Applying Altman Z -Score Model of Bankruptcy on Service Organizations and its implications on marketing concepts and strategies

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Abstract

This study has examined a sample of 65 hospitals that represent service organizations to determine whether applying Altman's Z-Score Model with modified financial ratios of liquidity, profitability, efficiency and productivity will yield significant prediction power for service organizations financial status as it does in non-manufacturing corporations.

The statistical conclusion of the study shows that both Discriminant Analysis and Logistic Regression Models are able to predict service organizations financial status and whether they are going to succeed or fail. The Logistic regression has shown higher prediction power than that of Discriminant analysis . It has classified 100 % hospitals including both successful and failed ones over a three-year time span. The study has proved that all the financial ratios applied were good predictors for financial performance of service organizations. Liquidity and profitability ratios have the highest contribution to the results of Z-Score, followed by productivity and ***efficiency.***

Keywords: *Financial management, Marketing Strategies, Bankruptcy, Z-Score Model, Service Organizations, Financial Analysis.*

Introduction

In almost all the studies reviewed, certain ratios have stood out as good predictors of financial distress or success in corporations as well as in the health industry. Either individually or collectively, the ratios in corporation settings have been found to be applicable to service organizations settings and can be use to direct and streamline marketing strategies. However, the inputs used to calculate these ratios were different in some cases.

According to Altman (2004, P.22) "ratios measuring profitability, liquidity, efficiency and productivity seam to prevail as the most significant indicators, but the order of their significance is not clear since almost every study cited a different ratio as being the most effective indicator of impending problems". A detailed discussion and analysis of each ratio will be presented in the following sections.

Study Background

According to Moscovice and Rosenblatt (1985a, P.29) the "rural hospital is a vital component of the rural health care system and an important institution in rural communities from a functional, symbolic, and economic perspective." Despite their increasing importance in the health care system, current studies show that rural hospitals are suffering from more financial and marketing problems ever than before. These problems include short-term borrowing to meet operating needs (Valentine, 1991), stretching receivables, inability to renew lines of credit (Cash advance ,2006; Harris& Pitts, 1989), freezing of capital expenditures (Finkler and Kovner, 2000), lack of resources to complete strategic planning (Passett, 1991), and a decline in profit margin (Cash advance , 2006; Moscovice, 1989). Marketing strategies were not taken seriously to address the changes of financial indicators and ratio in service organizations, it is time to benefit from financial ratios as leaders and indicators for marketing strategies and actions.

The above-mentioned financial problems lead to different types of financial failures in these hospitals such as closing down, declaring bankruptcy, or changing service lines.

Many studies have been conducted in order to understand the causes behind the failure of rural hospitals. These studies also aim at detecting any signs of financial decline early enough to allow intervention and even to improve hospital's financial status in the future. The majority of the studies in this field have revealed a cause-effect relationship between a hospital's financial performance and the following factors: under-utilization, decreasing occupancy rates (Shaw, (2003); Harris& Pitts, 1989; Higgins, 1988), and lack of system responsiveness in addressing the cultural expectations (Shaw, (2003), access and delivery of quality care (Lynch, 2001) (Shaw, 2003) uncompensated care (Finkler and kovner, 2000), competitive market and market share (Valentine, 1991) (Finkler and kovner , 2000) , and client's insurance coverage (Passett, 1991) .

Taking all the above factors in consideration, the researcher aims at establishing a more accurate method of predicting a hospital's financial performance. The consequent information will help administrators, owners, community leaders, clients; insurance companies and policy makers to evaluate a hospitals financial health accurately, and thus make enlightened decisions. This study will address the following issue: "Can potential failure of rural hospitals be predicted ahead of time?

Purpose of the Study

This study explores the application of Altman's Z-Score model—a common financial performance prediction model that has been used successfully since

1968 in corporations—in service organizations settings so as to predict their potential financial failure. The Altman's Z-Score Model has never been applied to service organizations; accordingly, this study aims at setting a new structural model with prediction power to Z- Scores that can be used as a benchmark. It is expected to fill in the following gaps:

- This study will be the first to apply Altman's Z-Score model in the health care sector as representing service organizations. Since it has been successfully applied in corporation contexts since 1968, this model is expected to predict the likelihood of a hospital's financial success or failure in a timely manner that allows intervention.
- In contrast to previous studies that have been carried out on hospitals and which relied on historical data to analyze hospital performance results or outcomes (evaluation), this study attempts to predict the financial performance of hospitals by using data going back to three years before bankruptcy in order to achieve more accurate prediction power and predict or forecast rather than a history approach.
- Instead of relying on individual ratios in the health care sector as indicators for financial performance, the Z-score model devised for this study will provide a Z-index that consists of four financial ratios as an indicator for failure or success.
- Besides its academic value, this study has empirical implications for service organizations financial performance prediction, which can help policy makers, investors, managers, community leaders and owners, make the right decisions to avoid financial distress. Moreover , marketing strategies can be drawn utilizing financial ratios of service organizations

Significance of the Study

Adapting Altman's Z-Score model to predict service organizations financial performance for the first time may provide a much-needed accurate, timely, and effective prediction data. Having early and accurate prediction data at their disposal, they would know the real financial prospects of their organizations. This in turn may help in avoiding financial failure (bankruptcy) and in boosting financial success as well.

Financial distress and bankruptcy

According to Corman & Lussier (2003), a financial distress situation does not occur suddenly. Certain stages and cycles lead a firm to bankruptcy (the last stage of its life). Table 1 shows the classification and the financial activities of stages of failure until the organization reaches the legal bankruptcy stage.

Table 1: shows stages of failure and financial activities related to these stages.*

Classification	Financial Activity
1.Incubation period	Development of financial difficulties
2. Financial embarrassment	Public awareness of trouble
3. Financial insolvency	Firm attempts to turnaround
4. Total insolvency	Liabilities exceed assets
5.Bankruptcy	Legal petition for bankruptcy protection

*Adapted from Fitzpatrick's (1932) five stages of financial distress

Methodology

I. Altman's Z-Score Model

Edward Altman developed a model of bankruptcy prediction in 1968; the model has originally been applied to corporations in order to distinguish between bankrupt and non-bankrupt firms depending on a group of financial ratios. From a list of twenty-two variables used in financial analysis, five variables are selected as doing the best overall job together in the prediction of corporate bankruptcy (Altman, 1968). His model has achieved an accuracy rate of 95% in certain contexts. One of the main purposes of using Altman's Z-Score model is to measure the financial status of organizations (Mossman et al, 1998) as it is an accurate prediction model used for early warning of financial distress an organization may face (Frank & Salkever, 1994). Although this model is mainly devised to predict bankruptcy (Altman, 1971), most of the times, it is used to assess the success or failure of different organizations without even any reference to bankruptcy (Bragg, 2002). Both the evaluation of organizations' financial health (Pfeffer, 1997) and the detection of risks of failure (Williams, 2006; Tamari, 1978) justify applying this model.

Based on statistical and mathematical models, Altman was the first to use a multivariate analysis, or what is so called Multiple Discriminant Analysis (MDA) to distinguish between bankrupt and non-bankrupt corporations (Williams, 2006; Levin's, 1997). He used this statistical method to classify observations into two

or more groups. Each group has certain qualitative characteristics, like failure and success, bankrupt or non-bankrupt

Z-Score Model, 1968

- **Manufacturing firms**
- **More than $1 million assets.**
- **5 ratios (x1, x2, x3, x4, x5)**
- **Z-Score = 1.2X1+ 1.4X2+ 3.33X3 + .6X4 + 1.0X5**
- **X1 through X4 must be calculated as absolute percentage values.**
- **X5 should be expressed in decimal form.**
- **Ratios are:**
  - **X1 = Working Capital/Total Assets**
  - **X2 = Retained Earnings/Total Assets.**
  - **X3 = Earnings Before Interest and Taxes (EBIT) /Total Assets.**
  - **X4 = Market Value of Equity/Book Value of Total Debt.**
  - **X5 = Sales/Total Assets.**
- **Cutoffs of Z-Scores**
  - **Bankrupt [less than] 1.81**
  - **Zone of ignorance 1.81-2.99**
  - **Nonbankrupt [greater than] 2.99**

After a careful study and comparison between the inputs used to calculate Scores in Altman's Z-Scores, and the ratios and their inputs used in hospital setting, the following ratios were adopted :

The study model and the Z-score equation will be:

Z-Score (reconstructed) = aX1+ bX2+cX3+dX4

X1 = Working Capital (Current Assets-Current Liabilities) / Total Assets

X2 = Fund Balance / Total assets.

X3 = Operating Income /Total Assets.

X4 = Net Patient Revenues / Total Assets

A, b, c, & d are the coefficients for the different ratios.

The above-mentioned ratios have been applied in this study since they are widely used and accepted as good measures and predictors of financial distress, in addition to their individual impact on the ultimate financial performance of any organization.

II. Discriminant Analysis

According to Skomp, Cronan, and Seaver (1986), the best methodology to use in financial analysis and prediction would be the Discriminant Analysis. In attempting to choose an appropriate analytical technique, we sometimes encounter a problem that involves a categorical dependent variable and several metric independent variables (Hair, et al. 1992). According to Hair et al. (1992, P.90) Discriminant Analysis involves "deriving the linear combination of the two (or more) independent variable that will discriminate best between the a priori defined groups. This is achieved by the statistical decision rule of maximizing the between-group variance relative to the within-group variance; this relationship is expressed as the ratio of between group to within group variance" (P.90).

In order to get the combined score for each individual in the group, Discriminant Analysis multiplies each independent variable by its corresponding weight and adds these products together (Stevens, 2002). Then we get the results for each group by averaging the Discriminant scores for all individuals in the group obtaining what is called "centroids" (Sharma, 1996). In this case we get two centroids because we have two groups of successful and failed hospitals. If the difference between group centroids is big, this means that the statistical model used to discriminate between the mentioned groups and the model can be used to predict membership of different hospitals using the same methodology.

In this study, independent variables are considered to be the best to separate groups into different categories, good or bad, bankrupt or non-bankrupt, healthy or not healthy and so on (Rencher, 1995). Sharma (1996) call these variables as discriminator variables that provides the best discrimination between two or more groups. Independent variables in this case are the following ratios:

1. X1 stands for liquidity ratio.
2. X2 stands for profitability ratio.
3. X3 stands for efficiency ratio.
4. X4 stands for Productivity ratio.

After testing the significance of results, the study set certain classification of groups depending on Discriminant scores of the two groups, and set the cutting scores. Hair et al (1992, P.88) define cutoff scores as " the criterion (score) against which each individual's Discriminant score is judged to determine into which group the individual entity should be classified, when the analysis involves two groups, the hit ratio is determined by computing a single "cutting" score. Those entities whose Z-scores are below this score are assigned to one group, while those whose Z-scores are above are classified in the other group.

According to this definition, since the two groups are not equal in size, a weighted average of the centroids of the groups will be the cutting score; the following equation can be used to calculate cutting Scores:

$$Z = \frac{NAZ'A + NBZ'B}{NA + NB}$$

Where

Z = Cutting score value

Z'A = Centroid for group A (Open hospitals)

Z'B = Centroid for group B (Closed hospitals)

NA = Number of observations in-group A.(36 hospitals)

NB = Number of observations in group B (29 hospitals)

III. Logistic Regression

Logistic Regression used in this study as an alternative statistical technique. According to Afifi & Clark (1996) one of the advantages of using Logistic Regression is the maximum likelihood estimate of parameters, which make it more robust than the Discriminant Analysis. Several studies mentioned that Discriminant Analysis method might lead to underestimation when categorizing variables, which is eliminated by using Logistic Regression. We need only a probability which is greater than 0.50 in order to classify variables and attached them to success or failure groups.

In order to make sure that the Logistic Regression classify individual events or organizations in the appropriate groups to which they are related , we can apply the same process that we did in Discriminant Analysis. Hair et .al (1992, P61) stated that "we can also asses how well the model predicts by creating a classification table where we compare the actual events versus the predicted values." By doing this we can find the difference between correct predictions and wrong ones. The study will not provide more details about Logistic Regression model because the audience is already familiar with this method.

IV. Study Hypothesis

This study has applied Altman's Z-Score model to two samples of hospitals: those which failed and those which are still successful. An analysis will be performed in order to determine if Altman's Z-score model could be applied successfully to distinguish between failing and still running hospitals. This study argues that the adopted ratios will successfully predict hospitals' failure or success. That is, the mean Z-Scores of failing and successful hospitals will be proven to be significantly different. It is also expected that the failed hospitals'

mean Z-Score value will be less than that of those ones still successful. The study also proposes to formulate hypotheses about the rank and importance of different ratios as well as their effect on the overall Z-Score. In the light of what Altman found in the application of his model, it is hypothesized that ratios X3, X4, X2, and X1 respectively contribute to the overall Z-Score.

By testing the mentioned hypothesis, the study will try to answer the following questions:

1. Can Altman's Z-Score model be applied to the field of service organizations and give significant prediction to hospitals that are expected to show financial distress?

And if the study were able to answer this question positively, it should answer the next one

2. In general, what are the predictors of success and failure of service organizations?

By supplying an answer to this question, the study is likely to lead to an answer of

3. Which ratios have more contribution to the overall Z-Score?
4. Which ratio shows the relative importance of each ratio in relation to others in determining the reasons for financial distress or success?
5. What is the cutoff Z-Scores that differentiates between successful organizations and those subjected to financial distress?

Data and Empirical Results

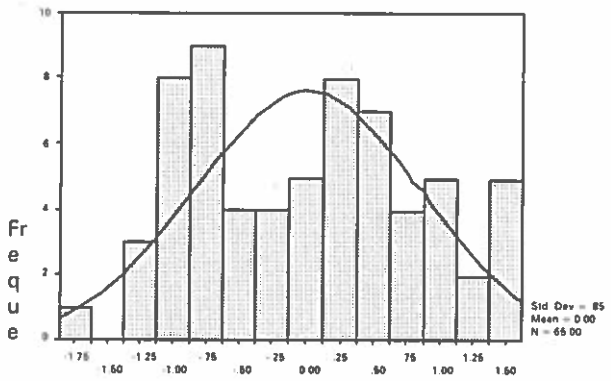
Data and sample

Financial statements of 65 rural hospitals in Western Pennsylvania in the USA — balance sheets and income statements — constitute the main source of information for this study. The following data are used in order to carry out this study and get the required results by applying both The Discriminant Analysis Model and Logistic Regression statistics using SPSS: Current assets, current liabilities, total assets , fund balance, net patient revenues and operating income

Assumptions

a. Normality Assumptions

In order to test for normality, we used the normal probability plots displayed by SPSS that show the distribution of standardized residuals against a standard normal distribution. The following diagram represents the normal distribution of the data.



b. Multicollinearity Assumption

In order to test Collinearity and interdependence between the different ratios, we use the Collinearity diagnostics under statistics of linear regression displayed by SPSS. Tolerance and Variance Inflation Factor (VIF) used to test the assumption of Collinearity. Tolerance is the proportion of an independent variable's variance not accounted for by the other independent variables. High tolerance values indicate that there is no problem of Multicollinearity. VIF is the opposite or the inverse ratio of Tolerance, and therefore high values of VIF indicate Multicollinearity.

According to the results of SPSS using Linear Regression to test for Collinearity, the study has demonstrated that the lowest proportion of Tolerance is the profitability ratio in year three; that is 0.505. This means that in case that other ratios are responsible for almost 50 % of variance, the highest proportion is the liquidity ratio in year two. It reads 0.907, which means in this case that the other three ratios are responsible only for 9.3 % of variance. In this case we have a high rate of Tolerance and a very little chance of Collinearity.

Logistic Regression Results

Classification of groups

This study has analyzed a sample consisting of 65 hospitals, 29 of which were closed down and 36 are still running. Liquidity, profitability, efficiency and productivity are used as indicators or predictors for financial performance of rural hospitals as to whether they are successful or already facing financial distress. The classification accuracy of results for the combined data set for

three years is 100 %. The Logistic Regression model is able to predict or classify all existing and closed down hospitals. It has successfully classified 65 hospitals out of 65. Table 2 illustrates these results.

Table 2: Summary of numbers and percentages of hospitals closed and opened that the Logistic Regression model was able to predict correctly.

Time of prediction	Total hospitals predicted correctly		Type of hospitals predicted correctly			
			Opened		Closed	
	Number	Percentage	Number	Percentage	Number	Percentage
One year	61/65	93.8 %	35/36	97.2 %	26/29	89.7 %
Two years	55/65	84.6 %	32/36	88.9 %	23/29	79.3 %
Three years	45/65	69.2 %	35/36	97.2 %	10/29	34.5 %
General	65/65	100 %	36/36	100 %	29/29	100 %

The relative contribution of independent variables

The four previously mentioned financial indicators represent independent variables in this study or ratios that are expected to predict financial success or distress. In Logistic Regression model, they are called Beta coefficients. Each coefficient represents the predictor ratio in the overall model.

According to the results of Logistic Regression, liquidity and productivity ratios are the most important predictors of the regression model one year before the event. Profitability and efficiency are the first predictors two years before the event; efficiency and liquidity are the most important predictors for the time span of three years. Table 3 shows a summary of the Beta coefficients using the Logistic Regression Model.

Table 3: Summary of the Beta Coefficients for three years using Logistic Regression Analysis.

Ratio	One Year	Rank	Two Years	Rank	Three years	Rank
Liquidity	-11.529	1	-0.143	4	-2.296	2
Profitability	-3.924	3	-8.233	1	-0.447	3
Efficiency	0.983	4	-1.030	2	2.323	1
Productivity	-8.692	2	-0.214	3	0.075	4

The negative sign of the Beta Coefficients indicates that the odds (chances) of financial distress (failure) of rural hospitals decline with the increasing level of the ratios. Liquidity and profitability ratios are the ratios that most affect positively or negatively the financial level of rural hospitals performance. By increasing these ratios, the chances of financial success increase and vice versa.

Significance of the Logistic Regression Model

In order to determine the relationship between independent variables which consist of liquidity, profitability, efficiency and productivity and dependant variables represented by group membership, whether the hospital has closed or is still running, certain measures should be applied to the data, Wald Statistics can be used for instance to test the significance of the Logistic Regression Model.

Wald Statistics

Wald Statistics indicate how useful each predictor ratio is in comparison with the other remaining ratios. In our study, liquidity and profitability have more importance and thus are considered useful in predicting success or failure of rural hospitals. The productivity ratio is less useful in the Logistic Regression model. The efficiency ratio comes third in prediction value. Table 4 illustrates Wald Statistics for the data of the three years span.

Table 4: Summary of the Wald Statistics for three years using Logistic Regression Analysis.

Ratio	One Year	Importance	Two Years	Importance	Three years	Importance
Liquidity	4.115	Yes	0.024	No	2.141	Yes
Profitability	3.498	Yes	17.808	Yes	0.882	No
Efficiency	0.029	No	0.195	No	2.997	Yes
Productivity	2.119	No	0.099	No	1.527	No

Exp (B)

The Exp (B) gives an indication of the change in the predicted odds of the dependent variable for each unit change in the independent variables (predictors). According to Brace, Kemp & Snelgar (2003, P. 275), " values less than one indicate that an increase in the value of the predictor variable is associated with a decrease in the odds of the event". According to the SPSS interpretation, this is the value by which the odds of the event change when the independent variable increases by one unit. If the value is greater than 1, the odds are increased; if the value is less than 1, the odds are decreased. A value of 1 leaves the odds unchanged.

By applying the concepts of Exp (B) on the results of the Logistic Regression Model, we can say that each additional increase in Liquidity ratio by the value of 1 will lead to decrease in the probability of financial distress by 0.98 . In the same token , an increase in the efficiency ratio by the value of 1 will lead to the increase of the probability of rural hospitals to face financial distress by 2.67 times.

Implications of financial ratios on marketing concepts

The service concept - Liquidity Ratio

There is a correlation between liquidity ratio and the service concept, According to Kotler (2003) " the idea that consumers will favor services that offer the most quality performance and features and that the organization should therefore devote its energy to making continuous service improvements". In this case , providing more services will assist service organizations to generate more cash revenues and necessarily reflect on liquidity ratio. According to Zeller et al. (1997, P.63), "Liquidity is a characteristic of performance that measures organizations access to unrestricted cash and investments that can be used for

short and long-term needs." It is a very important measure of organizational financial performance because it measures an organization's ability to meet its obligations without having to liquidate its long-term assets. Suppliers, bankers, and investors consider liquidity as a major indicator in evaluating hospitals financial performance (Herzlinger & Nitterhouse, 1994). The best strategy is to provide more services with concentration on quality concept in case service organizations need to improve the liquidity ratio, or in cases that organizations have more short term liabilities that they need to meet.

The selling concept - Profitability Ratio

In general, profitability takes place when an organization's revenues surpass its expenses. Although organizations' goal is to maximize gains, public and non profit organizations may not address profit in their goals, although they may still calculate profitability ratios as an indicator for financial performance, as Baker & Baker (2000) argue.

In non-profit organizations, fund balance is generated by operations and does not need to be repaid because it is owned by the business itself. According to Herzlinger & Nitterhouse (1994, P. 86), "it represents the cumulative amount of the difference between revenues and expenses for business from the date the organization came into existence." It is calculated by subtracting total liabilities from total assets, increasing and decreasing by the change in liabilities considered to be a reserve to organizations.

The idea that consumers or clients will not buy enough of the organizations services unless the organization undertakes a large scale selling and promotion efforts is very much applicable in this context. Guitar

Many factors contribute to the increasing or decreasing of this ratio. As uncompensated services increased, several indicators of fiscal status declined and closure became more likely (Sloan et al. 1988).

The marketing concept - Productivity Ratio

The literature reviewed shows that there is a close relationship between productivity ratios and organizational and managerial factors: the more efficient the management of the service organizations is, the more productive it is and thus more benefit is expected to be generated. Whereas, the marketing management philosophy holds that "achieving organizational goals depends on determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than do competitors".

The production concept – Efficiency Ratio

In service organizations, the concept of production follows the philosophy that "consumers will favor services that are available and highly affordable, and that management should therefore focus on improving production process and distribution efficiency"(Kotler, 2003).

Finkler & Kovner (2000, P.493) define efficiency as " a measure of how close an organization comes to minimizing the amount of resources used to accomplish a result." In service organizations, it is usually defined as the relationship between services provided and their costs, or inputs and outputs.

An efficient service is the one that incurs the least cost or turns the highest output. This ratio is also called operational or activity ratio. It is used in assisting and evaluating the operations and the utilization of assets.

Conclusions of the study

By comparing the results of the Discriminant Analysis model and the Logistic Regression Model applied in the study, the following conclusions were drawn:

- In general, both the Discriminant Analysis model and the Logistic Regression Model are able to predict organizational membership or their financial status as to whether they are successful or failed ones . The Discriminant Analysis model has a 90.2 % prediction power. While the Logistic Regression Model has a 100 % prediction power.
- The Logistic Regression Model has shown more prediction power than that of the Discriminant Analysis; it was able to predict 9.8 % more correctly than the Discriminant Analysis model.
- The two models show strong predicting power one year before the event, moderate power of prediction two years before the event and weaker prediction power three years before the event.
- If compared with the Altman's original model of financial distress, the study models of Discriminant Analysis and Logistic Regression have achieved more prediction power in three and two years time span than the Altman's original model has The study models have reached a big increase of prediction power. It is almost up to 20 % difference between study models and Altman's in three years time span, 13 % between Logistic Regression prediction power in two years time span and Altman's original model, and 5% on the general level of time span. The Discriminant Analysis prediction power in three years time span is higher than that of the Altman's original model by 3.4 %.Table 5 shows this comparison.
- The Altman's original model shows precedence on study models one year before the event; it shows a difference of 6 % from Discriminant Analysis and 1 % from Logistic Regression. Furthermore, it shows better results of prediction over Discriminant Analysis on the combined level; it shows a difference of 3 % in favor of the original model.
- Financial ratio analysis using Altman Z-Score Model can strongly help marketing decision makers to shape up their marketing strategies, financial indicators can also serve as a monitoring and safety valve to different marketing strategies applications.

Table 5: Comparison between the Results of Discriminant Analysis and Logistic Regression models in Service Organizations

Time of Prediction	Discriminant Analysis		Logistic Regression		Difference	
	Number	Percentage	Number	Percentage	Number	Percentage
General	59/65	90.2 %	65/65	100 %	6	9.8 %
One Year	58/65	89.2 %	61/65	93.8 %	3	4.6 %
Two years	49/65	75.4 %	55/65	84.6 %	6	9.2 %
Three years	44/65	67.7 %	45/65	69.2 %	1	1.5 %

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A Study of the Online Advertising Effect on Consumers based on Different Influence Factor Clusters

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Abstract

This study analysis the different consumer clusters with preferences for various web types, preferences for various advertising content, product involvement degree, and web access degree to understand the online advertisement effect. Data were collected from Internet users in Taiwan. The total number of effective questionnaires obtained was 648. The results show that groups that have different preferences for advertising content differ significantly in brand attitude toward online advertising. Groups that differ in involvement degree differ significantly in four measurement dimensions of online advertisement effect. Groups with different web access degree also exhibited significant variances in four measurement dimensions of online advertisement effect. The research also found that consumers with higher education were more likely to access the Internet and pay attention to online ads and click them.

Keywords: *Web type, Advertising content, Product involvement, Access degree, Online advertising effect*

Introduction

The rapid Internet development has turned online advertising into a very important messaging and communication tool and prompted more traditional media to embrace the Internet. Under this highly competitive environment, effectively influencing consumers through online ads has become the central objective for Internet companies.

The increasing Internet population, changes in web access behavior, distinct features of web sites and improving Internet marketing skills are important factors that affect online advertising effect (Wenyu et al. 2002; Michael et al. 2003; Leong et al. 1996; Wenyu et al. 2002). Thus, Internet marketing companies must design attractive web ads to encourage the click rate to win a place in the market. However, what factors encourage net users to click, enhance their brand recall and increase their purchase intention? Who will be influenced by online advertisement significantly? Who are the target segments of online advertising? These questions are worth exploration.

Many factors influence online ads effect, the important influence aspects of the advertisement effect can be principally induced as: web type (Wenyu et al. 2002; Michael et al. 2003), advertisement content (Shimp & Yokum, 1980; Ducoffe, 1996),