeness is related to the degree to which an individual is relatively earlier in adopting an innovation than other members of the system. It was also reported that the relatively earlier, means earlier in terms of actual time of adoption, rather than whether individuals perceived they have adopted the innovation relatively earlier than others in their system. Similar results were also found in the literature on the concept of the market "Maven" to describe the diffuser marketplace information. A market Maven was also seen as individuals who have information about many kinds of products, places to shop, and other facets of markets; and then initiate discussions with consumers and respond to requests from consumers for market information. In addition, market Mavens can be opinion leaders or early purchasers of particular products. Market Mavens' general market place expertise should lead them to earlier awareness of new products (hence, an increased likelihood of early adoption).

Information Givers Influence on Others Purchase Decision of TVs

Two statements (h and i of Table 3) were used to investigate Saudis' influence on others purchase decision of TVs. The distribution of the five point scale used to test this characteristic is shown in Table 3 and it can be seen that Saudis have agreed with the two statements with averages of 70.3% and 71.9%, and an overall mean value of 3.84 for the two statements. Reliability analysis for the two scales was made and the results gave a Cronbach Alpha of 0.76. A t-test was used and as can be seen in Table 5, the results show a significant difference between information givers and information seekers regarding their level of influence on others' purchase decision of TVs at the 0.01 level. Hence, information givers in Saudi Arabia tend to have greater influence on others' purchase decision of TVs than information seekers. This influence might have come as a result of the experience that those information givers have. These results are in agreement with those reported in the literature. Hence, one can say early purchasers can exert either a passive or active influence on later purchasers. For visible products such as TVs, much information can be transmitted simply by product use. In summary, research suggests opinion leaders and early adopters influence other consumers because of their product-specific knowledge or expertise.

Experience. The statements (j and k of Table 3) were designed to examine Saudis' experience of selling, buying, and repairing TVs. Table 3 indicates that Saudis have agreed with the statements of j and k with a majority of 72.3% and 68.7%, with an overall mean value of 3.86 for the two statements. Reliability analysis for the two statements resulted in a Cronbach Alpha of 0.79, which suggests the use of the response to the two scales combined together. As Table 5 indicates, a T-test was carried out and the results showed that information givers have had a significantly higher level of experience with TVs than information seekers at the 0.01 level. Thus, information givers in Saudi Arabia are more likely to have higher level of experience in selling, buying and repairing TVs than information seekers. Therefore, it can be said that, in the case of the opinion leaders, knowledge or expertise has been viewed as arising from involvement with a product or product class. In the case of the early adopter, this expertise arises from product usage or purchase experience. Hence, in explaining the informational superiority of opinion leaders and early adopters, researchers have emphasized their involvement and experiences with specific products.

Self confidence. Two statements (l and m of Table 3), were designed to examine respondents' confidence when buying TVs. The results revealed in Table 3 showed that the majority (71.7 and 73.1%) of Saudis agreed with statements (l and m), with an overall mean value of 3.84 for the two statements. When reliability analysis was conducted, the results gave a Cronbach Alpha of 0.77. Again, a t-test was used and the results showed that information givers have had a significantly higher level of self confidence when buying TVs than information seekers at the 0.05 level, see Table (5). Hence, the results suggested that information givers in Saudi Arabia tend to have a greater self confidence than information seekers. This high self-confidence among TV information givers might have come as a result of the high level of the experience they had and their regular adoption of new TVs. These findings are consistent with existing literature and, therefore, it can be concluded that, as opinion leaders have a greater interest in the product class, they should also have higher knowledge and possibly experience, and this should result in opinion leaders having higher specific self confidence also.

Level of Interest in the Product Area

The statements (n and o of Table 3) were used to examine respondents' interest in TVs. Table 3 shows that the majority (71.9 and 70.3%) of Saudis agreed with the statements (n and o), with an overall mean value of 3.88 for the two statements. Reliability analysis was carried out and the results gave a Cronbach Alpha of 0.78, which suggested the use of the response to the two sales combined. As can be seen in Table 5, a t-test was used to examine if a significant difference exists between information givers and seekers regarding their level of interest in TVs. The results showed no significant difference was found.

These findings seem to differ from the results reported in the literature which indicated that, opinion leaders are more exposed to mass media, tend to be more socially active, fashion conscious, independent and are more interested in the topic under discussion than others are. The results, also, showed that information givers were more innovative or early adopters (or buyers of new TVs), more influential, more experienced with TVs, and have higher level of self confidence when buying TVs than information seekers. However, no significant difference was found between information givers and seekers in terms of their level of exposure to mass media, level of social participation, and their level of interest in the product area (TVs). Therefore, one could conclude that information givers in Saudi Arabia tend to have some characteristics of opinion leaders such as innovativeness, influence on others' purchase decision, experience in the product area, and higher levels of self confidence when buying such a product.

Opinion leadership. Having discussed the characteristics of information givers and seekers, it was necessary to investigate if opinion leadership regarding TVs exists in the Saudi context. Before doing so, it should be noted that the following new variables were computed after the reliability analysis was carried out (Table 6 below shows the new variables and their definitions):

Variable 1 = a + b /2 ; Variable 2 = c + d + e /3 ; Variable 3 = f + g /2
Variable 4 = h + i /2; Variable 5 = j + k /2 ; Variable 6 = l + m /2
Variable 7 = n + o /2.

Table 6: Opinion Leadership Variable Definition

Variable	Variable Definition
Variable 1	Respondents' exposure to mass media.
Variable 2	Respondents' social participation.
Variable 3	Respondents' purchase of a new TV when it is new to the Saudi market (innovativeness).
Variable 4	Respondents' influence on others purchase decision of TVs.
Variable 5	Respondents' experience on TVs.
Variable 6	Respondents' confidence when buying TVs.
Variable 7	Respondents' interest TVs.

This table provides definitions for the seven variables used in the study after the reliability analysis was carried out.

As was indicated earlier, the existing literature on opinion leadership indicates that opinion leaders tend to have greater exposure in media, greater participation tends to be early adopters or purchases of new products (more innovative), more influential, more experienced in the product area, have higher level of self confidence when buying such a product, and have greater interest in the product area than non-leaders (followers). Therefore, it could be argued that respondents who scored very highly on these social characteristics (Variable 1…, Variable 7) are more likely to be opinion leaders than followers and vice-versa.

In order to isolate from the sample those who scored highly on these seven social characteristics and those who did not, the aggregate score was taken by a simple mathematical process (Variable 1 + Variable 2 + …., + Variable 7). If the distribution of the sample on the aggregate score is normally distributed, then opinion leaders could be classified as respondents scoring ≥ the mean value + standard deviation, and followers as respondents scoring≤ the mean value – standard deviation. The following results describe the distribution of the sample on the aggregation of (Variable 1 + Variable 2 + …… + Variable 7):

Mean = 16.76 *Standard deviation = 4.11*
Kurtosis = -.68 *Valid observations = 495*
Skewness = -.066

As can be seen from the above results, the sample skewness and the kurtosis are small (-.066) and -.68, consequently), which means that the sample approximates well to a normal distribution. Thus, opinion leaders and followers were classified on the basis of two logical conditions. These conditions are:

a. if the score for some respondents on the aggregate of (Variable 1 + Variable 2 + … + Variable 7) ≥ m + σ, then those respondents could be classified as opinion leaders.
b. if the score for other respondents on the aggregate of (Variable 1 + Variable 2 + … + Variable 7) ≤ m - σ, then those respondents could be classified as non-leaders (followers).

Based on the analysis, Table 7 shows the number of respondents who were classified as opinion leaders and those who were classified as non-leaders (followers).

Table 7: Number of Respondents Who Classified as Opinion Leaders and Non-Leaders (Followers)

	Response	
Cases	**n**	**%**
Saudis' Who Classified as Opinion Leaders	81	17.8
Saudi's Who Classified as Followers	88	16.4
Neither Leaders nor Followers	326	65.9
Total	495	100.0

n = numbers of valid observations 495 cases This table breaks down the respondents into leaders and followers.

These transformations have created a new variable which distinguished between those who are and are not likely to be opinion leaders. It should be noted that this variable is based upon the assumptions that TV opinion leaders in Saudi Arabia tend to have greater exposure to mass media, greater social participation, are adopters or buyers of new TVs, more influential, more experienced with TVs, have higher self confidence, and take more interest or tend to know more TVs than non-leaders (followers).

Opinion Leaders and the Two-Step Flow Model

The concept of opinion leadership is based on the idea that a group of individuals referred to as "opinion leaders" or "influentials" in a community create an additional stage in the communication process, whereby information flows from the formal media through those opinion leaders to the general public. This concept is part of a model known as the Two-Step Flow of Communication was originally identified by Katz and Lazarsfeld (1955). This model hypothesized that mass media does not influence an audience directly, but works through a network of interpersonal communication. The aim in this section is to investigate, after all those years, the accuracy of the Two-Step Flow model of communication within the Saudi context, and for the fact that this model was never investigated in Saudi Arabia. This will be done by examining whether opinion leaders in Saudi Arabia only give TV information to others or whether they give and seek information from others and not from impersonal sources. In order to conduct the investigation, opinion leaders and followers were cross-tabulated with respondents' categories (seekers-givers, givers, seekers, and those who neither give nor seek information from others) as shown in Table (4). Many important conclusions were reached and highlighted in Table 8.

Seekers-givers. The first category (seekers-givers) shows that the expected cases for opinion leaders are 33 and the observed cases are 52. This means that there are more opinion leaders classified as information seekers and givers than expected. The expected cases for followers are 33 and the observed cases are 24, which mean there are fewer followers who classified as information seekers and givers than expected. Since the Z value for opinion leaders = 1.9 and p = 0.037, it could be said that opinion leaders are more likely to be information seekers and givers than followers at the 95% level of confidence. Thus, the null hypothesis, which says that the chances for opinion leaders or followers being a seeker-giver are the same, is rejected.

Table 8: Opinion Leaders and Followers by Respondents' Categories

Category	Opinion Leaders			Followers			Level of Significance
	Observed Cases	Expected Cases	Z Value	Observed Cases	Expected Cases	Z Value	
a. Givers-Seekers	52	33	1.9	24	33	-1.9	*
b. Seekers only	2	10	-2.5	23	17	2.5	**
c. Givers only	13	21	-.9	18	16	.9	NS
d. Neither Givers nor Seekers	3	6	-.9	7	6	.9	NS
Total	70	70		72	72		

NS indicates no significant difference was found. 495 Cases included in the sample. 0 Missing value.
** Significant Difference at the 0.05 level (P = 0.037)*
*** Significant difference at the 0.01 level (P = 0.011).*
The Z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confidentthat a genuine difference occurs.
This table shows the results of investigating whether opinion leaders in Saudi Arabia only give TV information to others or give and seek information from others.

Seekers. The second category (seekers) shows that the expected cases for opinion leaders as information seekers are 10 while the observed cases are only 2. Thus, there are less opinion leaders classified as information seekers than expected. The expected cases for followers are 17 and the observed cases are 23. Therefore, there are more followers classified as seekers than expected. Since the Z value for followers is 2.5 and p = 0.011, it can be said that followers are more likely to be information seekers than opinion leaders at the 99% level of confidence. The null hypothesis which says that the chances for opinion leaders or followers being information seekers are the same is rejected. Based on the cross-tabulation analysis, it could be concluded that TV opinion leaders in Saudi Arabia tend to be information givers as well as information seekers, while followers tend to be information seekers. This is interesting because it shows opinion leaders value the acquisition of information from personal sources, just as much as they like to give information. The research finding which suggested that TV opinion leaders in Saudi Arabia tend to be information seekers as well as information givers was strengthened. A Mann-Whitney rank sum test was carried out between opinion leaders and followers to examine the amount of information sought by them from others, and the amount of information given by them to others. Table 9 shows the results.

Table 9: Opinion Leaders and Two Way of Communication (Receiving and Giving Information to Others)

Cases	Level of Giving & Receiving	n	N	P-Value	Level of Significance
- Amount of Information Sought by Opinion Leaders From Friends, Relatives, Colleagues, Neighbors, etc.	H	81	169	0.021	**
- Amount of Information Given by opinion Leaders to Friends, Relatives, Colleagues, Neighbors, etc.	H	81	169	0.019	**

*n = number of valid observations , N = number of cases included in the test, H = High ** Significant difference at the 0.01 level. This table shows that Saudi opinion leaders value the acquisition of information from personal sources, and opinion leaders tend to be information-seekers.*

Table 9 indicates that there was a significant difference between opinion leaders and non-leaders (followers), regarding the amount of information sought by them from friends, relatives, colleagues or neighbors at the 0.01 level (p= 0.021). Opinion leaders, as the same Table shows, have searched for a significantly larger amount of information, from others, than non-leaders (followers). Also, Table 8 shows that a significant difference exists between opinion leaders and non-leaders (followers) regarding the amount of information given by them to friends, relatives, colleagues or neighbors at the 0.01 level (p= 0.019). As shown, opinion leaders were found to have given a significantly larger amount of information to others than non-leaders (followers) at the 99% level of significance. The research results suggest that

TV opinion leaders in Saudi Arabia will not only seek and give information to others, but will also search for a larger amount of information than non-leaders (followers). These results also show the inaccuracy of the Two-Step Flow model, which suggests that information flows in two steps from mass media to opinion leaders and from them to the general public.

The simplicity of the Two-Step Flow model is inappropriate for consumers in Saudi Arabia. People with the social characteristics of opinion leaders do not receive information from the media and then pass on this information to others. In the Saudi context, the concept of opinion leadership applies to people who are engaged in the process of seeking and giving information from and to personal sources to a greater degree than others who do not have the same social characteristics. The Saudi TV opinion leader is, therefore, someone who communicates to a greater degree with other members of society. The opinion leader is not just a provider of respected information as the Two-Step model suggests. Although the Two-Step Flow was a historic breakthrough in understanding communications, the re-examination of this model in the Saudi context shows that it is no longer an accurate and complete model of the process. For one thing, it views the audience as passive receivers of information.

Opinion Leaders and Demographic Characteristics: Authors and researchers could not agree on the demographic characteristics of opinion leaders. Some views described opinion leaders as being younger, better educated, have higher incomes and better occupations. Others reported that there is no significant difference between opinion leaders and non-leaders regarding demographic characteristics except for higher incomes and occupational levels. Therefore, the aim here is to find out if significant differences regarding demographic characteristics exist between those with the social characteristics of opinion leaders and those without the social characteristics of opinion leaders in Saudi Arabia.

Education and Opinion Leadership: In order to investigate whether opinion leadership in Saudi Arabia is related to education, a cross-tabulation analysis was carried out between opinion leaders and non-leaders (followers), and the level of education of respondents. Table 10 shows the results.

As Table 10 shows, no significant difference exists between opinion leaders and followers regarding their level of education. The results did not show if opinion leaders would have higher levels of education than followers. This could be because Saudis regard this type of appliances as an essential part of their furniture and, hence, Saudis would usually have, at least, two or more TVs at their homes. This habit of owning more than two TV could have provided Saudis with lots of TV information, and this could explain the lack of significant difference between the two groups. These results tend to support the earlier findings in this article, which suggested that information givers in Saudi Arabia are more likely to have higher level of experience with TVs than information seekers.

Age Groups And Opinion Leadership: In order to examine if significant differences exist between TV opinion leaders and non-leaders with regard to age groups, a cross tabulation analysis was carried out between them and age groups. The analysis showed no significant differences exist between TV opinion leaders and non-leaders with regard to age groups. Therefore, the researcher was unable to conclude whether TV opinion leaders in Saudi Arabia would be younger or older than non-leaders. Table 11 shows the results.

Levels of Monthly Income and Opinion Leadership: When opinion leaders and followers were cross-tabulated with Saudi levels of monthly income, the results showed that insignificant difference exist between them. The results are provided in Table 12. The lack of significant difference between the two groups could be related to the fact that, Saudis, regardless of their levels of income, are more likely to have many TVs and, therefore, have similar experience with this type of product.

Gender and Opinion Leadership: When opinion leaders and non-leaders (followers) were cross-tabulated with respondents' gender, the results showed that no significant differences exist (see Table 13). Therefore, it could be concluded that TV opinion leadership in Saudi Arabia does not relate to gender.

Table 10: Opinion Leaders and Followers by the Levels of Education

Job Category	Opinion Leaders Observed Cases	Opinion Leaders Expected Cases	Z Value	Followers Observed Cases	Followers Expected Cases	Z Value	Level of Significance
a. Read and Write	19	18	0.3	17	20	-0.3	NS
b. Primary/Intermediate	21	26	-1.3	24	21	-1.3	NS
c. Secondary/Pre-University Diploma	11	15	-1.1	17	15	-1.1	NS
d. University/ High Diploma.	16	15	0.3	13	16	-0.3	NS
e. Master/PhD	14	13	0.2	12	15	0.2	NS
Total	81	87		83	87		

NS indicates no significant difference was found. 169 valid observations. 495 Cases included in the sample.0 Missing value. The z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confident a genuine difference occurs. This table shows that impact of level of education on opinion leaders and followers.

Table 11: Opinion Leaders and Non-Leaders by Age Groups

Age Groups	Opinion Leaders Observed Cases	Opinion Leaders Expected Cases	Z Value	Followers Observed Cases	Followers Expected Cases	Z Value	Level of Significance
a. < 19 years	8	6	1.0	11	12	-.1	NS
b. 20-29	10	11	.1	13	12	.1	NS
c. 30-39	19	21	-.1	21	20	.2	NS
d. 40-49	26	27	-.2	27	26	.2	NS
e. 50-59	13	12	-.1	12	13	-.1	NS
f. ≥60 years	5	4	.1	4	5	-.1	NS
Total	81	81		88	88		NS

NS indicates no significant difference was found. 169 valid observations. 495 Cases included in the sample. 0 Missing Value. The z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confident a genuine difference occurs. This table shows the impact of age on opinion leaders and followers is not statistically significant.

Table 12: Opinion Leaders and Non-Leaders (Followers) by Levels of Monthly Income

Levels of Monthly Income	Opinion Leaders Observed Cases	Opinion Leaders Expected Cases	Z Value	Followers Observed Cases	Followers Expected Cases	Z Value	Level of Significance
a. < SR 5000	2	3	-.1	5	4	.1	NS
b. SR 5001-10000	8	9	-.2	15	12	.2	NS
c. SR 10001- 15000	20	18	.8	18	20	-.8	NS
d. SR 15001-20000	15	16	-.2	17	16	.2	NS
e. SR 20001- 25000	27	20	1.7	15	22	-1.7	NS
f. SR 25001- 30000	4	6	-.9	7	6	.9	NS
g. SR30001- 35000	2	4	-.8	3	2	.8	NS
h. SR35001- 40000	2	3	-.7	4	3	.8	NS
i. ≥SR40001	1	2	-.7	4	3	.7	NS
Total	81	81		88	88		NS

NS indicates no significant difference was found. 169 valid observations. 495 Cases included in the sample. 0 Missing Value. The z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confident a genuine difference occurs. This table shows that monthly income has no significant impact on leaders and followers.

Moreover, the number of male opinion leaders was larger than female opinion leaders because male respondents have dominated the sample (438 male respondents out of 495). This could be the reason for the lack of a significant difference between both sexes regarding this matter.

Occupation Categories and Opinion Leadership: The respondents' occupations were classified into nine categories, and when a cross-tabulation was carried out between opinion leaders and non-leaders, and the nine categories, the analysis produced the results shown in Table 14.

Table 13: Opinion Leaders and Non-Leaders (Followers) by Gender

Gender	Opinion Leaders			Followers			Level of Significance
	Observed Cases	Expected Cases	Z Value	Observed Cases	Expected Cases	Z Value	
a. Males	52	48	0.5	45	50	-0.5	NS
b. Female.	29	33	-1.0	43	38	1.0	NS
Total	81	81		88	88		

NS indicates no significant difference was found. 495 Cases included in the sample. 169 valid observations. 0 Missing value. The z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confident a genuine difference occurs.This table shows that the gender factor does not have significant impact on opinion leaders and followers.

Trading, Business and Related Jobs: By looking at the third category (trading, business and related jobs), it can be seen that the expected cases for opinion leaders are 7 and the observed cases are 14.This means that there are more opinion leaders who had trading, business and related jobs than expected. The expected cases for followers are 17 and the observed cases are 9, which means that there are fewer followers who had this type of jobs than expected. The Z value for opinion leaders = 1.9 and p= 0.048, therefore, it could be concluded that opinion leaders are more likely to have Trading, Business and Related Jobs than followers at the 95% level.

Teaching And Related Jobs: The fourth category (teaching and related jobs) shows that the expected cases for opinion leaders are 12 and the observed cases are 5. This means that there are less opinion leaders who had teaching and related jobs than expected. The same category shows that the expected cases for followers are 7 and the observed cases are 13. This means that there were more followers who had teaching and related jobs than expected. Since the z value for followers = 1.9 and p= 0.032, it could be said that followers are more likely to have teaching and related jobs than opinion leaders at the 95% level. These findings show that followers have had teaching and related jobs and TV opinion leaders have had trading, business and related jobs.

Therefore, TV opinion leaders in Saudi Arabia tend to have different jobs from non-leaders (followers). Moreover, it could be suggested that, those trading, business and related jobs which have been performed by information givers were related to buying and selling TVs or other durables/appliances. The analysis of TV opinion leadership showed that, when the aggregate score for the seven social characteristics (exposure to mass media, social participation, innovativeness, influence on others purchase decision, experience with TVs, self confidence when making the purchase decision, and level of interest in TVs) was taken, opinion leaders were found more likely to have these characteristics than non-leaders (followers). TV opinion leaders in Saudi Arabia were also found to have given and sought information from others. Therefore, the research results, on the re-examination of the two-step flow model in the Saudi context, support the existing literature on the inaccuracy of this model of communication and suggest a more active role for the opinion leader than suggested in that model.

Table 14: Opinion Leaders and Non-Leaders (Followers) by Job Categories

Job Category	Opinion Leader			Follower			
	Observed Cases	Expected Cases	Z Value	Observed Cases	Expected Cases	Z Value	Level of Significance
a. Oil Producing, Petrochemicals, energy & Related Jobs.	12	9	0.2	9	11	-0.2	NS
b. Administrative, managerial and related jobs	11	8	1.1	7	10	-1.1	NS
c. Trading, Business and Related Jobs.	14	7	1.9	9	17	-2.0	*1
d. Teaching and Related Jobs.	5	12	-1.9	13	7	1.9	*2
e. Transport, driving, Labor and Related Jobs	6	7	-.2	7	6	.2	NS
f. Services (Financial, banking, insurance, investment and related jobs).	9	12	-.9	11	9	.9	NS
g. Medical and related jobs.	3	4	-1.0	9	7	1.0	NS
h. Professional (e.g., pilot), technical and related jobs (e.g., computer).	5	6	-.9	7	5	.9	NS
i. Government (e.g., Military and Government Officials services) and all other related jobs	16	16	0.0	16	16	0.0	NS
j. Others (please specify)	NS	NS	NS	NS	NS	NS	
Total	81	81		88	88		

*NS indicates no significant difference was found. 495 Cases included in the sample. 169 valid observations. 0 Missing value. *1 Significant difference at the 0.05 level (P=0.48). *2 Significant difference at the 0.05 level (P=0.032). The z value is an expression of the magnitude of the difference between the observed and expected values. The larger the absolute z value, the greater the difference. For a Z value ≥ + 1.7, we can be 90% confident a genuine difference occurs. This table shows that generally, job factor does not have a significant impact on opinion leaders and follower. However, trading and teaching jobs do have some significance.*

CONCLUSION

This article was intended to find out if Saudis give information to other TV buyers and whether information givers differ from information seekers in certain characteristics (exposure to mass media, social participation, innovativeness or adoption or buying new TVs, influence on others purchase decision, experience on TVs, self-confidence when buying TVs, and level of interest in TVs). Also, an attempt was made to find out if opinion leaders differ from non-leaders (followers) regarding the above mentioned characteristics and their demographic factors. The results showed that Saudis give information to other TV buyers, and those information givers were found to be more innovative or early adopters or buyers of new TVs, more influential, had greater experience with TVs, and had higher self confidence when buying TVs than information seekers. Therefore, it could be concluded that information givers tend to have some of the characteristics of opinion leaders. The results, also, showed that there was no significant difference between information givers and seekers regarding the level of exposure to mass media, level of social participation, and level of interest in TVs. Moreover, the findings indicated that TV opinion leadership exists in Saudi Arabia. When the aggregate score of the seven social characteristics (mentioned earlier) was taken, the results showed that opinion leaders were more likely to have these characteristics than non-leaders (followers). The results also indicated that TV opinion leaders in Saudi Arabia were both information givers and seekers, which, in turn, suggest the inaccuracy of the Two-Step Flow model of communication for the Saudi context. Thus, a multi-step model of communication would be more accurate and suitable in describing the flow of information amongst TV buyers.

Also, the results of this study showed that significant differences existed between opinion leaders and non-leaders with regard to one demographic factor (occupation categories), while no significant differences were found between them regarding all other demographic factors. This supports the existing literature regarding the inclusiveness on opinion leadership and demographics. The existence of TV opinion leaders in Saudi Arabia could be taken a step further to suggest, what was reported in the literature, the important role opinion leaders may play in creating awareness about new products, and the impact they may play at all stages of the purchase decision processes as personal sources of information. Thus, using opinion leaders by marketers, producers or manufactures in their promotional strategies may create, for example, more convincing promotional campaigns for Saudis and therefore, better sales volume. Further, creating a positive product phobia would make Saudis more willing to buy a particular product. This is important when marketers take into account the fact that "advertising cannot persuade people unless they are willing to be persuaded".

However, the study has some limitations. Although the study established the main characteristics of TV opinion leaders in Saudi Arabia, it failed to establish whether there was any relationship between Saudis' marital status and TV opinion leadership. The researcher had to exclude this "demographic variable" as 96% of the respondents have not answered this question. This issue is always considered personal and sensitive for Saudis and therefore, could be the reason for not answering the question. Furthermore, the following studies could be carried out to build onto this study for further improvement and understanding of the concepts of interpersonal information and opinion leadership in Saudi Arabia: First, the impact of electronic means of communications on the use of interpersonal sources of information and opinion leadership in the Saudi context, and would it be more influential than the "face-to-face" form of communication. Second, understanding whether Saudis' formal and informal means of communication are based, mainly, on "electronic" or "face-to-face" interaction when buying their TVs, and for what reasons. The suggested studies could provide more valuable data which could help in the improvement of understanding the importance of such concepts for Saudis, particularly, when making their purchase decision on durables/appliances. Those studies and maybe other related ones could help marketing managers in developing more effective marketing strategies. Third, though every care was taken to validate the findings of this study, other studies using different methods of data collection are recommended. The recommendation is important in order to validate the finding of this study. Forth, the findings of this study may not be generalized to other countries of the Gulf Region. Further studies, covering other countries of the Arabian Gulf, are needed before any generalizations are made.

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IMPACT OF WOMEN HEADS-OF-STATE ON HUMAN DEVELOPMENT

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ABSTRACT

This study explores the relationship between women heads-of-state and their impact on Human Development in their country. Mainly, the intent of this paper is to determine whether women heads-of-state do a better job as compared to their male counterparts in improving health, education and economic status of their citizenry. A thorough review of Human Development Index (HDI) data shows that although women heads-of-state have a higher and positive impact on HDI as compared to their male counterparts, this difference in their performance is not statistically significant. The source of the data used in this study is Human Development Reports available at http://hdr.undp.org/statistcs/. The HDI data used in this study is from Human Development Reports 1998, 2002, and 2008.

JEL: E2, I1, I2

KEYWORDS: Human Development Index (HDI), Life Expectancy, Adult Literacy, Gross Enrollment, Education Index, Gross Domestic Product (GDP)

INTRODUCTION

In the past few years, more and more women have been elected presidents or prime ministers. Notable among them has been Angela Merkel of Germany, Michele Bachelet of Chile, Ellen Johnson-Sirleaf of Liberia, and Cristina Fernandez de Kirchner of Argentina. In modern times, more specifically since 1917, women have been presidents or prime ministers in different parts of the world (Worldwide Guide to Women in Leadership, 2009). The more prominent among them are Margaret Thatcher of Britain, Indira Gandhi of India, and Mary Robinson of Ireland. Yet, arguably, the strongest country in the world--United States--still does not have a women president. However, when Hillary R. Clinton, a serving Senator and wife of a former US president ran for the Democratic Party nomination in 2008, there was a succinct and real possibility of a woman becoming president of United States. Because of her candidacy, there was great excitement in the United States and throughout the world. In the same election, the Republican Party vice presidential candidate was also a female--Sarah Palin.

Although, the Palin candidacy did not generate as much excitement as Clinton's because she was a vice presidential candidate and her chances of winning were not as high as Clinton's prospect of securing the Democratic Party nomination. Regardless, in the 2008 US presidential election there was a strong possibility of electing a women leader as the President because a women president would represent and focus on issues that are important to women and families. Some thought that Ms. Clinton's candidacy focused on hopes, dreams, desires and frustrations of women across America and thus Ms. Clinton as President was a vehicle for achieving gender equity, fair treatment, and collapse of the glass ceiling for women (Lowen, 2008). Others stated that since women play a critical role in families, nations and economies, who would be better to focus on these issues than a woman leader (Powell, 2009). Furthermore, a group of prominent women rights leaders urged Barack Obama--the winner in 2008 election--to ensure equal female representation in decision-making and in his administration (Basch, el al., 2009). The women rights leaders' claimed major economic, security, governance and environmental issues could not be solved without equal participation of women at all levels of society. Along the same lines, many have also claimed that women participation in political decision-making improves quality of governance and reduces corruption (Women rights activists discuss human development, call for strengthening a women's role in society, UNDP, 2009).

An article in the International Herald Tribune (August 22-23, 2009, p. 4) concluded that when women are in charge of a family's money & land they spend it on nutrition, health, and educational needs of the family. Thus, it is logical that a women leader will improve employment opportunity, education, and health of women and others in the society. This is because women leaders as mothers (if they are) are more aware of children and family issues and thus more likely to focus on issues or programs that provide more education, economic betterment, healthcare and thus improved and healthy life for their citizenry as compared to their male counterparts. Others have argued that women have qualities of nurturing and cooperating, and also that women handle matters more humanely whereas men are tough and impatient (Liswood, p. xi, 6). Overall, it is argued that women and by extension women leaders have different points of views, values, experiences, priorities, interests and conditions of life (Liswood, p. 131), and thus women leaders are likely to focus on matters that improve the health, educational, social and economic life of the society. This study explores whether female leaders as heads-of-state do a better job as compared to their male counterparts in Human Development.

Human Development Index

In 1990, Huq, Jolly, Ranis and Desai created The Human Development Index for the United Nations Development Programme (UNDP) to gauge human development. Mainly, the HDI sheds light on the human development of a country. HDI classifies countries as developed, semi-developed or underdeveloped. Human development is widely accepted as key to national success, and key to raised standard of living (Liswood, 2009, p. 107). The great thing about the HDI is that in a single index/number, one can assess a country's social and economic development. HDI is composed of three indicators: life expectancy index, education index and GDP index. HDI in essence measures the (i) health, (ii) knowledge/education attainment, and (iii) standard of living of a nation.

Life Expectancy Index consists of life expectancy at birth measured by the number of years a newborn would live if prevailing patterns of age-specific mortality rates (probability of dying, expressed per 1000 live births) at the time of birth were to stay constant throughout the newborn's life (Human Development Report, 2008).

Education Index is composed of Adult Literacy Rate and Gross Enrolment Ratio (GER). Adult Literacy Rate is the proportion of the population that is 15 years old or older which is literate, expressed as a percentage of the corresponding population, total or for a given gender, in a country at a specific point in time. The UNDP defines a person being literate if the person can, with understanding, both read and write a short simple statement on her everyday life. GER is the total number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the population in the theoretical age group for the same level of education. Furthermore, the education level is composed of primary, secondary, post-secondary and tertiary levels. Primary education is one having sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects. Secondary level education is more subject focused, requiring more specialized teachers for each subject area. Post-secondary education is between upper secondary and tertiary education.

Tertiary education is substantially more advanced than upper secondary or post-secondary education. Tertiary education has two stages. The first stage in the Tertiary education is programmes of theoretical nature, which lead to practical, technical, or occupationally specific jobs, and the second stage of tertiary education composed of advanced study and original research that leads to a doctorate degree (Human Development Report, 2008).

The *GDP Index* is based on GDP per capita. The GDP per capita is GDP (value of all goods and services) divided by midyear population. The GDP consists of consumption, gross investment, government

spending, and net of exports. The GDP measures the market value of all goods and services produced in a country during a one-year period (Human Development Report, 2008).

LITERATURE REVIEW

There have been many studies analyzing effect of female representatives on governance and law making. Most of the available literature has argued for women representation in leadership roles because they represent more than half of world population with the understanding that basic needs--food, education, health--of a family unit is delivered by women. According to O'Connor (n.d.), male legislatures may talk and argue about women's issues, but more significantly, "the presence of women in legislative bodies makes a significant difference not only in what gets discussed, but also in what kinds of legislation are advanced." She goes on to state that elected women representatives place, champion and support women's issues much more than their male counterparts. The O'Connor article references numerous studies that essentially conclude that elected women leaders work for issues that matter to women. Moreover, Carroll (2000) refers to many studies that conclude that women representatives in the U.S. are more likely to support women's issues such as education, healthcare, and welfare of family and children.

Internationally, Curtin (2008) has argued whether women's presence as political leaders in New Zealand has led to something better than just a symbolic representation. She concludes that women leaders have not vigorously advanced women's issues, at least for strategic purposes. In Africa, Nzewgwu (2006) argues that although portrait of women from Africa is one of ignorant, oppressed and passive, its female leaders have made "audacious strides." He states that Rwanda has the highest ratio in the world of women in legislature. Onofre (2009) provides a good summary of prominent female leaders in 20th century. This study specifically analyzes whether there is a correlation between HDI and a female ruler in a country's highest position as either the President or Prime Minister.

DATA AND METHODOLOGY

The data used for this research paper came directly from the Human Development Reports prepared by the UNDP. More specifically, Human Development Reports from 2008, 2002 and 1998 were part of this study. Even though the 2008 Report had the most current data, this study uses data from 2002 and 1998 reports because the 2008 report provides HDI data beginning in 1980. In modern history, there have been approximately 100 women elected or appointed as heads of states mostly as President or Prime Minister (Worldwide Guide to Women in Leadership, 2009). The first acting head of a state was Evheniya Bosch of Ukraine in 1918 and the most recent one being Johanna Sigurdardsottir of Iceland.

This study analyzed HDI data for thirty-one women leaders from a pool of approximately hundred. Three criterions were used to achieve meaningful results. First, only leaders who were in power for a year or more were part of the analysis. The terms of (i) Khaleda Zia & Sheikh Hasina Wajed of Bangladesh from 1991 to 2003, (ii) Jenny Shipley & Helen Clark of New Zealand from 1997 to 2005, and (iii) Mary Robinson & Mary McAleese of Ireland from 1991 to 2001 were combined since a female followed another female leader. Second, there had to be existing HDI data for the country during the female leader’s term and for the male predecessor for the same duration. Third, a woman leader assuming office after 2006 was not part for this study, since HDI Report of 2008 contained data for the year ending 2006. Moreover, the duration of terms for some of the leaders was shortened because HDI data is only available until 2006 and the duration of terms for male and female leaders was equalized for an effective comparison.

The data is analyzed as follows. The first step determines the beginning and ending year of a woman leader's and the male predecessor's rein. The start and end year was increased by one because logically any new policy or program would take at least a year to be implemented and to have any measurable

impact on the people. Arguably, it may take more than a year for the full impact of any new program/policy implemented. Therefore, the HDI used in this study was for one year after the actual beginning and one year after the actual ending year of that leader's term. For example, if a leader started her term in 1975 and ended in 1976, then the HDI data used was for year 1976 (1975+1) and 1977 (1976+1). The second group of HDI data used was for the same duration in the prior years for the male predecessor. Thus, for the male predecessor in above example, the start period for the HDI would be 1975 and the end period would be 1976.

The second step entails calculation of the percent change in HDI from the start year to end year for the female leader followed by the male predecessor. Percent change equals the difference in the HDIs for the start and end years divided by start year HDI and then multiplying that number by 100. This is expressed mathematically as follows:

% Change in HDI= [(end year HDI - start year HDI)/start year HDI] x100

In the third step, the overall percentage changes in HDI for female and male leaders are determined separately. Thus, a single overall total percentage change in HDI is obtained for each of the two sets of leaders.

The fourth step involves calculating the final percentage change in HDI between female leaders as a group and male leaders as a group using data from third step. The equation for this calculation is as shown below:

% Change in HDI between female & male leaders= [(Total increase in HDI for female leaders as group - Total increase in HDI for male leaders as group)/ Total increase in HDI for male leaders as group] x100

The final percent change in HDI (calculated in the fourth step) between female & male leaders determines how well women leaders perform against their male colleagues in the areas of improving education, health care and economic situation for their citizenry. This result provides an additional reason for having women leaders as heads-of-state besides the novelty, gender equity, fair treatment and collapse of glass ceiling factors.

The final and fifth step of the study involves testing for the statistical significance of the difference in the mean values of the HDI found for the male versus female leaders. The Z-test is employed given the large size of the samples (at least 30 observations) employed in this study and the independence of the two sample groups. The finding of this test will help determine whether the difference found between the two mean values is significant enough to conclude that female leaders perform better in comparison to their male colleagues in raising HDI scores.

RESULTS

Table 1 lists the starting and ending HDI data for women leaders and their male predecessors. Table 2 lists HDI data for Bandaranaike, Gandhi, Bhutto and Brundtland and for their male predecessors. It is noted that Bandaranaike's first term started in 1960 and ended in 1970. Gandhi's first term started in 1966 and ended in 1977. The earliest HDI data found was from 1960, thus, there were no HDI data analysis for first terms of Bandaranaike and Gandhi. Brundtland's first term was less than a year and thus not part of Table 1. Table 3 lists the third term HDI data for Bandaranaike and her male predecessors.

Table 1: Starting and Ending Timeline and Corresponding HDI Data for Female and Male Leaders

Last Name	Country	SY1(F)	HDISY1 (F)	EY1(F)	HDI1EY (F)	%chng.T1 (F)	SY1 (M)	HDISY1 (M)	EY1 (M)	HDI1EY (M)	%chng.T1 (M)
Domitien	CAR	1976	0.214	1977	0.217	1.402	1975	0.211	1976	0.214	1.422
Boye	Senegal	2002	0.48	2003	0.483	0.625	2001	0.476	2002	0.48	0.84
Diogo	Mozambique	2005	0.361	2006	0.366	1.385	2004	0.356	2005	0.361	1.404
Peron	Argentina	1975	0.769	1977	0.777	1.04	1973	0.761	1975	0.769	1.051
de Chamorro	Nicaragua	1991	0.595	1997	0.623	4.706	1985	0.584	1991	0.595	1.884
Campbell	Canada	1994	0.94	1995	0.941	0.106	1993	0.939	1994	0.94	0.106
Jagan	Guyana	1998	0.706	2000	0.708	0.283	1996	0.704	1998	0.706	0.284
Moscoso	Panama	2000	0.809	2005	0.827	2.225	1995	0.783	2000	0.809	3.321
Bandaranaike	Sri Lanka	x	x	x	x	x	x	x	x	x	X
Gandhi	India	x	x	x	x	x	x	x	x	x	X
Meir	Israel	1970	0.827	1975	0.845	2.177	1965	0.773	1970	0.827	6.986
Aquino	Philippines	1987	0.667	1993	0.704	5.547	1981	0.65	1987	0.667	2.615
Macapagal-Arroyo	Philippines	2002	0.731	2006	0.745	1.915	1998	0.719	2002	0.731	1.669
Bhutto	Pakistan	1989	0.437	1991	0.447	2.288	1987	0.424	1989	0.437	3.066
Zia/Wajed	Bangladesh	1992	0.4	2004	0.504	26	1980	0.331	1992	0.4	20.85
Ciller	Turkey	1994	0.72	1997	0.734	1.944	1991	0.705	1994	0.72	2.128
Kumaratunga	Sri Lanka	1995	0.701	2006	0.742	5.849	1984	0.665	1995	0.701	5.414
Shipley/Clark	New Zealand	1998	0.92	2006	0.944	2.609	1990	0.881	1998	0.92	4.427
Sukarnoputri	Indonesia	2002	0.696	2005	0.719	3.305	1999	0.668	2002	0.696	4.192
Thatcher	Great Britain	1980	0.892	1991	0.917	2.803	1969	0.871	1980	0.892	2.411
Finnbogadottir	Iceland	1981	0.892	1995	0.942	5.605	1967	0.86	1981	0.892	3.721
Brundtland	Norway	x	x	x	x	x	x	x	x	x	
Barbara	Malta	1983	0.782	1988	0.813	3.964	1978	0.752	1983	0.782	3.989
Robinson/McAlese	Ireland	1991	0.882	2002	0.944	7.029	1980	0.837	1991	0.882	5.376
Suchocka	Poland	1993	0.815	1994	0.819	0.491	1992	0.812	1993	0.815	0.369
Dreifuss	Switzerland	1999	0.941	2000	0.945	0.425	1998	0.934	1999	0.941	0.749
Vike-Freiberga	Latvia	2000	0.817	2006	0.863	5.63	1994	0.777	2000	0.817	5.148
Halonen	Finland	2001	0.94	2006	0.954	1.489	1996	0.92	2001	0.94	2.174

This table shows starting and ending timeline and corresponding HDI and percent change data for female and male leaders. SY1(F) refers to starting year for the female leader's first term. HDISY1(F) refers to HDI for SY1 (F). EY1(F) is the ending year for the female leader's first term.HDI1EY(F) refers to HDI for EY1(F). SY1(M) is the starting year for the male leader's first term. HDISY1(M) indicates HDI for SY1(M). EY1(M) is the ending year for the male leader's first term. HDI1EY(M) is the HDI for EY1(M).

Table 2: Bandaranaike, Gandhi, Bhutto and Brundtland's Second Term HDI Data

Last Name	Country	SY2(F)	HDISY2 (F)	EY2(F)	HDIEY2 (F)	%chng.T2 (F)	SY2 (M)	HDISY2 (M)	EY2 (M)	HDIEY2 (M)	%chng.T2 (M)
Bandaranaike	Sri Lanka	1971	0.511	1978	0.543	6.262	1964	0.487	1971	0.511	4.928
Gandhi	India	1981	0.442	1985	0.473	7.014	1977	0.418	1981	0.442	5.742
Bhutto	Pakistan	1994	0.459	1997	0.477	3.922	1991	0.447	1994	0.459	2.685
Brundtland	Norway	1987	0.891	1997	0.932	4.602	1977	0.866	1987	0.891	2.887

This table shows Bandaranaike, Gandhi, Bhutto and Brundtland's second term HDI and percent change data. SY2(F) refers to the starting year for the female leader's second term. HDISY2(F) is HDI for SY2(F). EY2(F) is the ending year for the female leader's second term. HDIEY2(F) refers to HDI for EY2(F). SY2(M) is the starting year for the male leader's second term. HDISY2(M) refers to HDI for SY2(M). EY2(M) refers to the ending year for the male leader's second term. HDIEY2(M) is HDI for EY2(M).

Table 3: Bandaranaike's Third Term HDI Data

Last Name	Country	SY3(F)	HDISY3 (F)	EY3(F)	HDIEY3 (F)	%chng.T3 (F)	SY3 (M)	HDISY3 (M)	EY3 (M)	HDIEY3 (M)	%chng.T3 (M)
Bandaranaike	Sri Lanka	1995	0.701	2001	0.724	3.281	1989	0.681	1995	0.701	2.937

This table shows Bandaranaike's third term HDI and percentage change data. SY3(F) is the starting year for the female leader's third term. HDISY3(F) refers to HDI for SY3(F). EY3(F) is the ending year for the female leader's third term. HDIEY3(F) is the HDI for EY3(F). SY3(M) is the starting year for the male leader's third term. HDISY3(M) is the HDI for SY3(M). EY3(M) is the ending year for the male leader's third term. HDIEY3(M) is the HDI for EY3(M).

Table 4 shows the percentage change calculation for the two groups. The results show that as a group, female leaders' HDI is higher than male leaders by approximately 10.65%. This result implies that female leaders are being more effective on issues--education, health and economic status--that lead to a better life for their citizen

Table 4: Percent Change in HDI Summary

Last Name		%chng.T1(F)		%chng.T1(M)	%chng.T2(F)	%chng.T2(M)	%chng.T3(F)	%chng.T3(M)
Domitien		1.402		1.422				
Boye		0.625		0.84				
Diogo		1.385		1.404				
Peron		1.04		1.051				
de Chamorro		4.706		1.884				
Campbell		0.106		0.106				
Jagan		0.283		0.284				
Moscoso		2.225		3.321				
Bandaranaike		x		x	6.262	4.928	3.281	2.937
Gandhi		x		x	7.014	5.742		
Meir		2.177		6.986				
Aquino		5.547		2.615				
Macapagal-Arroyo		1.915		1.669				
Bhutto		2.288		3.066	3.922	2.685		
Zia/Wajed		26		20.846				
Ciller		1.944		2.128				
Kumaratunga		5.849		5.414				
Shipley/Clark		2.609		4.427				
Sukarnoputri		3.305		4.192				
Thatcher		2.803		2.411				
Finnbogadottir		5.605		3.721				
Brundtland		x		x	4.602	2.887		
Barbara		3.964		3.989				
Robinson/McAleese		7.029		5.376				
Suchocka		0.491		0.369				
Dreifuss		0.425		0.749				
Vike-Freiberga		5.63		5.148				
Halonen		1.489		2.174				
Total		90.842		85.592	21.8	16.24	3.281	2.937
Overall Total	Women	**115.923**	Men	**104.769**				

This table shows the overall percentage change in HDI between female and male leaders as a group.

Table 5 shows the results for the z-test for the difference in the mean values between the two groups of leaders. The finding indicates that, at 5% significance level (or at 95% confidence level), there is not enough evidence to support the claim that there is a difference in the mean HDI values of the female and male leaders from the samples employed in this study. Thus, the difference of 10.65% between the two samples employed here is not sufficient to conclude that the women leaders' HDI is statistically significantly higher than that of their male colleagues. The performance of women leaders in improving the HDI is relatively the same as that of the performance by the male leaders.

Table 5: Z- Test for Two Sample Means

	Female Leaders	Male Leaders
Mean HDI value	3.8541	3.4924
Known sample variance	21.96	13.993
Observation	30	30
Hypothesized mean difference	0.103578	
z value	0.2358	
P(Z<=z) one tail	0.4068	
z Critical one tail	1.6449	
P(Z<=z) two -tail	0.8136	
Z Critical two-tail	1.96	

This table shows the results for the z-test for the difference in the mean values between the two groups of leaders. The critical Z-values are based on 5% significance level (or 95% confidence level).

Geographically, the leaders were placed into the following regions: Africa, Americas (North, South, and Latin America), Asia-Pacific and Europe.

In *Africa*, Domitien of Central African Republic, Boye of Senegal and Diogo of Mozambique were compared against their male counter parts. Their male counterparts outperformed the three women leaders as a group by 6.929%. Only Domitien of Central African Republic outperformed her male counterpart.

In the *Americas*, Peron of Argentina, de Chamorro of Nicaragua, Campbell of Canada, Jagan of Guyana, and Moscoso of Panama were compared with their male counterparts. These five women leaders outperformed their male counterparts by 25.79%. The biggest reason for the women's good performance is de Chamorro of Nicaragua who outperformed her male counterpart by a whopping 132.58%. The other women leaders perform similar to their male counterparts with Moscoso of Panama lagging her male counterpart.

In *Asia-Pacific*, S. Bandaranaike & C. Kumaratunga of Sri Lanka, I. Gandhi of India, Meir of Israel, Aquino & Macapagal-Arroyo of Philippines, Bhutto of Pakistan, Zia & Wajed of Bangladesh, Ciller of Turkey, Shipley & Clark of New Zealand, and Sukarnoputri of Indonesia were compared with their male counterparts. This group of thirteen outperformed their male counterparts by 6.62%. A closer look at this group shows that six leaders (Meir, Bhutto-1st term, Ciller, Shipley & Clark, and Sukarnoputri lagged), while the others outperformed the male leaders for the equivalent period. More importantly, the Zia/Wajed duo outperformed male leaders in Bangladesh by 24.72%.

Finally, in *Europe*, Thatcher of Great Britain, Finnbogadottir of Iceland, Brundtland of Norway, Barbara of Malta, Robinson & McAleese of Ireland, Suchocka of Poland, Dreifuss of Switzerland, Vike-Freiberga of Latvia and Halonen of Finland were compared with their male counterparts. This group of ten European leaders outperformed their male counterparts by 19.44%. With the exception of Dreifuss and Halonen, the rest of the group outperformed their male counterparts.

Overall, women leaders in Americas--mainly because of de Chamorro of Nicaragua--performed the best, followed by women leaders in Asia-Pacific, then Europe, and Africa. In addition, as stated above, for this study Asia-Pacific had the most women leaders with thirteen, ten in Europe, five in Americas and finally three in Africa.

An analysis of election campaigns or slogans for elected female candidates does not reveal that women candidates made female empowerment or issues specific to women part of their campaign. Mostly, they campaigned on issues like education, reduction of poverty and better healthcare. These issues are gender neutral and for betterment of all persons in any society. Interestingly, most of these women have reached their positions due to familial relationships. Mainly, their husbands held the same office before. Thus, it

is possible that if the women leaders had risen up the ranks on their own and focused on the HDI component issues--education, healthcare, better socioeconomic status--then it is possible that the HDI during their tenure would have improved even more than what the data shows.

With availability of more HDI data, this topic will be investigated in a future study. Recently, there have been women leaders elected in Germany, Argentina, and Chile and thus in the next decade there is likelihood of sufficient data to allow for a far more robust analysis and conclusion. Areas of further investigation in the future study include incorporating the percent change in the HDI based on female leader's HDI data following male leader's HDI data, and distinguishing between executive and ceremonial leadership positions. For example, in India the Prime Minister (as is customary in many commonwealth nations) has the executive power while the President holds ceremonial power.

CONCLUDING COMMENTS

The objective of this study is to determine based on numerical data, whether women heads of state improve the HDI of their country in comparison with their male predecessors. The HDI data cited in this study is from the Human Development Reports prepared by the office of United Nations Development Programme (UNDP). The study compared the percent change in HDI for an equal duration between male and female leaders of selected countries. Women heads -of-state in the office for a year or less and, some women heads-of-state in power for more than a year were not part of this study due to lack of HDI data. An analysis of HDI data shows that women leaders throughout the world have a better record in improving the human development of their citizenry. However, this analysis is constrained by lack of HDI data in certain instances and the fact that in many countries women heads-of-state have been elected only recently. Given the constraints, it is still important to note that women leaders have emphasized the growth and development of their people, arguably the most important role of a leader. With the availability of robust HDI data in future, another study will conclusively point to the gender of heads-of-state who improve human development.

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AN ANALYSIS OF MINING SECTOR ECONOMICS IN MONGOLIA

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ABSTRACT

This paper provides an assessment of the mining sector and shows how it is critical for further sustainable growth in Mongolia. In 1990, Mongolia transferred from socialism to a parliamentary democracy and since then has implemented political and economic reforms that have constituted a sweeping break from the past; succeeding in a way that very few other post communist nations have been able to do. The Mongolian economy was mostly influenced by agriculture and small and medium sized businesses; however since the late 1990s, the Mongolian capital market has had a strong correlation with the fate of Mongolia's mining deposits, which are of worldwide interest. If these deposits were exploited, the Mongolian capital market would boom and thus strongly effect the whole economic situation. During the last few years the mining sectors have started to provide an important contribution to the GDP. Unfortunately without previous experience and the appropriate legal environment, the mining industry faces great challenges in further development; at same time investment opportunities for the whole country have been delayed for an uncertain period. Thus, this paper emphasizes how to maintain the sustainability of Mongolian economic growth while identifying and analyzing the main difficulties, challenges and strategic efforts in the mining sector and determining appropriate solutions based on international experience and practices.

JEL: A1; D2; G00; L00; L5; O4

KEYWORDS: Mongolia, mining industry, investment, economic growth

INTRODUCTION

In October 2009, the Government of Mongolia signed an agreement with Canada based private mining company, Ivanhoe Mines, to utilize the copper and gold deposits under "Oyu Tolgoi" project. A week after the signing ceremony, Ivanhoe Mines handed out an initial 100 million USD to the state budget of the country. During this activity, the Minister of Finance of Mongolia, Mr. Bayartsogt declared that each citizen of the country will receive one time incentive of 50,000 MNT or 35 USD from this payment within next year, 2010 (Ministry of Finance of Mongolia, 2009). 1 USD = 1,428.5 MNT as of October 2009 (Mongol Bank, 2009). The population of Mongolia is around three million, if we multiply this figure by the 35 USD; it would be 105 million USD. I asked myself, why Government is going to do such a thing. Thus, I was motivated to know that what kind of problematic issues are arising, how other countries deal with the mining sector, and how the mining sector can be a positively influence in the growth of the country.

Mongolia has an area of over 1.5 million sq km with a population of only 2,737,602 and divided into 21 aimags (provinces). The country is located in the heart of the Asian continent between Russia and China, is a democratic country with a free market economy and has extensive and largely untapped mineral resources. Thus the mining sector has started to play an important role towards the country's future economic development. The Government encourages foreign investment and has adopted several long-term programs in exploration, exploitation and processing of minerals, such as coal, copper, fluorspar, gold, oil and silver (Byamba –Oyu & Tsedendorj, 2007). The bubble in commodities in the world stock market has particularly benefited Mongolia either by raising the profits in the mining sector or increasing

the value of the massive untapped mineral resources. Unfortunately, since April 2008, because of the financial crisis, commodity prices have sharply declined in the worldwide stock market, having a negative impact on the Mongolian economy. Despite this set back, Mongolia continues to enjoy a rapid economic growth as GDP averaged 8.1% during 2004-08, and was 3.0% in 2009 and hopes will have growth in 2010. Per capita GDP was 1,563 USD in 2009. But sustaining this performance will require an intensive development program in the mining sector.

"In the period ahead, the Mongolian economy stands to benefit considerably from its significant mineral deposits. It is important, therefore, to press ahead with agreements in the mining sector and to strengthen institutions needed to effectively manage this mineral wealth," Kato.T (2009), stated.

The data and research materials were analyzed in order to understand the current situation, international practices and possible actions that could be taken towards the growth of the country. This paper uses statistical data and analyses to assess the rise in difficulties for mining industry of the country and evaluate the current legal, social and economic situations. Also investigated the international practices in an attempt to determine an appropriate solution for Mongolia.

LITERATURE REVIEW

A Literature review indicates that the mining industry has become responsible for one-fifth of the GDP, two-thirds of industrial output, three-quarters of export earnings and one-half of public revenue of Mongolia (mnSec.com, 2009). Traditionally, to achieve the economic efficiency, the focus is on the interrelationship between neo-classic economic theory and government policy analysis. But in a competitive market some actions taken by government can cause a failure in the market, which in the real circumstances can be seen as a perfect in the short–term, but in fact are wrong in the long -term (Edwards, 2007). The main objectives of the country are to set a favorable regulatory framework, a stability monitoring system, transparency of information within government agencies, consistency of regulation and legislations and avoidance of corruption (Husband & Songwe, 2003).

Corollary 1: The mining sector impacts the macro-economy of the country.

Before beginning to talk about the mining sector and its impact on the macro-economy of the country, the factors of macro-economics need to be understanding (Ghosh, 2006). Through an analysis of macro-economic measurements we could respond with the following questions: 1) How to sustain the economic growth of the country; 2) Is it possible to continue economic growth without limit, and 3) What actions can, or should, the government be able to take (Williamson, 2002).

The Mongolian economy has been through a rapid economic growth and, as of October 2009, the total production output was 2,936.7 million USD, with exports at 1,369.9 million USD and imports at 1,566.8 million USD (Narankhuu, 2009). Mining accounted for about 30% of the country's industrial output and 60% of its export revenue shown by Figure 1 and export of minerals at total exported products of Mongolia (by percentage) summarized at Table 1. In 2007, the mining sector exports were 78.4% of total exports and in 2008 this figure rose to 80.7%, an increase of 2.3 percentage points from 2007 (Open Society Forum of Mongolia, 2009 & World Bank Report, 2009).

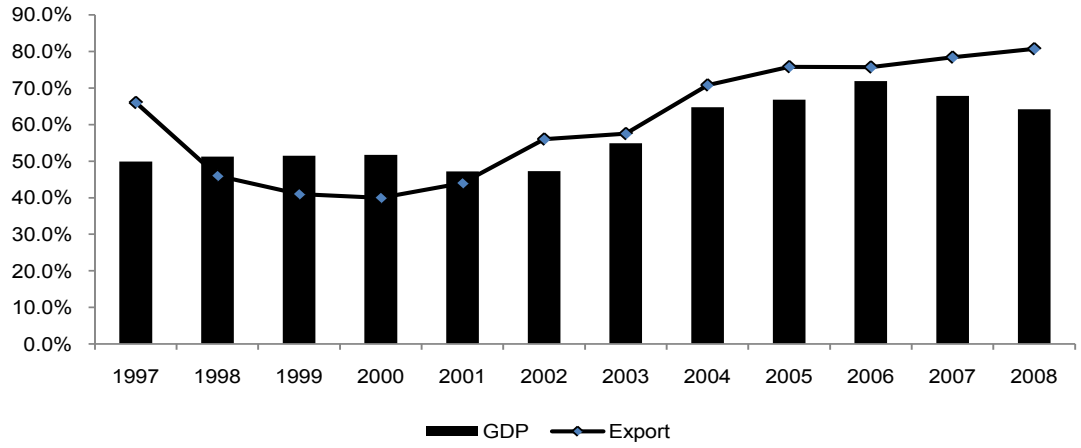
Between 1990 and 2001, the mining industry accounted for 31% of all foreign direct investment in Mongolia (Richmond, 2005), but it is continuously increasing since then. Thus the government has to prioritize the issues that positively impact the investment climate and manage the macro-economic stability (Hancock, 2008).

Table 1: Export of Minerals at Total Exported Products of Mongolia (by percentage)

Name of Minerals	Percentage
Copper ore	25.5%
Unprocessed and semi-processed gold	19%
Coal	16.2%
Zinc	6%
Crude oil	5.2%
Iron ore	3.9%
Fluorspar	2.4%

Source: Narankhuu, 2009

Figure 1: How Mine Production Contributes to Export & GDP of Country



Source: Mineral Resource Authority of Mongolia, 2009

According to the statistics, today in Mongolia over 1.7 million working-age people are in employment, 100,000 of them are engaged in artisanal small–scale mining, especially for gold and fluorspar without any permission or license and operate under a shadow economy and approximately 100,000 employees are engaged in mid- and large-scaled mining companies (National Statistic Year Book of Mongolia, 2008). The unemployment rate was 3% in 2008 and 2.8% in 2009, which ranked 31 among world countries. As of September 2008 inflation had rapidly increased and reached 34%, which is the first time in the past decade of the country and this is the highest level of inflation in East Asia (Central Intelligence Agency (CIA), World Fact book, 2009). This rapid rise and high rate of unemployment is seen to be due to the current global financial crisis. The main economic indicators of Mongolia shown at Table 2.

Table 2: Main Economic Indicators of Mongolia, From 2003-2009

Economic Indicators	2003	2004	2005	2006	2007	2008	2009
GDP Growth (%)	7.0%	10.6%	7.2%	8.5%	10,2%	8.8%	0.5%
GDP Per Capita (US$)	581.657	720.068	905.308	1,223.77	1,502.83	1,975.32	1,563.58
GDP purchasing-power-party (PPP) Per Capita (US$)	2,175.78	2,410.19	2,614.99	2,896.21	3,237.99	3,546.93	3,566.75
Inflation (%)	5.1%	7.9%	12.4%	4.4%	8.1%	26.8%	8.5%
Unemployment (%)	20%	4.6%	6.7%	6.7%	3.3%	3.0%	2.8 %

Sources: CIA World Fact book, 2009

Corollary 2: The legal environment is essential to reduce the objective gap between the government and mining industry, while encouraging the whole business operation.

Generally, Mongolia has passed around 18 laws, rules, resolutions and orders to coordinate the mining sector and industry. Unfortunately the public and the community have a lack of knowledge about this legal environment, which causes problematic issues with the implementation of the legal actions. There are further challenges such as corruption in the bureaucracy, lack of transparency in regulatory and legislative processes become main indicators that affects the development of the mining industry in Mongolia (Arnold, 2004). The Law of Minerals was approved in June 1997 to regulate the relations for exploration, exploitation and production of mining minerals within the territory of Mongolia. Amendments were added in 2006 and January 2009 (Mineral Resource Authority of Mongolia, 2009). This law is considered to be best in the world, and provides investors with a clearly defined and stable legal environment (Richmond, 2005). Another important resolution is a Government Resolution that approves fifteen (15) strategically important deposits (Appendix 1) in Mongolia that could attract investors and among the best reserved deposits in the world. Other related laws that coordinate mining operations are General Taxation Law, Custom Law, Foreign Investment Law, Economic Entity and Organizational Income Tax Law and Customs Law and etc. (Mineral Resource Authority of Mongolia, 2009).

Additionally, the government of Mongolia has signed a production sharing agreement with oil exploration companies in which the government retains ownership of the natural resource and shares up to 55% of total income, while developers have benefits with taxation stability for up to 30 years as well as risk-sharing with the government (Arnold, 2004). Different agreements have been signed between the government of Mongolia and the mining companies in a move towards sustainable development of the country. Indeed, investors have to pay seven different taxes to the state budget, plus the mining royalty rate has been increased from 2.5% to 5%. Mining companies have been paying twenty different taxes, fees and charges to the state and local budgets and amount that paid by mining companies illustrated by year at Table 3. Looking at the numbers, we can say that it is highly affect to the standard of living, wages and social benefits of the country (Mattis, 2009). But eventually it was not contribute the huge influence to the country.

Table 3: Taxes Paid by Mining Companies to State Budget

Year	Payment for Exploration and Exploitation License Fee (million USD)
2002	2.1 USD
2003	2.4 USD
2004	5.7 USD
2005	19.2 USD
2006	80.2 USD
2007	189 USD

Source: World Bank Report, 2008

Contrariwise, the governments of foreign countries usually maintain a lower rate to encourage more investors (Shapiro, 2009a). Therefore, it is essential to increase the awareness of local communities and broaden the range of options to collect data for government decision-making, especially prior to approving the mining related laws, rules and regulations. Hence policy development and implementation will be effective in the long -run (Warlters, 2009).

Corollary 3: General international experiences will positively influence developing countries.

Theory and evidence suggest that developing countries need to follow fundamental policies and the regulation of developed countries not just a temporary measurement but a steady state (Eichengreen, 2000). The governments of the countries that concentrate on the mining industry seek to implement

public-private partnerships to mobilize the right development framework. Those units assess the main activities of the government agencies, and provide advisory support and guidance to the government (Warlters, 2009). Foreign investors are the main contributors to mining industry development in any country that has rich mineral reserves. Therefore, each government considers strengthening the investment climate and tries to reduce any burdens to the investors.

DATA AND METHODOLOGY

The focus of this paper is an analysis of the mining industry and the elucidation of a useful solution for the Mongolian situation based on a literature review and the corollary.

Analysis 1: Mining industry of Mongolia

Mongolian geology is complex and its mineral potential is vast, with is over 1,000 mineral deposits and 8,000 occurrences of 80 different minerals known (Mineral Resource Authority of Mongolia, 2009). The main deposits are gold, silver, copper, tin, tungsten, molybdenum, coal, iron ore, uranium, limestone, lead, wolfram and crude oil. It is estimated that the country's gold and copper reserves are among the largest deposits in the world. In 1924, coal mining was the sole mining industry in Mongolia, which is the main supplier to electric power plants of Ulaanbaatar. Ulaanbaatar is the capital of Mongolia with a population of over 1 million as of December 2009 and divided into eight 8 districts. In the 1961 a major iron ore metallurgical plant was established in Darkhan province and in 1978, a copper and molybdenum processing factory was established in Erdenet province. In the late 1980s several coal mining sites were founded to supply the Power Plants of Ulaanbaatar. Meantime, limestone factories started their processing activities to be a major cement production center. Along with this, gold mining has been growing steady. In 1992 Mongolia exported 624 kg of gold, in 2001 were 14 tons of gold and in 2007 were 10.5 tons of gold. Currently 130 domestic and foreign companies engage in gold mining and exploration activities. In 2006 exploration expenditure for Mongolia reached 285.2 million USD, which accounts for 4% of the global exploration budget. This puts Mongolia on a par with Brazil, China, Russia and South Africa (United Nations Human Rights Team Group, 2006).

As of June 2009, the Mineral Resource Authority issued 6,171 mining exploration and exploitation licenses covering 71,107,888.66 hectares; more than 45% of the Mongolian territory. In 2008, throughout Mongolia, 2,269 licensed companies engaged in exploration and mining activities (Mineral Resource Authority of Mongolia, 2009). Currently, copper and molybdenum are exported to China, fluorspar to Russia, USA and Ukraine, and gold is exported to China, USA and Great Britain. China is the largest export market and accounts for more than 70% of total Mongolian exports, plus it is the main importer of Mongolian coal, copper and molybdenum concentrate. The volume of export of mineral resources increased from 2008 to 2009 as iron ore increased by 41%, coal by 65% and molybdenum concentrate by 73%; all to China. The Russian Federation is the third largest export market and accounts for 11% of total Mongolian exports and is the main importer of fluorspar concentrate (Ministry of Mineral Resource and Energy of Mongolia, 2009).

Erdenet was the main copper ore exploration and production factory in Mongolia from 1978 to 2000, and was a main contributor to the state budget and GDP. But, nowadays Oyu Tolgoi mining has became the largest reservoir of copper and gold mining and when operation once starts it will contribute 35% of the GDP. Therefore an appropriate use of Oyu Tolgoi mining will be essential to Mongolian economic growth. Oyu Tolgoi has copper and gold mines, which are located 80 km north of Mongolia's border with China. Recently, in October 2009, the Canada-based private company, Ivanhoe Mines, signed a fifty-year agreement with the Government of Mongolia. After Oyu Tolgoi Agreement, it will create at least 10,000 jobs, furthermore increase by 38,000 persons during first 35 years of its operation in open pit and underground mines. In addition to it, the project will generate long –term electrical power generation

in South –Gobi regions (Ivanhoe Mines Ltd, 2009). Another strategically important deposit is Tavan Tolgoi, which is the largest coal mining deposit in the world. Tavan Tolgoi coal mine is located near Oyu Tolgoi and has 6.5 billion metric tons of coking and thermal coal. The extraction will be 30 million tons a year for at least 30 years.

In 2008, Mongolia produced 129.4 thousand tons of copper, which is 0.6% of the 15.8 million tons of global copper production; 400 thousand tons fluorspar, which was ranked Mongolia third with 6.8% of global fluorspar production (global production 5.84 million tons); gold production was 15,184 kg, 0.6% of global gold production (global production 2,340 tons). In 2008, the mining sector produced a total of 1,292,047.32 USD, which became 64.6% of the total production of the country (Mineral Resource Authority of Mongolia, 2009).

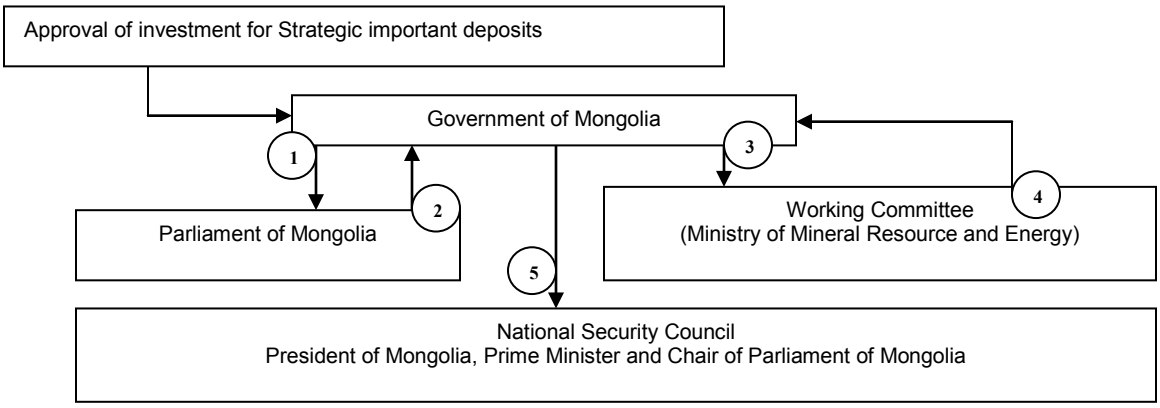
Analysis 2: Legal Environment

Mongolia is a young developing country with wealth of natural resources, thus it is necessary to formulate an appropriate legal environment for the mining industry. The Law of Minerals coordinates all the activities related to the mining industry, strengthens the environmental protection and rehabilitation issues; entitles more rights to local administrative bodies, increases license holders' duties and determines the strategically important deposits. The main legal process starts by obtaining an exploration license from the Mineral Resource Authority of Mongolia. This license is initially for three years duration and can be extended for another two years. If exploration indicates viable resources then an owner can transfer the exploration license to a mining license with 30 years duration and renewable up to 20 years. The mining industry is coordinated by two Government organizations. One is the Ministry of Mineral Resource and Energy, which is in charge of the research and information related to the mining industries, and has responsibility to develop the budget, to plan investments in the mining sector, to expand foreign cooperation, to develop partnerships among public and private companies, to coordinate the policies in the foreign financial markets and to review the regulations. The second is the Mineral Resource Authority of Mongolia, which was established in 1997 to be responsible for the implementation of the mineral laws, regulations and resolutions, serve customers and investors of the mining industry, and enhance the contribution of the mining sector to the Mongolian economy. At the same time, there are Mining Association to provide an appropriate support, analysis and research to show their interest to the global financial market for private mining industry.

The definition of the strategically important deposits are: a) they are able to impact on Mongolian national security, economy and social development; b) that are in strong international demand and c) annual mineral production will contribute at least 5% of country's GDP. If the deposit can be developed and identified with private funds then the government's participation in strategic deposits will be up to 50%.

The decision making process of an approval of investment for strategic important deposit has been drawn on Figure 2. According to it, (1) Government of Mongolia introduces to Parliament of Mongolia the proposal by investor for strategic important deposit; (2) Parliament of Mongolia allows/disallows a right to Government to complete an agreement: (a) If allows, Parliament will provide directions for further actions and goes to number (3); (b) If disallowed by Parliament, Government will work on it and try to re-introduce an improved version in the future; (3) Government establishes a Working Committee under the Ministry of Mineral Resource and Energy to work with investor and assess the proposal; (4) Working Committee will introduce the final proposal by the investor to the Government for approval; and (5) After approval by the Government, the proposal is introduced to the National Security Council of Mongolia. The National Security Council consists of the President, the Prime Minister and the Chair of the Parliament of Mongolia.

Figure 2: Flowchart of Approval of Investment for Strategic Important Deposits



In 2007, the Parliament of Mongolia approved a Windfall tax law, which imposed a 68% tax on profits from mineral sales when the price of copper reached 2,600 USD and that of gold reached 500 USD per ounce on the London Metal Exchange (Law on Windfall Tax of Mongolia, 2007). This law was criticized by investors and had a negative influence on mining development, even major foreign investors in gold withdrew from the country and almost all mining companies adjusted their business and strategic plans. Eventually it was found that both prior to and after this law was enacted there was no research carried out and there was no economic justification for its implementation (Narankhuu, 2009). But this law did not affect the companies who had a "stability agreement" with the Government of Mongolia and will be suspended by 2011 (Ochirbat, Bayasgalan, Byambajav & Jargalsaikhan, 2004). Considering a favorable legal and tax environment will have a critical effect on the future of foreign direct investment in the country (Shapiro, 2009b).

Analysis 3: Best Practices in Other Countries

From the 1970s, the Middle East countries have become economically the most promising part of the world as the economic, social and political development of those countries has been dominated by huge oil reserves. For instance, in 1980s Kuwait's per capita GNP was higher than most European countries. Despite this, the income generation among the population was different; the rich people became richer than the mid and lower level of the population. The majority of the population survived in hard living conditions, which became a difficult issue in the early 1990s. The youth unemployment rate was 30% - 50%; therefore it was necessary to replace foreign workers by locals. In addition the price of oil was booming in 1970, but since the 1990s the price of oil has been declining (Gokay, 2006). Consideration of these problems led the Middle Eastern countries to take economic reforms that declared an independent private sector, direct taxation and related political reforms. In African countries, the mining sector contributes a powerful influence to the economy of a country. For example, in Zambia, investment rate is 20% of GDP and is spend most of the investment on improvement of the infrastructure and irrigation systems. Nevertheless, privatization has been encouraged in the long-term (Lundahl, 2001).

China established a "socialist market economy" and started economic development reform in 1978 based on the coal industry. The serious problems faced by the coal industry were; poor infrastructure, insufficient regulation and legal environment, even the available laws and regulations could not effectively coordinate all the activities. The government encouraged the development of coal mine companies through low entry barriers, flexible coal prices, low tax and advanced management solutions, plus high technologies introduced for exploration and production of the mines. The government has built an effective and efficient infrastructure system and encouraged foreign investment in the coal industry (Rui, 2005)

One of the ways that the British had successful economic growth was that the investment flow from mining was spent on research and development activities, such as new and innovative technology and industrial construction during the late 1980s. Those investment distributions gave an opportunity to increase the economic capacity; furthermore these actions maintained the country's income and employment equality (Smith, 1986).

Australia faced some problems concerning the mining industry in that foreign capital inflow anticipated the external debt crises and caused a high degree of foreign ownership; therefore in the 1970s the Australian government took action to limit foreign investment in the mining sector. But this restriction was removed and foreign investment became more relaxed in 1980s according to the financial reform of the country; however uranium mining remains with the ownership restriction rule of up to 50% (Meredith & Dyster, 1999).

RESULTS

It is understandable that Mongolia needs to improve its legal system and environment for mineral resource usage, however, according to the agreement with Ivanhoe Mines; the Parliament of Mongolia has included several amendments to the Law of Minerals that consider the investors' needs and requirements. If looked at from the viewpoint of a dispute, it shows that the Mongolian legal system is unstable, that the enforcement capability of the law is not strong enough, that state agencies do not work properly to raise public awareness of the related laws, and the obedience rate to the law is lower, compared to other countries. In a changing global economy, more legal effort needs to be put into the legal environment to create a more optimal system through high level research (Richmand, 2005).

Main Challenges That Have Arisen within the Mining Sector of Mongolia

Mongolia has very poor infrastructure, most areas in the countryside do not have paved roads, and the railway line only runs from Ulaanbaatar to the Chinese border in the south and to the Russia border in the north. A total distance is 1,100 km with 4 branches. These branches connect the main mine sites of the Erdenet copper mine, Darkhan metallurgical plant and Baganuur, Shivee Ovoo and Shariin Gol coal mines (Railway Development Research, 2008). In addition, there is a shortage of water resources and power plants reaching the mining sites (Shapiro, 2009b). Considering these circumstances, every mining company has to develop its own strategic programs to support the infrastructure in its region from their profits and cooperate with the local government administration.

As a consequence of the recent global financial crisis, demand and prices for commodities have declined and influenced the investment flow to Mongolia. If the copper price was to continue to decrease further, it would probably hurt the trade balance of Mongolia; fortunately, the copper price has rapidly increased on London Metal Exchange since August 2009 (Bloomberg.com, 2009). The Ninth International Fraser's survey announced that Mongolia has changed its rank from being in the top 10 to being in the bottom 10 within a one year period in 2007 due to its overnight change in regulatory environment (Law on Windfall Tax of Mongolia, 2007) in the mining sector. Corruption issues have also been worsening in the past several years and become the most difficult issue. The World Bank Investment Climate Survey found that to obtain mining and exploration licenses, the companies required paying bribes for government officials (World Bank, 2009).

Recommendation and Further Actions Shall Be Taken

The Government shall achieve a market-oriented policy to sustain economic efficiency while extending foreign direct investment targeting market-orientation, human capital and monetary policies (Dutta,

Hooley & Mahani, 1998). The long-term solution for growth of the country will be correct formulation and implementation of the trade, banking, industry, and population policies and renovation of the infrastructure (Meredith & Dyster, 1999). Next year, 2010, the Government's main priority will be signing a stability agreement with foreign mining companies on the Tavan Tolgoi (TT) mine; therefore it would be challenging in the same way as the Oyu Tolgoi mine.

It should be noted that mine resources are never recovered and the income has a limited term. Consequently, it is necessary to formulate a good strategy for accurate usage of foreign investment to strengthen other business sectors, especially to develop the proper macro-economic management strategies of the country. One government encouragement is "The Development Fund" in order to support the growth of the country by contributing to the mining industry income. Unfortunately, at the current stage, the framework has not been structured properly, but it is just in its formative period. In 2009, the World Bank allocated 9.3 million USD for improvement of the governance of the Mongolian mining sector through the mining sector technical assistance project (World Bank report, 2009).

The Government of Mongolia has formulated several country development policies to intensify the economic development of the country, create financial capacity and enhance mining production while adopting high level technologies. Another important issue that the Government of Mongolia has established is the "Erdenes MGL" state owned company to own the licenses of all strategically important deposits of Mongolia, and at the next stage the company is going to be listed on worldwide stock markets. This will impact both the transparency of deposits to the investors and the reliability of information.

CONCLUSION AND LIMITATION

The Oyu Tolgoi project has been approved by the Government of Mongolia after six years, two parliaments, three governments and an initial investment of one billion USD made by Ivanhoe Mines. After the signing ceremony between the Government of Mongolia and Ivanhoe Mines on the Oyu Tolgoi project, Fitch rating updated Mongolia's outlook from "Negative" to "Stable", at the same time the World Bank cautiously agreed that the Mongolian economy may stabilize in the future (Dale, 2009). Mongolia has huge undeveloped resources, yet has a small but open market economy. This agreement between the Government of Mongolia and a private mining company, Ivanhoe Mines, is establishing favourable economic circumstances in Mongolia.

But from another point, if a country will not pay attention to the development of sustainability of other businesses; as it continues only to rely on foreign investment, there is little guarantee of ensuring the country's economic sustainability. The growing economy is creating acute needs for the developing infrastructure sector, especially railroads, highways and power generation facilities. The current infrastructure is far from meeting the present industrial demands. If the Government of Mongolia can effectively manage those strategically important deposits, then we can quickly transfer from an agriculture based economy to a mining based economy. Still, Mongolia remains a difficult country in which investors can conduct a business, due to the under-developed infrastructure, un-paved roads, and high levels of poverty and weakness of technical professionals.

This is one reason why the Government distributing money to all citizens is completely wrong. Easing the life of the population, treating people with dignity and providing them proactive support are not promoting the quality of life; instead the government has to find a way of managing the economy.

It is remarkable that mining industry plays such an important role in the growth of the country, especially in developing countries although the importance of promoting them in economic activities is being increasingly realized. If we can assist the local mining companies by bringing them into the mainstream of development through improving their economic status, it will impact on poverty reduction, strengthen

the development of rural areas and infrastructure around area, improve the employment rate and influence the social and economic growth of the country. Additionally, mining industry is the most risky sector within economic factors.

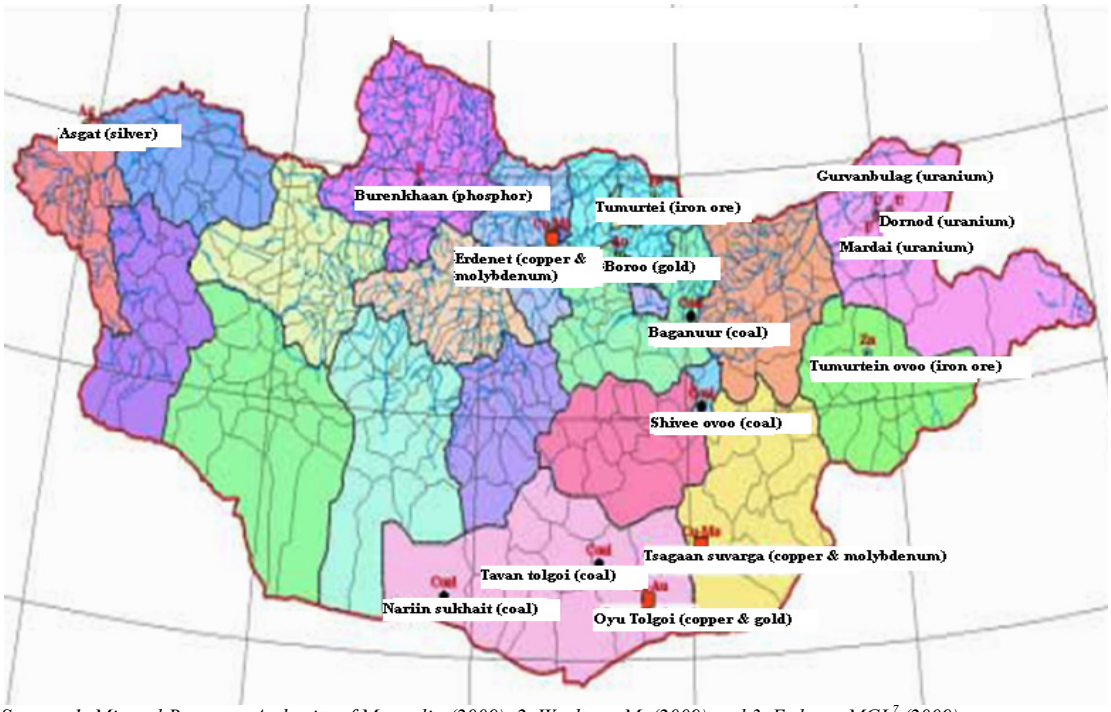
This paper does not automatically provide the answers; consequently, it remains open for researchers to investigate further. Mongolian government should execute a mining -management plan to avoid the negative impact of uncertain positions, which can respond to any raised problems. This mining-management plan will assess possible crises to offer protection from unpredictable circumstances.

APPENDIX

Appendix 1: List of Strategically Important Deposits of Mongolia

#	Name of Deposit	Mineral	Location (Name of aimag[6])	Remarks
1	Tavan tolgoi (TT)	Coking coal	Omnogobi aimag	Total deposit is 6.5 billion tones.
2	Nariin sukhait	Coal	Omnogobi aimag	Total deposit is 134 million tones.
3	Baganuur	Brown thermal coal	Ulaanbaatar, Baganuur district	Total reserves are 360 million tones. Operation generalized since 1978.
4	Shivee ovoo	Brown thermal coal	Gobisumber aimag	Total reserve is 642 million tones and has operated since 1984.
5	Mardai	Uranium	Dornod aimag	Total reserves are 49,000 tones.
6	Dornod	Uranium	Dornod aimag	
7	Gurvan bulag	Uranium	Dornod aimag	
8	Tomortei	Iron ore	Selenge aimag	Total reserves are 230 million tones
9	Oyu Tolgoi (OT)	Copper, molybdenum	Omnogobi aimag	Ivanhoe Mines Company signed a 50-year investment agreement with the Government of Mongolia. Reserves are 32 million tons of copper and 1,000 tons of gold.
10	Sagan suvraga	Copper molybdenum	Dornogobi aimag	240 million tons at 0.54% copper and 0.019% molybdenum
11	Erdenet	Copper molybdenum	Orkhon aimag	Total reserves are 1.5 billion tones. It contributes 27% of state budget and has operated since 1978.
12	Burenkhaan	Phosphorus	Khuvsgol aimag	Total reserves are 192.24 million tones and 4th largest phosphorus reserve in the world.
13	Boroo	Gold	Selenge aimag	24,523 tones of gold reserve
14	Tomortein ovoo	Zinc, lead	Sukhbaatar aimag	7,689.4 thousand tones of 11.5% zinc
15	Asgat	Silver	Bayan-Ulgii aimag	Total reserves are 6402.6 thousand tones

Appendix 2. Map of Strategic Important Deposits



Source: 1. Mineral Resource Authority of Mongolia (2009), 2. Warlters, M. (2009) and 3. Erdenes MGL[7] (2009)

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INTANGIBLE RESOURCES AS A DETERMINANT OF ACCELERATED INTERNATIONALIZATION

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ABSTRACT

The aim of this research is to analyze the internationalization strategies followed by small and medium enterprises (SMEs) of Jalisco. Specifically, we want to identify cases of early internationalization, and how SMEs get and manage their resources. We developed an analytical framework based on the resource-based view of the firm and on two internationalization models, the Uppsala and the Born-Global. The purpose is to allow the analysis of different typologies of internationalized SMEs. The empirical results show the internationalization strategies of SMEs follow two main trends: the first presents a gradual internationalization, as suggests the Uppsala model and the second follows an accelerated internationalization, agreeing with the born-global approach. An interesting finding is that accelerated internationalization is not an exclusive behavior of technology intensive or innovating companies. In fact, it is possible to find born-global SMEs even in mature and traditional sectors. This is possible thanks to the control of strategic intangible resources like experience and relational capital of managers. These findings contribute to extend and deepen the knowledge of born global companies.

JEL: F23; M16

KEYWORDS: Resource-Based View, Intangible Assets, Born-Global companies, SMEs.

INTRODUCTION

The present enterprise environment, characterized by constant evolution in the technologies of production, information, communications, transportation, the openness of markets and a greater mobility of human and financial capital, affects the way business is conducted. This managerial context forces companies, both established as those in formation, to reflect on business form and how best to take advantage of the prevailing conditions to survive, preserve their market position, diversify risks and grow.

In Mexico, the importance of SMEs can not be overstated. SME's are important based on the number of establishments (99.3% of total companies), generation of employment (88.9% of the jobs) and the possible benefits from internationalization (INEGI, 2009; SIEM, 2009). Because of this importance it is important to identify reasons that companies to succeed in foreign markets.

In the following section, we present the theoretical frame of this work, which includes a brief description of the enterprise success, the resource-based view of the firm (RBV) and the models of accelerated internationalization. Later, in the empirical section, we will describe the methodology used, the studied case will appear and we will discuss the reached results. The paper closes with some concluding comments.

LITERATURE REVISION

We define internationalization to be the commitments of a company outside its origin country and transferring services, products or resources beyond the borders. In a broader sense, an internationalized company is one that conducts any operation of its value chain in a country that is not local (Welch &

Luostarinen, 1988). Internationalization includes diverse phenomena, because the international economic relations that a company can establish differ according to their nature. These international relations, can include commercial relations (export and import), financial or of production (manufacture in other countries or subcontracting). We present two themes that will allow us to deepen in our conceptual map, first the determinants of the success or failure in companies and latter, how internationalization of a company takes place.

The Enterprise Success and the Exporting Performance

The subject of enterprise success is not new in the strategic management literature. Like a first approach and individual scale, the success of the company lies in its survival. A successful company can remain in its productive activity. The competitive success is associated with the enterprises capability to secure a favorable competitive position, to hold and to improve its position in the market and to get superior results to those of its competitors (Sierraalta, 2004).

Since the eighties, the literature has emphasized that enterprise success is founded in holding a competitive advantage that makes it possible to earn abnormal returns. A competitive advantage is the ability of the company to equip its products or services of key qualities that their competitors cannot imitate. This allows the company to earn a surcharge without losing market share or to enjoy lower costs. In both cases, the company earns income over the average of its industry because of its ability to respond to the demands of the market efficiently.

Nevertheless, to count on a competitive advantage does not guarantee success. In addition, the advantage must be sustainable in the long term. In this sense, a competitive advantage must be due to certain characteristics. It must be valuable, rare, difficult to imitate and difficult to replace (Barney, 1991) and must match with the preferences of the consumers of the objective market.

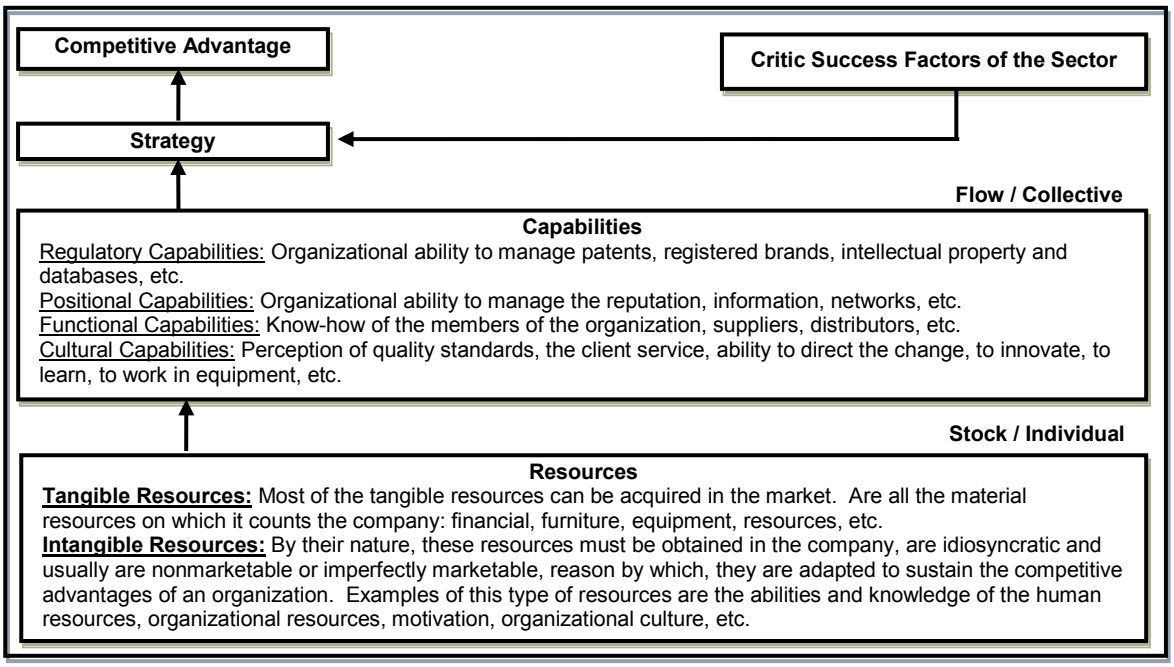
Nevertheless, how the company builds and preserves its competitive advantage, and how it can use this advantage in foreign markets remains an open question A suitable base to respond to these questions is the RBV. This theory suggests that, in turbulent times and of great changes, as much in the technology as in the needs of the clients, the sustainable competitive advantage must rely on the resources and capabilities the company owns. Under this theoretical frame, Grant (1998) raised the theory in which the company combines the internal elements with those of their environment to achieve a competitive advantage. In this perspective, the company combines its tangible and intangible resources to form the organizational capabilities, which preserve the strategy, considering the factors that have lead to the success to other companies of the sector (See Figure 1).

Thus, exporting performance, like an expression of the enterprise success can be conceptualize like a strategic answer. It is conditioned by the internal elements which the company posses (its resources and capabilities) (Valenzuela, 2000).

The Internationalization of the Company

A high number of investigators have studied the phenomenon of the internationalization during several decades from different theoretical perspective. Nevertheless, between investigators does not exist consensus on the most important characteristics to analyze and to explain the internationalization (Welch & Luostarinen, 1988). This is the reason we can find manifolds theories that approach this phenomenon, each centered in one or several partial aspects of the internationalization (Galan, Galende & Gonzalez, 1999; Vazquez & Vazquez, 2007). We present a tentative classification of these theories in Table 1.

Figure 1: Resources, Capabilities and Competitive Advantage



Source: Own elaboration based on Barney (1991), Grant (1998) and Fong (2002). Figure 1 shows the route towards the competitive advantage according to the RBV. According to this, particular combinations of the firm's resources (tangible and intangible) create the capabilities (regulatory, positional, functional and cultural) needed to sustain a specific strategy. This strategy must be designed according to the specific resources and capabilities of the firm and to the critic success factors of the sector, which could produce a competitive advantage.

Table 1: Main Theories of the Internationalization of the Firm

Perspective	Description	Theory
Economic	The internationalization is seen as a phenomenon purely based on the costs and the economic advantages.	Monopolistic Advantage Theory (Hymer, 1976), Internalization Theory (Buckley & Casson, 1998), Eclectic Paradigm (Dunning, 1980), Organizational Capabilities Theory (Madhok, 1997).
Sequential	Internationalization is conceived like a process of incremental commitment based on the learning, the knowledge accumulation and in the increase of resources placed in the outer markets.	Uppsala Model (Johanson & Wiedersheim-Paul, 1975), Product's Cycle Life Theory (Vernon, 1966), Innovation Models (Bilkey & Tesar, 1977), Networks Theory (Johanson & Mattson, 1988)
Accelerated	Raises the possibility the companies, despite being of recent creation, export a significant part of their total sales.	Born-Global or INVs companies (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994).

Source: Own elaboration based on literature revision. This table shows a tentative classification of the most important theories of the internationalization of the firm; they are group in three categories, according to the characteristics used to analyze and to explain the internationalization.

In the present investigation we explore two possible explanations for the internationalization of SMEs: the Uppsala model and born global model. This because most theories are not applicable to these companies which tend to address only abroad studies of internationalization by way of direct investment. Moreover, the Uppsala model and born-global models are compatible with the RBV.

The Uppsala model presents internationalization like a gradual and evolutionary process that follows stages: not to export, export sporadically, export regularly by agents, organize a commercial network to export and settle down abroad. Each one of these stages supposes a greater implication and commitment of the company (Johanson & Wiedershein-Paul, 1975).

From this perspective, companies look first for the psychically nearest markets, where psychic distance is the set of factors that make the flow of information between a market and the company difficult, for example: language, culture and education.

The Born-Global approach arises because of the existence of an increasing number of companies, mainly SMEs, which begin international activities not in a gradual way, as suggest traditional models but by risking an important amount of company resources (Oviatt & McDougall, 1994; Rialp, Rialp & Knight, 2005).

It is important to note that a fundamental difference between a traditional company and born-global in the role-played of resources and capabilities. Born-global companies, being by definition of recent creation, do not count on an extensive grant of financial or human resources, at the same time they can also lack other properties including equipment and other physical resources. This is important because these resources, mainly tangible, are those that traditional companies have used to be successful in foreign market. However, the born-global company uses a set of intangible resources to get and to preserve international competitive advantage (Rialp et al., 2005).

Rialp et al. (2005) propose the following factors, related to one another although not necessarily in this order of importance, like which model the way of international development of companies: (1) to count on management team with a global vision from its foundation. (2) Have an enterprising with previous experience in international businesses. (3) Have a greater commitment and directive dedication with the international activity. (4) Make a more significant use of networks and personal and between companies' relations. (5) Have greater knowledge of the foreign markets. (6) To more deeply integrate intangible, unique or singular and hardly imitable resources, based on the strategic management of the knowledge. (7) To get a greater value added through differentiating the product or innovating technology. (8) To follow a proactive international strategy, focused to spread geographically niches of the global market. (9) Have identified and to focus towards segments of the outer market with a greater direct relation with the final client. (10) Have a greater strategic and organizational flexibility to adapt to changing conditions of the international environment.

Rialp, Rialp & Knight (2005) propose a theoretical model for the analysis of the internationalization. This model arises from combining several contributions that consider managing intangible resources including a critical element to create a competitive advantage in a certain context (See Figure 2). From this theoretical frame we arrive at our hypotheses:

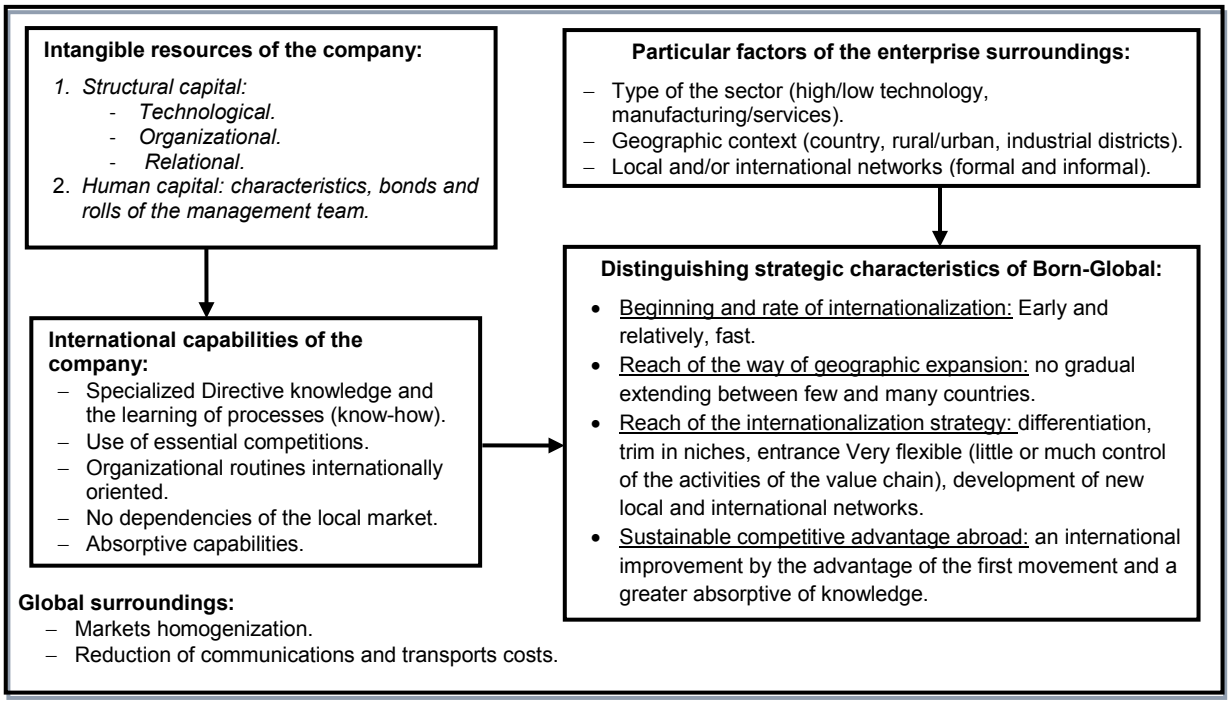
H1: Holding unique and valuable resources, of character mainly intangible, that support the competitive advantage will improve the internationalization strategy and the exporting performance of the SME.

On the other hand, of specific form, following theoretical the model presented, we have the following hypothesis:

H2: The company reaches internationalization following an evolutionary footpath, characterized by an increase in the resources it risk.

H3: The SME is able to export a significant part of its products to diverse countries because of its foundation. The foundation includes its ability to identify opportunities, its networks and relational capital and the knowledge of its manager about foreign markets.

Figure 2: Model of Internationalization of the Born-Global Approach



Source: Adaptation of Oviatt & McDougall, 1994 and Rialp, Rialp & Knight, 2005. This figure shows the route of accelerated internationalization cradle in resources and capabilities. Here we describe how combining certain resources results in increased international capabilities of the company. When combined to the characteristics of a particular sector context and general economic context this sprouts a born global company.

DATA AND METHODOLOGY

For this investigation, we use a mixed methodology to companies of Jalisco, Mexico. We applied a quantitative strategy (correlation analysis) and later a qualitative analysis (case study). For the present investigation, we used a survey applied to 56 managers of internationalized SMEs of diverse sectors from Jalisco. This survey is part of the investigation "Factors that favor the competitiveness of the internationalized SMEs of Jalisco" developed by University of Guadalajara and Council for Science and Technology of Jalisco. We calculate correlation coefficients between the most relevant variables (See Table 2) as well as the other 17 variables related to the internationalization models presented above.

Table 2: Variables for the Correlation Analysis

Variable	Description	Measuring Criteria
Exp/Sales	Percentage of exports respects the total sales.	Continuous Variable (between 0-1)
Countries	Total number of countries in which the company is selling its products.	Discreet Variable (between 1-8)
Int. Clients.	Total number of clients in foreign markets.	Discreet Variable (between 1-100)
Internationalization Lv.	Maximum internationalization level reaching by the company.	Scale Variable (0 = Only Exports, 1 = Realizes distribution / commercialization activities, 2 = Account with establishments abroad.

Source: Own elaboration. The table shows a brief description of the four key variables used for the correlation analysis and the measuring criteria applied for each variable. These variables allow us to understand some relevant aspects of the internationalization process reached for the SMEs of Jalisco.

While correlation does not settle the existence of causal relation between variables, it allows us to observe the degree and the sense of relation that keep the variables. The causal relation will be in a sense according to the realized theoretical revision.

Despite the proven virtues of the quantitative analysis in the scientific research, some aspects related to the aim of this work, and especially to the adopted theoretical frame, suggest the need to consider other methodological alternatives, the qualitative type methodologies. In this sense, diverse investigations (Fong, 2002; Hall, 1993; Nisar, 2006; Rosen, 2006; Zadrozny, 2006) have showed the utility of the case study methodology to analyze firms in their environment and to look into the internationalization in SMEs.

Thus, we designed and orchestrated the case study following the methodology raised by Yin (2003a, 2003b) applying the triangulation principle for the contrast of information. We used diverse investigation techniques, like semi-structured interviews with key informants, application of surveys with Likert scale to a representative sample of workers, documentary revision in files of the company, journalistic publications, through the internet and nonparticipating observation. Contact with the company occurred throughout June of 2008.

The first point of study was the route followed by the company in its internationalization strategy, identifying the time it took the company to begin exporting its products after its foundation. If the company started exporting within three years of its creation, it is considered a born-global company. On the contrary, we will assume the firm has followed a traditional internationalization like the raised by the Uppsala school. Later we identify information about the key resources required to begin and to stay in foreign markets. A brief description of the variables analyzed appears in Table 3.

Table 3: Variables under the Born-Global Approach

Variables	Source of Evidence
Vision of the managers about the course that must follow the company	Interviews with key personnel Documentary Revision
Experience in foreign markets of the managers	Interviews with key personnel Documentary Revision
Commitment and dedication of the directive with the internationalization	Interviews with key personnel Documentary Revision Archives Revision
Personal networks or between companies	Interviews with key personnel
Knowledge of the destiny market	Interviews with key personnel
Technological differentiation of the product or innovations	Interviews with key personnel Direct observation Documentary Revision
Participation in spread niches of market	Interviews with key personnel Documentary Revision
Strategic and organizational flexibility	Interviews with key personnel Documentary Revision Archives Revision

Source: Own elaboration. This table shows the variables used for the case study under the born-global approach and the sources of evidence used for each variable.

RESULTS

Correlation Analysis

We applied the correlation analysis of the four variables previously described against another 17 variables of the survey that were tied with the proposed model. We identify variables with greater relation with "exports on total sales" and if the firm adopts "internationalization like a positioning strategy". We also examine the "number of countries in which the firm operates" and the "number of clients who are

abroad". This suggests that, when the company sets an objective of reaching a better competitive position and develops a strategy around this objective, the results of the internationalization are better than when exporting occurs by external situations. That agrees with the expositions of the born global approach.

Table 4: Correlation between Variables

	1. Exp/Sales		**2. Countries**
Internationalization like a positioning strategy	0.3569***	Competitive aggressiveness	-0.3255**
Agreements to realize R&D	0.2976**	Use of Internet sales	0.2978**
Use of Internet sales	0.2938**	Number of strategic alliances	0.2482*
Kind of company	-0.2383*	Agreements to realize R&D	0.2469*
		Number of international suppliers	0.2373*
		Internationalization like a positioning strategy	0.2282*
	3. Int. Clients	**4. Internationalization Lv.**	
Antiquity of the R&D department	0.4315***	Performance evaluation	0.4097***
Internationalization like a positioning strategy	0.2659**	Competitive aggressiveness	0.3222**
Agreements to realize R&D	0.2521*	Employees capacitating	0.2522*
Realizes purchases by Internet	0.2475*	Antiquity of the company	-0.2224*
Use of Internet sales	0.229*	Manager's educative level	0.2215*

*Source: Own elaboration. This table shows the statistically significant coefficients obtained from the correlation analysis. Estimations were between four relevant variables (percentage of exportation respect the total sales, number of countries in which the firm sales its products, number of clients abroad and the internationalization level reached) and 17 variables theoretically related to the internationalization. *, ** and *** indicate significance at the 10% (p<0.1), 5% (p<0.05) and 1% (p<0.01) levels respectively.*

Another relevant variable was the use of the internet like a tool of businesses. This variable is also important in the "number of countries in which operates the company" and the "number of clients the firm has abroad" (where not only it influences like a tool for the sale, but also for the purchase). At the same time, the "number of countries in which the company has presence", the relational capabilities (international alliances and suppliers, besides the agreements of R&D) are important.

Finally, for "level of international operations reached", we found the aspects related to managing the personnel become essential (evaluation of performance and qualification). This implies the personnel expertise and educational level of the company directors are relevant to greater internationalization.

In addition, this is the unique variable in which the "age of the company" gains importance (the age and size of the firm had not been statistically significant in other cases). Here, there exists an inverse relation between the "antiquity of the organization" and the "reached level of internationalization". We can explain this, at least in part, because older companies are less motivated to look for internationalization, or oppose internationalization. New companies focus their attention in foreign markets, which is compatible with the born-global exposition. Although the results do not represent forceful evidences to accept or to reject the hypotheses of this investigation, they give us a view compatible with the raised accelerated internationalization model.

Case Study Results

We conducted a case study of "Metropolitans candies", a company located in the Industrial Zone of Guadalajara, Jalisco, in the West of Mexico. This is a median company that has 240 employees. This company was created in 2004, although the managers, the brothers Raul and Roberto Guzman Montes (Commercial Manager and Operation Manager, respectively), began their learning of the candies business in 1952. In that year, their parents, Jose Guzman and Martha Montes, created a small manufacturing candy company called "The Willows" in Guadalajara, Jalisco. At the beginning, this was a strategy to draw for economic difficulties, taking advantage of a process received from his father Mr. Jose Guzman. In this business, the Guzman brothers learned the techniques and basic processes of production and formed relations of friendship with some suppliers and clients.

Today, the company concentrates on producing trowels and massive caramel a part of which are assembled for Confi Candies. In addition they offer the line of BioSalud products, that includes caramels, trowels, confectionery oriented and health care to other wholesalers. Today, Metropolitans candies exports his products to Central America countries including Panama, Guatemala and Costa Rica, besides Spain and the United States.

The evidence revealed the company followed an accelerated internationalization process, as it raises the born-global model. We consider the formal foundation of the company in May of 2004 (although it adopted the name "Metropolitan Candies" until 2006). The evidence shows exports started in January of 2007. We identify Metropolitans Candies as a Multinational Trader (Oviatt & McDougall, 1994).

The firm has stayed in foreign markets since then and has increased international sales from roughly 3% of total sales in 2007 to a little more than 11% at the time of this investigation. In addition, the company has increase the number of destinations to which they direct its products, expanding from Central America to the United States and Spain.

Next, we wish to identify the most important resources required for accelerated internationalization and to increase the participation in the foreign markets. With regard to the variable "Vision of the managers about the course that must follow the company" our examination shows the search of foreign markets was underway since the formation of the firm. Managers promoted an active search of opportunities to place products internationally. This is clearly important for the internationalization of the firm.

The next variable is based on Respect. More specifically we ask "previous experience in foreign markets by the managers". The history in this case tells us how the brothers Raul and Roberto gained the abilities, skills and knowledge necessary to evolve in the confectionery sector. The evidence showed the experience of some international markets was decisive and led to looking for export markets from the outset. Nevertheless, knowledge gained from the European and Asian markets in Confi Candies had to be adapted to the particularities of the markets of Central America. The evidence corroborates that previous experience of the managers has a positive impact in the potential to realize early exports.

Concerning the "commitment and dedication of the directive with the internationalization", the interviewed individuals signaled there is a serious commitment to the exporting activity. Evidence of this is regular attendance of the firm at national and international exhibitions of confectionery. Nevertheless, the evidence is not decisive as there is a notable lack of more aggressive campaigns for penetration to new markets or the lack of investment in publicity abroad.

In relation to 'Personal' or 'between companies' networks, while some interviewed people looked to reduce the importance of networks, all recognized the decisive role that networks played for Metropolitan Candies. This importance is not only in direct relation to manufacturing, but also contacts the Guzman brothers had with suppliers, competitors, clients and inclusively governmental authorities, have been useful in the internationalization.

With regard to the variable "Knowledge of the destiny market", there were no evidence that this contributed in a significant way to internationalization. As mentioned previously, the market in which the company initially exported was Central America, and its knowledge of this was limited. However, the previous experiences in exports and relations with other companies allowed them to little by little covering knowledge shortages. It is important to stress that, it is less complicated to export to Costa Rica, Spain or even the United States, than to Saudi Arabia. However, under conditions of a reduced psychic distance with the destiny markets, this finding is understandable.

Finally, with regard to "differentiation of the product or technological innovations" a great deal of evidence is obtained. By the interviews, as by the surveys and the documentary revision, the relevance of the laboratory, used to develop products, was identified. In this same sense, the line of BioSalud products is an extra indicator of the search of differentiation. We accept the H3 hypothesis, based on forceful evidence the company managed to penetrate foreign markets in an accelerated way. This was due to having a distinguished product, an ample relational capital and directive equipment with knowledge of foreign markets.

CONCLUSIONS

Company internationalization is a natural destiny in the present economic context. Internationalization affects, positive or negative, all companies without regard to size, geographic location or even if they are conscious of the importance. For the SME, incursion in foreign markets is more complicated, because of the limitation in resources. Nevertheless, there exist cases, such as that reported here of companies that have developed an international presence in a successful way.

Our objective in this research was to analyze the internationalization strategies followed by Jalisco's SMEs. In particular, we identified cases of early internationalization, looking to deepen our understanding of the processes that allow SMEs to perform in international markets.

The first step was to construct a suitable explanatory theoretical model. So, in order to accomplish these aims, a model for the analysis of these organizations that combines the postulates of a model of evolutionary internationalization and one of accelerated internationalization were considered, with an approach using RBV. Under this perspective, we developed a model that was used to analyze internationalization.

Specifically, the evidence suggests that accelerated internationalization is not reserved to industrial sectors with an intensive use of technology or to the services sector, with an elevated use of the knowledge. In fact, in this investigation, we cataloged a company in a traditional sector that counts on an artisan component within the group of international new ventures. This is possible because the company controls some unique and valuable resources. These resources are, the experience of the managers in international businesses, the interenterprise and personal networks that have been built, a constant search for innovation and relational capital the organization has gathered.

We agree the general hypotheses of the born-global scheme are fulfilled, but with some particularities. It is necessary to consider these results are exclusively for the specific empirical context that we have presented here. This sets an analysis of the predictions of the theoretical model proposed for born global companies in a context not previously tried.

Future investigations should be directed towards replicating the findings here using multiple cases of SMEs. Examinations of firms of diverse sectors and sizes, that have managed to enter international markets are warranted. In addition, it is necessary to design a questionnaire that allows the use a more sophisticated quantitative technique, to look for a possible theoretical generalization of the results. In the end, this could lead to the design of mechanisms to replicate these successful experiences.

NOTES

Please contact the authors for a sample (Spanish version only) of the Survey Applied to Manager of Internationalized SMEs

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WE-COMMERCE: EVIDENCE ON A NEW VIRTUAL COMMERCE PLATFORM

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ABSTRACT

The proliferation of the Internet and the latest mobile communication technologies have given rise to new forms of communication that made it easier for sellers as well as consumers to communicate and conduct business in real time and in virtual space with manufacturers, retailers or among each other. In addition, consumers are building social networks for interacting, and for collectively buying products ("We-Commerce"). From the sellers' perspective, they are stepping away from traditional forms of a single buyer-seller relationship and formerly dominant group building processes. By tapping into consumer networks and using consumers as marketing assets, marketers can enhance sales volumes, save marketing spending, and increase profits. This paper (1) provides an overview of grouping phenomena in marketing. It then (2) points out different platforms of group commerce in virtual surroundings, and (3) elaborates the influence of group mechanisms onto the consumer's decision-making process. Eventually, (4) further research questions are presented.

JEL: L81, M30, M31

KEYWORDS: We-commerce, consumer groups; consumer bundling/flocking; consumer behavior on the Internet; group/collective buying

INTRODUCTION

Marketing literature about grouping phenomena has been dominated for a long time by firstly a marketer-initiated perspective, and secondly by a one seller dealing with one consumer connection. Although the phenomenon of consumers' buying products together has ever since existed (Dameron, 1928), and sellers always reacted with different kinds of group discounts (e.g. on family vacation trips as well as group discounts at museums or movie theaters, and as a business model for consumer co-operatives), it has long been underrepresented in literature. This situation has dramatically changed with the advent of the Internet, which in his early stages has mainly been used for either building up relationships between companies or companies and consumers as well as single transactions in E-Commerce (e.g. Deller, Stubenrath, and Weber 1999; Mahadevan 2000). The phenomenon of consumers' buying products together on the Internet appeared first time with the second Internet hype in the early beginning of this century. Participating consumers received a discount on highly standardized products like printers or cameras by logging onto a seller's website (e.g. Letsbuyit.com), typing in their reservation price, and just waiting till the offer was closed. Although these forms of group buying seemed to be a good idea at first sight, they apparently did not meet the expectations of consumers. Group offers on the Internet vanished only after a few years in business.

The situation has changed with the growing interactivity by a combination of former stand-alone technologies like the Internet and mobile telecommunication services as well as new social media platforms like Facebook or Twitter. They allow for an anytime accessibility worldwide and coevally bringing people closer together on a regular basis. At the same time consumer power, but also the chances for consumers to find other consumers with the same interests and the same need for specific products are rising drastically. Consumers are now flocking on the Internet; they are virtually meeting in blogs, special interest groups or chat rooms, and therefore establishing a huge market segment for sellers. At that point

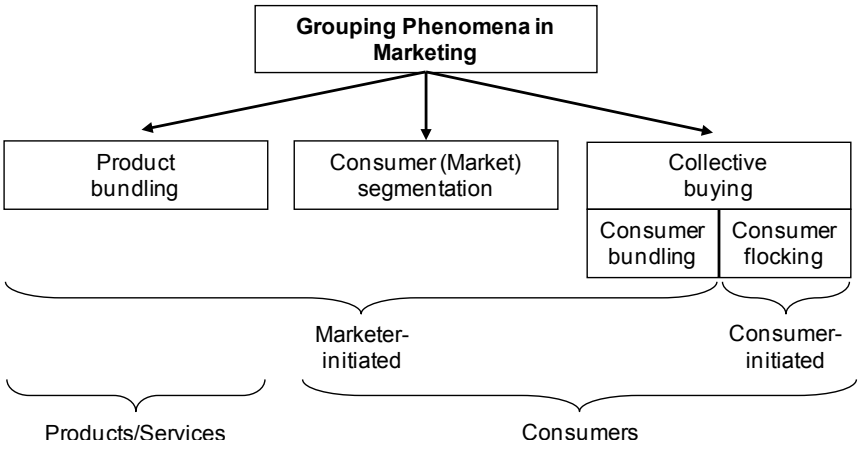
in time new business models are stepping in. Consumers can now receive group discounts by undertaking marketing tasks of the seller in the area of communication and distribution in a much easier way than ten years ago. A phenomenon named We-Commerce.

The paper as follows first discusses an overview of grouping phenomena in marketing. This approach is helpful in understanding the change of perspectives from a marketer-initiated phenomenon to a consumer-initiated enhancement of the grouping context. In addition, a scheme of group buying on the internet is given before a switch to the consumer's perspective is presented. Then, the paper proceeds toward the development of taxonomy on consumer groups in virtual commerce. Platforms for virtual commerce are discussed, based on two dimensions: initiator and duration. In this context, consumer bundling and consumer flocking is contrasted as well as the concept of We-Commerce introduced as a buyer-initiated and long-term phenomenon that is based on new social media. Eventually, the impact of We-Commerce on the consumer's decision-making process is discussed in detail. This simultaneously offers opportunities to give advice to marketing practitioners about obstacles in future group business processes. Moreover, it points out which further research questions need to be addressed in We-Commerce surroundings.

LITERATURE REVIEW

The discussion on grouping phenomena in marketing started a long time ago. It began with *product bundling* or bundling of goods in general as a very common marketer-initiated phenomenon in marketing since many decades (Dansby and Conrad, 1984; McAfee, McMillian and Whinston, 1989; Venkatesh and Mahajan, 1993; Yadav and Monroe, 1993; Yadav, 1994; Janiszewski and Cunha, 2004; Sheng, Parker and Nakamoto, 2007). Academic research on the topic goes back to early works of Stigler, 1963 and Adams and Yellen, 1976. Nowadays it can be found on many markets for standardized consumer goods (e.g. computer with printer and/or software), but is also applicable to products in combination with services (e.g. car and maintenance service). Bundling describes a chance of differentiation in competition by creating a higher value for consumers with packages of different products and/or services (Lawless, 1991; Olderog and Skiera, 2000; Stremersch and Tellis, 2002), which contain several specific advantages compared to offers from competitors, e.g. a lower price (discount), a free delivery or special modes of payment. One usually accepted definition of (product) bundling is "… the practice of marketing two or more products and/or services in a single package for a special price" (Guiltinan, 1987, p. 74).

Figure 1: Forms of Aggregation in Marketing – Analogous domains



This figure shows different types of grouping phenomena in marketing. Besides the well-known instrument of product bundling and a strategy of consumer segmentation the angle of collective buying rose up in particular with the advent of the internet. In this context, consumer bundling is a marketer-initiated phenomenon, whereas consumer flocking is consumer-initiated and mainly empowered by new social media.

On the other hand, the idea of grouping consumers roughly appeared at the same time. Aggregating consumers by the marketer for planning purposes is widely recognized to be market and/or *consumer segmentation* (Smith, 1956; Bass, Tigert and Lonsdale, 1968; Frank, Massy and Wind, 1972; Wedel and Kamakura, 2000). In addition, clustering them into different groups (market segments) of similar characteristics and behavior for a strategic reason is nothing else but bundling them together. In terms of pricing theory, this differentiation is for obtaining a bigger part of the consumer surplus (Pigou, 1978), whereas the consumer gets products and/or services that better fit to his own specific needs. Product bundling as well as consumer segmentation are both marketer-initiated. Figure 1 gives the streams of research in the broad area of grouping of either products or consumers.

Nevertheless, the phenomena of product bundling as well as consumer segmentation implicitly consider each person separately buying one specific product and/or service (Klein, 2005). Following our broad understanding, this was the case for a long period. But one can also assume, that specific products or an assortment of goods are bought by different consumers at the same time (Voeth, 2002). This does not fit into the framework of consumer segmentation as well as it also does not appropriately fit into the classical understanding of quantity discounts, regularly given to a single consumer. Moreover, within this enhancement the focus changes to a certain amount of consumers rather than the bundle of products or services. It also changes to the purchase and its side effects (e.g. a group discount) rather than strategically dividing consumers into market segments.

In marketing literature this shift of view to multiple consumers being involved into a market exchange has been taken place in other areas of marketing whenever the ownership of a special good or purchase (e.g. through price discounts) affects the economic utility of other people (Voeth, 2003). Think about e.g. network externalities, critical mass phenomena or simply the purchase of a family vacation to Europe. The economic utility of these situations for each participating person depends strongly on the number and the behavior of the other members of the group (Li, Chawla, Rajan and Sycara, 2004), which share the market or go with each other. Focusing on that family trip one can say that if somebody within the group disagrees with the acquired compromise or the resolved action of the group the economic utility for the whole group as well as for each member will decrease. New services in telecommunication industries are of the same kind. MMS (Multi Messaging Service) is useless for a single user, because it is not of interest to send an MMS to oneself. This lasts until the market reaches a critical mass and lots of friends are joining the group of MMS users. Reaching a stage of critical mass, the utility goes up with something like a takeoff (Mahler and Rogers, 1999). The economic utility suddenly increases for each group member, because now it is easy to communicate with each other. In addition, the given example also shows, that there might be other factors, that influence the group building process and its maintenance (see also below). Those can be seen in sociological (e.g. need for socialization, see Moreland and Levine, 1982) as well as psychological reasons (e.g. reduction of the perceived risk, see Bauer, 1967; Roselius, 1971).

Another example, which is firstly based on group utility under an economic perspective, is group-buying phenomena. They came up in 2000 with the global proliferation of the Internet, e-business and the emergence of information-rich and savvy consumers. Such phenomena are also shown in Figure 1 under the term of so-called *collective buying*. The main consumer's economic utility from those businesses has been the expected price discount when purchasing a specific product together with other consumers. However, its characteristics are distinctly different from the salient features of traditional consumer groups. Up to that time buying as a group of consumers was more or less a regional phenomenon in terms of group discounts at local stores or for services like theaters, the movies etc. Consumer co-operatives, consumer tribes, and consumer groups are some of the other names that have also been used in the literature to describe this hitherto existing phenomenon, which already started a long time ago (see e.g. Dameron, 1928). By and large, they were consumer-initiated, geographically confined, and their membership was relatively stable. Additionally, the consumer group size and scope were primarily determined by somewhat limited and sluggish flow of information to aspiring group members.

THEORY AND EVIDENCE

In the next sections the development from the group-buying phenomenon as an early concept of retailers on the Internet that tried to sell highly standardized products, to a switch to the consumer's side will be discussed. Moreover, taxonomy of consumer groups in virtual commerce is given. Eventually, a phenomenon called We-Commerce, which is flanked by the proliferation of new social media, and its impact on the consumer's decision-making process will be introduced.

Group Buying on the Internet

Group buying on the Internet has been discussed under many different descriptors—e.g. group purchasing, co-shopping, and collective shopping—in numerous academic (Anand and Aron, 2003; Asselin and Chaib-Draa, 2006; Birchall and Simmons, 2004; Chen, Chen and Song, 2002; Chen, Chen and Song, 2007; Kauffman and Wang, 2001; Li, Chawla, Rajan and Sycara, 2004; Voeth, 2002; Voeth and Weißbacher, 2006; Matsuo, 2009) and practitioner sources (Bonello, 2000; Clark, 2000; Clark, 2001; Dodge, 2000; Jidoun, 2000; Perry, 2000). But it has never been systematically examined (Sharma, Klein and Bhagat, 2008). Most of the academic articles take a mathematical viewpoint of analyzing optimal bundle sizes, duration of the offer or bidding mechanisms. A search of the Internet and in databases like EBSCO Host's Business Source Premier in the summer of 2009 shows clearly that only a few authors recognized and discussed the strategic potential of such new-media based group phenomena in Business-to-Consumer markets, e.g. the liquidation of inventory, achieving economies of scale or cutting marketing spending by using consumers as marketing assets (e.g. within communication and logistics). Moreover, only a few authors see group buying on the Internet as part of a dynamic pricing-mechanism in marketing strategy (Sahay, 2007).

Furthermore, most of the articles on group buying tend to take a Business-to-Business perspective (e.g. Forrest, 2006; for an example see UPowerBuy)—mostly using the term group purchasing—and/or discuss the formation of traditional groups. By contrast, group buying on the Internet happens in Business-to-Consumer markets and it is about buying specific types of standardized products at the same time, e.g. cameras, printers and so on. These kind of groups are also relatively unstable compared to classical consumer co-operatives (such as listed at www.ncba.coop), and the action takes place on the Internet because of its distinct advantages in communication efficiency. Not surprisingly, it is also not questionable that these so called buying groups on the Internet in fact most of the time did not meet the conditions of a group in a classical way, which is two or more people, having a relationship through repeated interactions over a period of time, developing a kind of group identity, and coming together to achieve particular objectives (see e.g. Robbins and Judge, 2008). Whereas the latter fits to the understanding of group buying processes, the rest does not. On the other hand, they are also more than a social aggregation, since they are not only a real or physical conglomeration of people with no connection or interaction as discussed in group socialization literature (Hare, 1962; Merton, 1968; Moreland and Levine, 1982).

While the concept of group buying on the Internet seemed great and even had a good initial support from investors, vendors, media and even buyers (Tang, 2008), it vanished after only a few years in business (e.g. Accompany, Letsbuyit, or MobShop). For a long time one could rarely find survivors—e.g. Groupgain (USA), Teambuy (China), or Neckermann "Catalog Aggregator" (Germany)—which encouraged consumers to actively form a group with the main purpose of obtaining a discounted price based on a larger quantity of purchased products, that is mainly affected by the group size. Moreover, former initiators have been retailers that tried to take advantage of such businesses. One can assume, that the economic advantages from the individual consumer's perspective—mainly the stepwise reduced price—have not outweigh the transaction costs within the group building process in such forms of buying. As there are e.g. costs for collecting information about the product and the buying process, waiting for the

end of the offer—not knowing the final price—as well as waiting for the product to be shipped thereafter. In addition, the individual consumer mostly had to face a compromise onto one specific product offer within such group buying processes. This might have been only a few critical disadvantages of previous group-buying platforms on the Internet. Nevertheless, some authors think, and our given examples later on show towards the same direction, that online group buying seems to be again a growing trend (e.g. Heller, 2009).

Since collective buying opportunities can either be marketer- or consumer-initiated (see also Figure 1), such hitherto discussed grouping phenomena can be named *consumer bundling* (Klein, 2005; Sharma, Klein and Bhagat, 2008), whenever they are a marketer-initiated (e.g. DellSwarm), influenced, and controlled short-term voluntary aggregation of consumers into specific sized bundles. These consumers are collectively engaging in a marketing exchange on a seller‘s website which would provide each with a superior value on a per capita basis than obtainable individually from the same or other sellers. For example, a seller announces substantial quantity discount rates for a product on its website exhorting visitors to become committed consumers, and if the number of consumers reaches or exceeds a pre-determined critical mass (bundle of consumers), every member of the bundle gets the merchandise at a substantial discount.

A Switch to the Consumer’s Perspective

There are also consumer-initiated buying processes, which are based on group building (e.g. Storemob). The process of the consumers’ self-organizing to increase value for themselves in the marketing transaction is termed *consumer flocking* in literature (Bhagat, Klein and Sharma, 2009). Since consumer flocking is consumer-initiated and therefore consumers take an active part in the marketing process by using their own social networks and by utilizing the power of new communication technologies like the Internet, this consumer effort might even better counterbalance the discount on an assortment of products and services given by the marketer than it was the case within the above discussed consumer bundling initiatives. Furthermore, while group formation in this constellation is consumer-initiated, the marketer can influence consumers’ behavior and use them to support sales by encouraging community building as well as internal communication of virtual communities (Wang, Wei and Kaarst-Brown, 2006). Marketers might now be able to offer a significant price reduction to a consumer flock. On this account, consumer flocking creates higher value for both market sides. We think that a systematic exploration of this new consumer-initiated phenomenon has tremendous implications for marketers for value-creation and value-delivery to the consumers—a significant pillar of the new AMA definition of the domain of Marketing.

Moreover, the current trend of social networking and user-to-user communications is being increasingly tapped by companies for purposes of commerce (Bernoff and Li, 2008). Calling it a groundswell phenomenon, Bernoff and Li, 2008, p. 36 state that “… consumers are now connecting with and drawing power from one another.” This increase in online social activities around the world (e.g. Facebook, Twitter, MySpace or eSwarm) would soon result in the formation of virtual communities for purposes of commerce—not just for sharing information as is currently the case for most of them. Think about e.g. virtual communities, special interest groups or chat rooms, where people come together on the Internet because of the same interests. While all social media provide a channel for consumer flocking, as well as doing business from the marketer’s perspective (see e.g. Weber, 2009), social network sites on the internet provide a powerful vehicle for consumer aggregation. The purpose of many-to-many communications is succinctly described thus: a social trend in which “…people using technologies to get the things they need from one another …” (Bernoff and Li, 2008, p. 36).

Following this understanding of a long-term oriented group building process for reasons of commerce, this phenomenon can also be called “We-Commerce” whenever there is a shift to long-term oriented groups of people on the Internet for buying purposes. Manufactures can address those groups with special

offers and obtain on this way those consumers who are possibly willing to take part in a group business. In addition, Schultz, 2009 states, that the shift of persuasion power within the communication process from the marketer to the consumer is an important fact which cannot be ignored within future advertising strategies. Consumers are no longer persuaded by strong brands and their promotional programs, but by other consumers within their own social networks. This situation is also supported by a recent study from ComScore about a marketers' trend to buy into existing social networks (Loechner, 2009). Marketers are already addressing social networks with buying offers or public relations campaigns (see also Lindars and Bower, 2009).

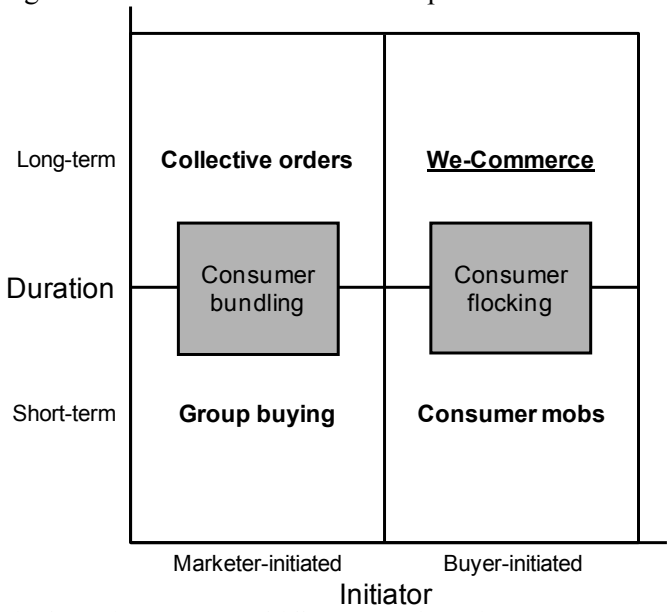
However, it is common to both—consumer bundling as well as consumer flocking—that the existence of such grouping phenomena strongly depends on new information technologies and the global proliferation of the Internet over the last decade. Businesses can now directly communicate with each other in real time and create new and better value packages. Consumers can also communicate easier with manufacturers, wholesalers, retailers, third party information providers, or with other consumers. Besides seller-specific advantages of such consumer aggregations like stretching market share/volume, a quick turnover of inventory (advantages in production and financing) or a reduction of marketing and distribution costs. Moreover, these forms of marketing products additionally offer a broad access to the consumers' social networks. In addition, the marketer is able to collect important information about consumer behavior that helps him to enhance the outcomes of further businesses.

Categorizing Consumer Groups in Virtual Commerce

After firstly pointing out various grouping phenomena in marketing, we can now distinguish its different platforms in the context of virtual commerce. We will subsequently discuss how the consumer's decision-making process is influenced by the so called phenomenon of "We-Commerce". Based on the systematization in Figure 1 as well as now shown by Figure 2, a first dimension within the purchasing process includes a differentiation into marketer- and buyer-initiated types of group buying phenomena (*initiator*), whereas a second dimension considers the short- or long-term orientation of the group (*duration*).

Within both of the *marketer-initiated* phenomena marketers are able to reduce marketing spending by giving consumers the opportunity of either collective orders or group buying. This type of collective buying was already named *consumer bundling* (Sharma, Klein and Bhagat, 2008). However, the first subtype is a more *long-term*-oriented business relationship, wherein buyers are able to order either similar products or an assortment of products from a single seller. There is normally one person, also known as the catalog aggregator, which collects all orders, processes them, and stays in contact with the seller over a specific period of time (e.g. GermanShop24 or Woodland). In addition, this sometimes happens during multiple ordering processes, and in some cases, the intermediate person also decides how to share the given discount. Furthermore, a marketer can offer potential consumers the opportunity to buy as part of a *short-term*-oriented group; also either similar products or products from a seller's assortment. Nevertheless, most offers that can be found on the Internet contain only a single product (e.g. Groupon). In this kind of group buying initiative, each individual receives the same discounted price that is shown on the marketer's homepage. By logging onto the marketer's website, it is also permanently clear to the single buyer how many people already signed up for the offer. Therefore, compared to collective orders, the order process is more transparent to every member of the entire group. Whereas collective orders can also be found within the old economy, the latter phenomenon appeared for the first time around the year 2000 within the boom of the so called new economy.

Figure 2: Platforms for Virtual Group Commerce



This figure shows taxonomy of different types of virtual group commerce along the dimensions "initiator" and "duration". It corresponds with figure 1 in terms of consumer bundling and consumer flocking. Whereas group buying as well as collective orders and consumer mobs can happen in the off- and online world, the We-Commerce phenomenon is based on new social media technologies.

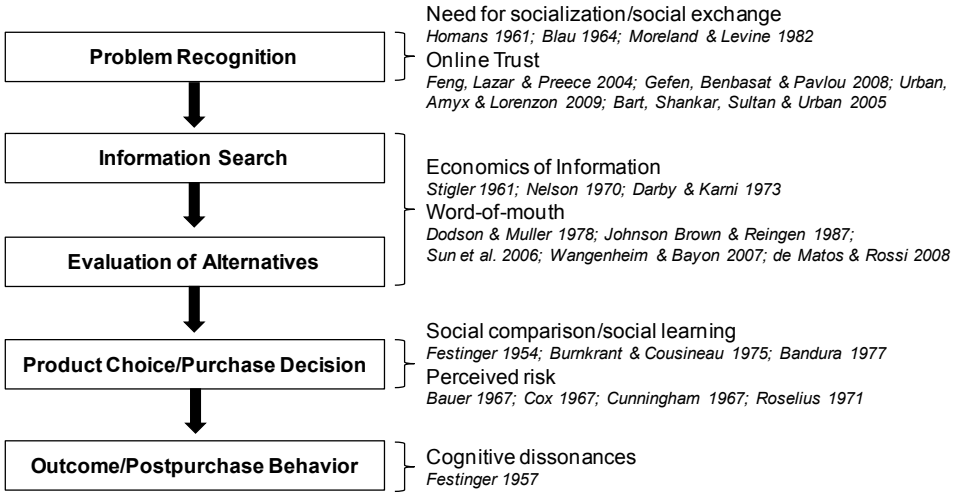
From the buyer's perspective there are existing *buyer-initiated* phenomena of collective buying that have been named *consumer flocking* so far (Bhagat, Klein and Sharma, 2009). On the one hand, single consumers or Internet platforms, mainly driven by consumers, are organizing consumer mobs. Those are based on a *short-term* aggregation of people for getting discounts either in online stores or also by using the Internet as a medium to arrange meetings in front of local stores (e.g. BuyWithMe, GroupMutual, StoreMob). On the other hand, *long-term* oriented groups of consumers—such as consumer co-operatives in agriculture, credit, farm, electric, grocery or housing sector—have existed for a long time (see www.ncba.coop). In recent years many of them maintain an Internet presence though still having only a local impact (e.g. Consumers Credit Union or Health Care). Nevertheless, the phenomenon of consumer flocking on a long-term basis rather refers to social networks. Social networks are of the same kind, but the difference consists of the medium that is used. Today's social networks (e.g. Facebook, MySpace, or Twitter) are heavily based on new technologies like 3G cell phones and Web 3.0 applications. Within such existing groups there might rise up smaller units of people with a focus on the purchasing of goods (Bhagat, Klein and Sharma, 2009), though the group itself has a long-term life cycle. This new phenomenon we named We-Commerce, and marketers are already tapping into such social networks by displaying their advertisements respectively by offering buying opportunities in well known networks such as Facebook or MySpace. In this context, Letsbuyit recently started another attempt to establish a shopping community in Europe, without the concept of co-buying this time, but with the idea of a shopping community in general. Users can recommend products and stores to other users within the Letsbuyit-network. Marketers can enter into this community by placing ads or joining an affiliate partner program. In addition, social network sites like MySpace or Facebook also advising businesses of different options to reach their own user groups.

The Impact of We-Commerce on the Consumer's Decision-Making Process

We will now discuss the implications of collective buying, and especially We-Commerce, onto the consumer's individual purchasing process. In marketing literature the consumer's decision-making is divided into a five step model (see Figure 3). Those steps, depending on different authors, contain problem recognition, information search, evaluation of alternatives, product choice/purchase decision, and

outcome/postpurchase behavior (see e.g. Solomon, 2009). There are a whole variety of theories and/or concepts in the area of individual as well as group consumer behavior, which can be related to different steps of the consumer's decision-making process. Some of them are also focussing on influencing as well as moderating factors of interpersonal exchange processes with groups. Others, like e.g. economics of information, take a look from the outside under a given situation of asymmetric information. In the following section we will lead a first discussion to what extent they are able to give further advice about how the individual's decision-making process in We-Commerce surroundings on the Internet is influenced by the group, or the group building process. In addition, those theories and concepts also offer some suggestions for the marketer how to deal with and how to tap into consumers' social networks for the purpose of commerce.

Figure 3: We-Commerce and the Consumer's Decision-making Process



This figure builds a bridge between the consumer's decision-making process and different consumer behavior theories as well as e.g. economics of information. The names of their respective founders are also given. In combination with the following sections, an early insight into the consumer's We-Commerce decision-making process is offered.

Problem Recognition

In the problem recognition stage, consumers become aware of a specific need. Following to this some people have a higher propensity to flock onto social network sites than others. They are chatting about e.g. their problems in finding appropriate products and/or they are just talking about their own product experiences. This form of communication helps them in the problem solving process (Newell, Shaw and Simon, 1958; Newell and Simon, 1972). Moreover, people are ever since social connectors, and they have a *need for socialization* as well as *social exchanges* in their daily lives (Homans, 1974; Blau, 1964). The wide variety of advancements in communication technology has enabled them to discover interpersonal commonalities across space and time, e.g. common ideas, views on a subject matter, activities, common interest, opinions, and even pattern-discussion of product attributes, usage behavior and posting of product views (Chayko, 2007; Chayko, 2008). Moreover, socialization is a process of mutual adjustment that produces changes in behavior over time (Moreland and Levine, 1982).

According to Robbins and Judge, 2008, there are different reasons for joining groups, e.g. security, status, self-esteem, affiliation, power, and goal achievement. Security reduces individual self-doubts, and makes people more resistant to threats. In this context, buying products on the Internet in We-Commerce might help consumers in figuring out what products are of good quality. In addition, power and goal achievement helps them to accomplish a particular buying task, and therefore to get a better price than the

average market price. Therefore, with the growth of the Internet and the increasing number of products available all around the world, social network sites may help the average individual consumer within the problem recognition stage. Senecal and Nantel, 2004 found out, that e.g. consumers who consulted product recommendations selected recommended products twice as much as other consumers. Marketers should try to guide chatrooms and discussion sites, plus they should offer their own products as problem solvers. In addition, marketers should offer group discounts to increase the number of sold products and reward consumers for their communication activities within the purchasing process. This helps the marketer to generate not only reliable communicators in the market place, but also committed consumers for further exchange processes as well as.

The fact that cyberspace enables people to join together based upon common interests and experiences provides a substantial foundation upon which environments of business cooperation can be created. Nevertheless, the harmony of the group that emerges on the Internet can be tenuous and fragile because the elements that contribute to the harmonious group interaction in real life are weaker (Feng, Lazar and Preece, 2004). In that context, the construct of *online trust* is one of the key drivers, not only in E-Commerce (Bart, Shankar, Sultan and Urban, 2005), but also in We-Commerce surroundings. Online trust is based on consumer perceptions against expectations, believability of the information and confidence in the site (Urban, Amyx and Lorenzon, 2009). Marketers have to make sure that they act trustworthy from the consumer's viewpoint (Gefen, Benbasat and Pavlou, 2008). Destroying the group cohesion right away at the first stage of the problem recognition is always a possible as well as a serious threat.

Information Search and Evaluation of Alternatives

The process of information search and the evaluation of alternatives are closely related, since the amount of information that the individual consumer gathers simultaneously determines the number of given product alternatives. *Economics of information* (Stigler, 1961; Nelson, 1970; Darby and Karni, 1973) provides helpful insight into the concept of asymmetric information. Individuals do not have all necessary information about a specific product category, since information is not available for free. Their information processing (Miller, 1956; Miller, Galanter and Pribram, 1960) is also limited in terms of making rational choices (Simon, 1955; Simon, 1959). Besides, time also works as a constraint. Collective buying might help the individual consumer to ease the search for information as well as it might simplify the overall buying decision. If a friend within a social network, who is told to be a market maven and who is also widely accepted by others, recommends a specific product, this person can act as a salesman on behalf of the marketer. He might be able to convince others of the product value or of the product as a problem solver. Since the source attractiveness of another consumer is significantly higher than the manufacturer's communication, the marketer should treat him as a marketing asset in the information search and evaluation stage.

Moreover, the concept of *word-of-mouth* is driving product diffusion processes in the marketplace (Dodson and Muller, 1978; Godes and Mayzlin, 2004; Sun, Youn, Wu and Kuntaraporn, 2006; de Matos and Rossi, 2008). Strength of commitment to the group and strength of the ties are thereby important factors (Johnson Brown and Reingen, 1987). As long as the consistency with other information, as well as its clarity and its credibility are high, the individual might put more trust into word-of-mouth than into the official marketer's communication instruments. Again, social network sites typically provide a higher trustworthiness than the communication of the manufacturer. Price and Freick, 1984 found that consumers planned to use especially friends, relatives, and acquaintances as information sources (even before salespeople and publications such as consumer reports). These findings are also supported by Kiel and Layton, 1981, who reported numerous studies concerning the dimensions of consumers' information seeking behavior. Overall, other consumers act as a filter in We-Commerce surroundings. They are

providing product information as well as they are helping in getting better deals from manufacturers when it comes to collective buying opportunities.

Product Choice/Purchase Decision

Social comparison (Festinger, 1954) and *social learning (*Burnkrant and Cousineau, 1975; Bandura, 1977) are two well known theories from sociology, that can be used to describe the influence of others onto the individuals purchasing behavior. Individuals tend to compare themselves on various attributes with other individuals in order to judge the consequences of their behavior (Moschis, 1976). Social comparison increases the stability of one's evaluation. Moreover, it offers an occasion for expressing affection and also stands for interpersonal rewards, an important fact in We-Commerce situations. Along with the theory it can be stated that special interest groups guide the individual's product choice (Burnkrant and Cousineau, 1975). This social influence has generally been referred to as conformity and looked upon as the relatively simple act of going along with or agreeing with a visible majority. Other authors have examined the role of preference revision and concession in group decisions (Aribarg, Arora and Bodur, 2002). Following the group decision as well as being a group member might also defend the single consumer from negative outcomes of a purchasing decision (see also Briley and Wyer, 2002). Because of the power of social influence, social networks are an excellent way to influence single buyer behavior. Therefore, comparison with peers within a social network can help the marketer to sell multiple units of a specific product to different consumers who are part of that group. By offering group buying opportunities on discounted rates, marketers can easily multiply their sales likewise counterbalance the given discount.

In addition, *perceived risk* is an important concept in consumer behavior (Bauer, 1967; Cox, 1967), and especially in online shopping. It is obvious, that group buying is able to reduce the individual's perceived risk of an Internet purchase, since the mere fact, that other consumers are also buying the same product reduces uncertainty, e.g. about product quality. Based on the theory, consumer's perceived risk results from the uncertainties and potential undesirable losses as some consequences of a purchase. Perceived risk of a decision is thereby based on the individual's general risk propensity simultaneously driving up the perceived costs of a purchase. Moreover, perceived risk has multiple dimensions, e.g. financial, performance, social, psychological, safety, and time risk (Cunningham, 1967). All of them are important in online shopping environments, since the consumer has no opportunity to physically touch, feel and test a product, which, as a result, lowers the consumer's shopping intention. In order to reduce the perceived risk, consumers take measures, such as searching more information or getting a better knowledge about a specific transaction. Roselius, 1971 names different risk reduction strategies, such as store image or private testing. Among them, endorsements from testimonials or a peer, as well as word-of-mouth are the most important in We-Commerce surroundings. Moreover, theories in the domain of information processing and memory suggest that group relationships and website features such as customer reviews simplify the information processing task and encourage group formation and continuity.

Outcome/Postpurchase Behavior

After a purchase the consumer regularly feels *cognitive dissonances*. When making a difficult decision, such as buying something, there are always aspects of the rejected choice he also found appealing. These features are dissonant with choosing something else. Thus, not all attributes of other offers have been inferior compared to the accomplished business. Along with the theory, such an uncomfortable feeling is caused by simultaneously holding two contradictory cognitions (Festinger, 1957). People have a motivational drive to reduce such dissonances. In business environments, the consumer needs direct feedback of friends, family, and peers, or even from feedback, e.g. brochures, manuals or leaflets, that the marketer or his salespeople are giving away. Buying products within a group can reduce cognitive dissonances more effectively through direct feedback of other members of the consumer's social network

according to the findings about word-of-mouth. Moreover, the group purchase itself might also reduce cognitive dissonances right away from the beginning, since the consumer can be sure, that other consumers bought the same product. That helps him additionally justifying or rationalizing the purchase. If the marketer adds his own information to that situation and overall the buying process, by above all giving group discounts, he might be able to enhance the reduction of cognitive dissonances.

CONCLUDING COMMENTS

The idea of consumer's collectively buying products on the Internet to increase their own economic value out of a market transaction has become more and more popular over the last few years. On the one hand, basic drivers for such phenomena have been new information technologies like faster mobile networks as well as the rise of the Internet and its growing social network sites. Unlike in the 1990ies, access to the World Wide Web for the individual consumer is much easier and cheaper today. It has already been growing up to one fourth of the total world population, which equals a growth rate of about 363 percent over the last nine years (see www.InternetWorldStats.com). On the other hand, currently declining western economies are forcing an increasing rate of consumers to constantly seek bargaining opportunities to make ends meet in daily life. Both of those factors similarly helped increase the individual consumer's propensity to come together with other people on the Internet, and to commonly engage in We-Commerce worldwide. The goal of this paper was to introduce the concept as well as explaining its origin. Therefore, it started with analogous domains of grouping phenomena in marketing. The paper then discussed the switch to the consumer side as a main trigger for making We-Commerce surroundings possible, and developed taxonomy of different consumer groups in virtual commerce. In this context, We-Commerce is positioned as a buyer-initiated and long-term phenomenon that is mainly based on new social media. Eventually, the impact of We-Commerce on the consumer's decision-making process has been discussed in detail.

From a marketer's viewpoint, We-Commerce offers new chances as well. In declining economies, they can (1) utilize consumers as marketing assets. By tapping into consumers' social network sites with their product advertisements, coevally offering group-buying opportunities, marketers might significantly reduce marketing spending; especially in communication and logistics. Likewise, service providers can fill up their unsold services during lean periods, thereby smoothening the peaks and valleys of service production and consumption at much lower costs. Furthermore, marketers can (2) take profits based on resulting economies of scale by simply selling a larger amount of products (expanding the market) or by clearing shelves and getting rid of unsold inventory (stretching market shares). Apart from these benefits, collective buying can enable marketers of innovations to accelerate the arrival of late-adopters and laggards into market. In addition, they can (3) gather important information about consumer behavior and group building processes to likewise advance market segmentation processes, and therefore increase revenues. This creates a win-win economic scenario for the marketers as well as for their consumers.

There are also some limitations of this concept. First, marketers have to address the issue of increasing consumer power on the Internet as well as in We-Commerce surroundings. Therefore, it seems to be a narrow ridge between economic profitability and failure. This mainly depends on the type of target group the marketer is focusing on. It can be proposed that on the one hand, the higher the price sensitivity of the target group, the lesser the profitability for the marketer, since consumers will ask for a higher surplus from the group building process. On the other hand, this economic situation can be outweighed by a target group, that has a higher proneness to flock in the market. This simultaneously calls for a higher amount of sold units. Therefore, a closer investment into We-Commerce surroundings from the marketer's viewpoint goes along with a cautious screening of advantages and disadvantages in specific markets.

Nevertheless, there are also further research questions that still need to be solved in the consumer's decision-making process. First, the understanding of the flocking processes and its mechanisms that

enhances the consumer's propensity to build a group for the purpose of commerce, have to be further examined. In this context, it also raises the question about the optimal amount of various incentives (e.g. group discounts, a free shipping etc.). Moreover, consumers' social networks have to be analyzed in detail to offer advice to marketers about how they are built up, how they function, and how to deal with the catalyzers on the network. Those are specific types of consumers, which are able to enhance the group building process or the growth of the network as well as its persistence, because of their ability to connect people through their communication efforts (Bhagat, Klein and Sharma, 2009).

All of those further research ideas might be brought forward by using agent-based modeling (Goldenberg, Libai and Muller, 2001). Optimization models have been studied for a long period in marketing theory. As computer became more powerful, agent-based computer models became also more and more popular for the simulation and control of marketing and sales problems (Delre, Jager and Janssen, 2005; Gilbert, 2008; Pavón, Arroyo, Hassan and Sansores, 2008). In a competitive and dynamic environment such models have the advantage that the impact of different marketing variables can be tested and optimized at the same time, even before they are applied to a specific market-environment (Farmer and Foley, 2009). Such an environment can be found e.g. within social network sites (Janssen and Jager, 2003). Agent-based models are also helping in visualizing the marketing decision process, which might result in better outcomes (Bakken, 2007). In addition, specific parameters about individual consumer behavior as well as consumer group behavior can be represented with the help of a rule-based decision-making process. First ideas have been already studied and documented in marketing literature (Axelrod, 1997). Outcomes of an agent-based modeling process can then be used to optimize the marketer's effort in offering collective buying opportunities by simultaneously optimizing his own profits.

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THE IMPACT OF CALIFORNIA BUDGET DEFICITS ON THE CRIMINAL JUSTICE SYSTEM: EVIDENCE AND RECOMMENDATIONS

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ABSTRACT

At the same time that the State of California faces crushing annual budget deficits, the Governor faces a mandate from the federal courts to significantly reduce prison overcrowding. California prisons were originally designed to hold fewer than 100,000 inmates. They are currently housing over 170,000 inmates. The problem facing California lawmakers is how to reconcile looming budget cuts, including those in the corrections system and the court system, with the mandate to reduce the number of prisoners. One suggested plan, to grant early release to approximately 27,000 inmates, has run into stiff opposition from police and prosecutor groups. They cite recent high profile abductions and murders committed by parolees who were released early to live in treatment centers and half-way houses. Criminal justice experts also predict that the early release of inmates will increase recidivism rates in a state that already has the nation's highest recidivism rate. This paper will explore and review the ongoing political and fiscal battles over the allocation of scarce public funds currently taking place in California, and the direct impact it will have on the criminal justice system in California and the rest of the United States.

INTRODUCTION

California is one of many states that face ongoing and difficult decisions about how to allocate scarce financial resources while suffering from projected multi-billion dollar budget deficits. And since the projected annual budget deficit is so large, it serves as an appropriate subject for the issues addressed in this paper. As the economy of the United States, and the economies of all 50 states, continue to suffer from one of the greatest recessions of modern times, our state governments are faced with the challenge of prudent fiscal planning for the future of their criminal justice systems. The competing interests of financing court systems, due process rights of the accused, legislative mandates such as "three-strikes laws," and determinate sentencing have all contributed to an ongoing and growing strain on the budgets of government entities. Now, as if to add insult to injury, California is struggling under the weight of a Federal Court order to significantly reduce the prison population of the state prison system. With constricted state tax revenues leading to massive annual deficits, the Governor and the Legislature are faced with the overwhelming task of making deep and significant cuts to the state budget. The education and health care systems of the state are direct competitors with the criminal justice system which includes the corrections and court systems for these scarce dollars.

This paper will focus on the ballooning prison population in California. It will explain the issues and discuss some of the proposed solutions. The political divisions run deep over these matters, especially when the looming threat of early release of felons into our communities takes on a real and imminent threat. These difficult times of high unemployment and economic uncertainty are a breeding ground for the commission of new crimes. Adding a flood of early released felons into this environment is unsettling and problematic.

LITERATURE REVIEW

In the last ten years, California has suffered a severe economic crisis each year which has severely impacted the criminal justice system in the state. The Los Angeles Times (December 2009) reports that as recently as the 2007-2008 budget fiscal year, the criminal justice system spent over $13 Billion. In the 2008-2009 budget fiscal year spending was reduce to $12.7 Billion and the 2009-2010 budget fiscal year is estimated to come in at a little over $9 Billion. This is a drop of almost $4 Billion in spending for the criminal justice system of California in just the last 3 budget years. Due to this drastic drop in spending, all areas of the Criminal justice system have suffered. The loss of funds to the judicial system resulted in the closing of the courts for one day each month for the first time in history as well as dipping into trial court reserves. The courts will also furlough staff which risks delaying thousands of cases. The state has seriously reduced planned prison improvements as well as decreasing the number of programs that were aimed at reducing recidivism for inmates and parolees.

The Sacramento Bee (December 2009) reports that the State is contemplating a plan to release thousands of prisoners early in an attempt to reduce the prison population which was 167,000 in June in order to save the state approximately $1 Billion.

The overcrowding in California's prisons, by far the worst in the country with only Georgia and Alabama coming close, has been the subject of lawsuits for years. The latest riot came just days after three federal judges, calling conditions "appalling," ordered California to prepare, within 45 days, a plan to bring its prison population down to 137% of capacity in order to approach constitutional standards of decency. Jerry Brown, California's attorney-general as well as a former governor and likely 2010 candidate for governor, has vowed to fight the order.

In the past three decades, California's penal system "has gone from one of the best to one of the worst in the world", says Joan Petersilia, an expert on prisons at Stanford Law School. In the 1960s and 1970s, California was a model for its success in rehabilitating criminals. But in 1976, California decided to switch from "indeterminate" to "determinate" sentencing. The first system, emphasizing rehabilitation, gives a lot of discretion to parole boards, who can reward good behavior and also help with overcrowding by reducing inmates' prison time. Determinate sentencing on the other hand, reflects a philosophy of deterrence and means that prison time is relatively fixed, whether an inmate behaves well or badly.

Since the switch to determinate sentencing, California has passed approximately one thousand laws mandating tougher sentencing. Many have gone through the legislature, where politicians of both parties compete to be "toughest on crime". Others have come directly from voters, who often bring a "crime-of-the-week mentality" to the ballot box, says Barry Krisberg, the president of the National Council on Crime and Delinquency, a think-tank in Oakland.

The result is a disaster, says Ms Petersilia. California spends $49,000 a year, the annual cost to house each prisoner, almost twice the national average. Yet California still has the country's worst rate of recidivism, with 70% of people who leave prison ending up back in it, compared with a recidivism rate of 40% for the rest of the country.

The new prisons built in the 1990s to help accommodate the prisoners serving these tougher sentences have also helped contribute to the state's fiscal crisis. A desperate deal between the governor and the legislature to balance the budget includes cuts of $1.2 billion from prisons, which also includes a provision to early release approximately 27,000 prisoners. However, many Republican legislators are objecting to the possibility that 27,000 prisoners will have to be released to capture this savings. For the time being, California's prisoners remain crammed together with predictable results.

BACKGROUND ON THE CALIFORNIA BUDGET CRISIS

California's fiscal year starts July 1. The Governor is required to present the Legislature with a proposed budget by January 10 and the Legislature to pass a budget by June 15. A two-thirds majority is required to pass the budget in the Legislature. The California Legislature went well past the June 15th deadline into late July of 2009. Over the past 10 years state spending from state sources has more than doubled in nominal terms. The California controller delayed payments in February 2009 and issued IOUs in July and August 2009. The February and July budget packages were not enacted early enough to prevent the Controller from: (1) delaying over $3 billion of scheduled payments (mainly tax refunds) in February 2009 and (2) issuing 449,000 registered warrants (also known as IOUs) for a total of $2.6 billion of payments in July and August 2009. The February 2009 delayed payments generally were paid in March 2009, and the IOUs were able to be redeemed by recipients beginning on September 4, 2009. This was only the second time since the Depression that the state issued IOUs for some of its budgeted payments. In effect, the IOUs forced recipients (such as state vendors and local governments) to provide the state with a loan involuntarily. The IOUs were redeemable with interest, paid at a 3.75 percent annual rate. Priority payments including school, payroll, and debt service payments were not subject to IOUs. Over the past 10 years state spending from state sources has more than doubled in nominal terms (not adjusted for inflation), and during the current governor's tenure state spending from state sources has risen almost 40 percent. Revenue is estimated each year to cover spending. The unexpected loss of revenue due to the worst recession since the great depression has resulted in the current fiscal crisis.

Table 1: California Spending, Years in Comparison

	FY 1997-1998	FY 2003-2004	FY 2007-2008
State spending	$68.5 billion	$104.2 billion	$144.8 billion
Federal money	$31.6 billion	$52.5 billion	$59.5 billion

Table 2: General Fund Spending by Major Program Area (In Millions)

Programs	Actual 2007-08	Estimated 2008-09	Enacted 2009-10
K-12 Education	$39,825	$32,356	$33,745
Higher Education	11,823	10,138	10,495
Health	19,906	18,794	16,077
Social Services	9,432	10,009	8,876
Criminal Justice	13,059	12,778	9,032
All Other	8,954	7,472	6,358
Totals	$103,000	$91,547	$84,583

Recent Lawmaker Maneuvering

California lawmakers' clash over reducing the state's prison population threatens to become another Sacramento stalemate. To fulfill part of its July budget deal, the state Assembly passed a bill in August that would reduce California's prison population of 160,000 by a total of 17,000 in the next 10 months. Democrats passed the bill with a bare majority of 41 votes in the 80-member Assembly, without any Republican support.

The bill would allow certain inmates to be released early by completing rehabilitation programs, eliminate parole supervision for some nonviolent convicts and allow probation violators to be housed in local jails. The legislation faces an uncertain fate in the state Senate.
"It still has elements that are still not acceptable," said Republican state Sen. George Runner. He said Republicans are livid over two major components of the plan: a "good-time credit," which would make it easier for inmates to be released earlier for good behavior; and the parole overhaul, which would reduce the number of parolees who return to jail for technical violations, such as missing appointments with an officer.

Democratic Senate President Darrell Steinberg, on the other hand, is pushing for deeper cuts in the inmate population and more structural overhauls. "I'm in no hurry to take up what [the Assembly] passed," he said at a press conference. Mr. Steinberg vowed to restore elements of a plan, passed by Democratic state senators and supported by Republican Gov. Arnold Schwarzenegger, which would have reduced the inmate population by 27,000 and saved more money.

Mr. Runner said that if Senate Democrats try to pass a bill with even deeper prison cuts, the legislature would face another lengthy stalemate that would last beyond its scheduled adjournment date. Republican Assembly members in a recent debate used Phillip Garrido -- the California parolee accused of abducting 11-year-old Jaycee Dugard and holding her captive for 18 years-- as an example of why the state shouldn't ease penal sentencing. Democrats countered that the prison plan affects only inmates who did not commit violent or sex-related crimes.

The standoff is just the latest for a statehouse that has come to represent the epitome of political dysfunction. Lawmakers bickered for 15 weeks before closing most of a $42 billion budget deficit in February. Facing an additional $24 billion shortfall this summer, they then engaged in a two-month stalemate that forced the state to issue IOUs.

As part of the deal to close the $24 billion gap in late July, state legislators agreed to slash penal spending by $1.2 billion. But they have clashed over the details of the cuts. Legislators would have to make spending cuts in other programs if they couldn't agree to a prison plan. The stakes are high for the state, which warehouses the nation's largest inmate population. California's prisons hold more than double the designed capacity, and are so overcrowded that a federal court ordered the state to reduce the population by more than 40,000 in the next two years. A three-judge panel gave the state until late September to develop a plan to carry out its order, which caps the inmate population at 110,000.

Gov. Schwarzenegger asked for a delay of the order, but was denied. He filed a formal appeal to the U.S. Supreme Court. An 11-hour riot at a prison in Chino, outside Los Angeles, is indicative of the system's problems. In early August, fighting among 1,300 inmates touched off a riot that burned down a dormitory at the unit. The prison housed nearly 6,000 prisoners, twice the number for which it was designed.

IMPACT ON THE CRIMINAL JUSTICE SYSTEM

California lawmakers signed off on deep cuts to education, healthcare and welfare that many said they could scarcely have imagined in years past. But when it came time last week to address the state's overcrowded prison system, an area where the Democrats who control the Legislature have long pushed for change, they froze.

State prisons, criticized as unwieldy and inefficient by experts in California and across the country, have in recent years become the most sacred area of state government, seemingly impervious to transformation because of politics, fear and mistrust.

"You have an absolute hysteria," Assembly Speaker Karen Bass (D-Los Angeles) said. Crime and corrections, she said, are "a visceral issue."

Legislators listened to attack lines from Republicans: "Mayhem on the streets," Sen. Jeff Denham (R-Atwater) predicted. And Senate GOP leader Dennis Hollingsworth of Murrieta said the changes would let "bad people" take away Californians' life, liberty and property.

Assemblyman Ted Lieu (D-Torrance), who is running for attorney general against fellow Assemblymen Alberto Torrico (D-Newark) and Pedro Nava (D-Santa Barbara), opposed the measures. He described as "early release" a provision that would allow some inmates to serve the last year of their term on home detention with electronic monitoring. In an interview, Lieu said his bid to become the state's chief law enforcer had nothing to do with his stance on the plan.

"Forget about healthcare, environment or education policy," Lieu said. "If people are not safe or don't feel safe, then government has failed."

Assemblyman Warren Furutani (D-Gardena) said that problems in prisons are important "institutional issues" but that they pale beside the public safety implications of releasing criminals into neighborhoods, "where the rubber meets the road."

Many experts say less serious offenders belong in county jails or on probation, where they may have family support systems nearby and a better chance to turn their lives around. County and city law enforcement officials have expressed willingness to take those prisoners, but they don't believe the state would provide funding for the added burden.

"The lack of trust about money is really interfering with a great criminal justice policy in the state," said Jeanne Woodford, a former San Quentin State Prison warden and a corrections secretary under Governor Schwarzenegger.

At least one local law enforcement group, the California State Sheriffs' Assn., does not oppose putting some state prisoners on home detention, an "alternative custody" approach that counties use with their own inmates. But in a letter, the association asked that state leaders reconsider proposals that would reduce penalties for some crimes and send those offenders to county jails instead of prison. County lockups "are facing their own overcrowding crisis," the letter said.

Across The United States

Sentencing reform, prevention efforts and investments in evidence-based treatments and programs will result in greater savings and dividends than internal cost-cutting measures that will likely be reclaimed when the economy improves.

Recession and the subsequent revenue declines are having significant effects on corrections. Across the U.S., correctional departments are closing facilities, placing beds in nontraditional space, reducing and/or eliminating programs, cutting operating costs, exploring early offender release options, enacting reduction-in-force policies, and offering employee buyouts.

Most correctional agencies' budgets are at least 51 percent payroll, which is all inclusive of benefits and salaries; therefore with major budget reductions looming, it is inevitable that payroll will require reductions. It is inevitable, that is, unless a true action-oriented understanding of where data-driven, outcome-based savings can occur. External correctional savings will have a superior benefit over reductions internally. Sentencing reform, prevention efforts and investments in evidence-based treatments

and programs will result in greater savings and dividends than internal cost-cutting measures that will likely be reclaimed when the economy improves. Enacting external changes that can save costs without comprising public safety is difficult at best. This is not because such changes are lacking in research driven outcomes, but because they require collaboration, cooperation and partnerships that transcend the usual criminal justice stakeholders. Politicians will be the key, but it will require being smart on crime as opposed to just wishing to appear tough on crime.

Get Out of Prison Free

A proposal currently before the California State Assembly would reduce a number of serious crimes to misdemeanors, release inmates who have committed serious crimes early, and open the door to reduced sentences for sex offenders.

The proposal converts the following crimes from felonies to misdemeanors: receiving stolen property, writing bad checks, commercial burglary and petty theft with a prior. A sentence of years in state prison would be replaced by a mandated sentence of no more than a year in county jail for those crimes, leading to what prosecutors call a "get out of prison free" card.

Some examples of this proposed policy are: a repeat felon who is caught writing tens of thousands of dollars in bad checks would receive virtually no punishment; a chop-shop operator with hundreds of thousands of dollars worth of stolen cars in his possession would get no more than a few months in jail; someone who fences expensive jewelry, computers, and other valuable stolen from someone's residence won't be going to prison at all. Perhaps worst of all, these changes would be permanent, even after the budget crisis is over.

RECOMMENDATIONS

Releasing dangerous prisoners back into the general population is not a viable option. The public demands and expects the state to provide them with protection from these violent predators. Spending more tax dollars building more prisons is also not an option when the state is already broke. The years of the state legislature overspending on non critical needs of society have caught up. So long as the legislature continues to use crime as a political football, the problem will remain. It is time to take the politics out of crime and do what is necessary to provide the public with the security the state is obligated to do.

One method always touted by politicians is to release all of the non-violent minor marijuana drug offenders who clog up the prison system. This perception of prisons being filled with non-violent marijuana drug offenders is simply not true. The perception is based on the political squabbling of politicians trying to demonstrate to the public that they are trying to do something about the problem. This makes for good debates between politicians but does nothing to eliminate the prison overcrowding. According to the Department of Justice statistics, less the 1.6% of the prison population is made up of prisoners with the only conviction being a non-violent minor marijuana drug offense (Office of National Drug Control Policy 2001). There simply are no non-violent minor marijuana drug offenders to release.
One consideration is to look at the type of prisoners housed in California's prisons. Many of the felons in the state prison system are non-violent offenders (Prisons - Who's In Prison? 2010). Countless white collar crimes such as embezzlement, fraud, forgery, identity theft, money laundering, computer crimes, grand theft, car theft, and gambling are non-violent crimes (Gardner & Anderson, 2010). These types of offenders are not a threat to the public safety and do not need to take up precious prison space. They can be incarcerated in low cost community half-way houses where they would still be punished, but also hold down a job and continue to contribute to society. Instead of costing the state precious funds it doesn't have, they would be contributing to the state's budget through the taxes they would be paying. These

offenders can still be monitored through electronic devices and GPS systems to insure that they are meeting the requirements of their sentence.

At a recent (ASIS) meeting, San Diego County Sheriff William Gore spoke of the financial problems the state is facing with the court ordered release of prisoners. He pointed out that one of the solutions the legislature is contemplating is to enact a law that convicted felons only be sentenced to prison for 2 or more years rather than the existing law of a felon being sentenced to prison for a year of more. This would only bring the financial problems to the local economy, and is really a non-solution. Instead, he suggested the legislature consider contracting with other states to house California prisoners. This could have an immediate reduction on the cost of prisoner housing and at the same time comply with the court order of reducing the prisoner population (William Gore, 2010). California currently spends approximately $50,000.00 a year to house a prisoner in the state prison system (Save California.com, 2010). Many other states spend half that amount. Florida spends $20,000.00 per prisoner and Oklahoma spends $17,000.00 per prisoner (Save California.com, 2010). This is a win-win solution as other states economies would benefit by housing California prisoners and California's economy would benefit by reducing the current cost of housing their prisoners. This also would alleviate the public's concern of having dangerous felons released back into their neighborhoods.

One suggestion currently being considered is to create a national commission to look at every aspect of our criminal justice system with an eye toward reshaping the process from top to bottom. We should bring together the best minds in America to confer, report, and make specific recommendations about how we can reform the process. This commission will be tasked with giving us clear answers to hard questions, including:

Why are so many Americans currently in prison compared with other countries?
Why are our policies so costly to our nation, both in tax dollars and in lost opportunities?
How can we reshape our nation's drug policies?
How can we better diagnose and treat mental illness?
How can we end violence within prisons and increase the quality of prison administrators?
How can we build workable re-entry programs so that our communities can assimilate former offenders and encourage them to become productive citizens?
How can we defend ourselves against the growing scourge of violent, internationally based gang activity?

CONCLUSION

The California state legislature has proven time and again that they will not fix the problem on their own initiative. It is time for the people to become involved and demand of their representatives that they fix a problem that can be fixed, even during a budget crisis. The legislature has a duty to represent the people and not their own political agendas or special interest groups. They need to take action now and save the state from bankruptcy.

In short, we are not protecting citizens from the increasing danger of criminals who perpetrate violence and intimidation as a way of life, while we are locking up too many people who should not be incarcerated. It is incumbent on our state and national leadership to create realistic ways to "fix" our broken prison systems.

Today, one out of every 31 adults in the U.S. is in prison, in jail, or on supervised release. This all comes at a very high price to taxpayers. All told, corrections spending totals about $68 billion a year. In these tough economic times, leadership must come together and change the laws to solve the looming crisis of the operations of our criminal justice systems.

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