

**MEASURING THE BOTTOM-LINE IMPACT OF PUBLIC  
RELATIONS AT THE ORGANIZATIONAL LEVEL**

Submitted to  
**INSTITUTE FOR PUBLIC RELATIONS**  
For the 1998 SMART GRANT

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February 1, 1999

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## Introduction

Accountability in public relations is the most critical challenge public relations practitioners are facing (Smith, 1996; Gordon & Shell, 1992). In spite of the increased interests in public relations and fast-growing budgets, the possibility of marginalization in case of economic recession forecasts a gloomy future for public relations. An era of mergers and acquisitions, downsizing and reengineering, and increasing demand for bottom-line contributions push public relations into a survival game (Webster, 1990). Thus applying the same cost-related standard as other organizational functions and demonstrating the bottom-line value of public relations have become increasingly important (Gordon & Shell, 1992; Webster, 1990).

Because of the nature of its works, public relations is sometimes unable to do detailed planning. And many experienced people say it is unreasonable to expect PR to match the accountability of engineering, manufacturing, sales or personnel. They may be right, but it is becoming increasingly difficult to simply claim that public relations works in the “soft side” of the business. Equally frustrating, public relations often finds itself unable to explain its value, methods and tools within the organization. (Smith, 1996, p. 15)

This accountability problem cannot be solved by counting the number of clippings or qualitatively analyzing those contents and consumers’ minds, techniques the industry has pursued until now (Elliot, 1996). Instead, connecting results to the company’s bottom-line is the main task to solve the accountability problem. Beliefs that public relations is inherently not measurable are dwindling and increasingly practitioners believe that public relations can be measured to show

contributions to the bottom line (Webster, 1990). Thus, the demand for measuring bottom-line impact is widespread in the public relations journals (Bissland, 1990; Campbell, 1996; Gordon & Shell, 1992; Hon, 1997a; Newlin, 1991; Smith, 1996; Webster, 1990). However, this is an area that has been discussed frequently, but never has been done seriously<sup>1</sup> (Newlin, 1991).

Each program evaluation is important in measuring the success of specific programs, but there is one critical limitation - no measured relationship to the bottom-line impact (Hon, 1997a). Hon argued that previous evaluation research focused on effects on the public rather than the contribution of public relations to organizations (Campbell, 1993; Ehling, 1992; Johnson, 1994; McElreath, 1977; Winokur & Kinkead, 1993). Although it can be argued that the effects on the public can be connected to an organization's bottom-line, the tools for demonstrating the connection have been elusive (J. Grunig, et. al., 1992). Even many public relations practitioners have thought the connection is almost impossible to measure, and have emphasized the impact of intangible factors and prevention effects (Lesly, 1977).

However, pressures for measuring the bottom-line impact are continuously increasing from the outside and inside. "More and more managers are asking their public relations staffs to add up the bottom line -- the equivalent of profit or loss.

Return on investment (ROI) was investigated once in the Excellence Study. It found **Out an average** 184% ROI and 300% ROI in case of excellent companies. However, these results came from interviews with CEOs in a subjective way. Quantitative data **were** not used **to** measure ROIs. One program called "Sales Projector" is developed by Inquiry Handling Service (IHS) to demonstrate ROI. If some data such as the average dollar cost per product, the estimated market share and the number of leads a particular medium produced are entered. The program can calculate the expected sale. However it is hardly called public relations evaluation program (Hauss, 1993).

What has public relations done to make organization more effective?"(J. Grunig and Hunt, 1984, p. 115). Grunig and Hunt described the need for bottom-line perspectives:

Public relations was accepted without proving its value to the organization or without showing that something had happened as a result of spending the money allocated to the department. Directors of public relations who were asked to prove their department's worth could serve up a snow job— in fact, a snowstorm of press clippings. (p. 179)

### Organizational level evaluation

J. Grunig also indicated the deficiency of the organization and social level evaluations in his recent work on public relations' value (J. Grunig, 1998; See also Hon, 1997a). He determined that the value of public relations can be evaluated at four levels at least: program, functional, organizational, and societal. The advertising value of news clippings, readership, surveys or experiments of program effects were considered program evaluation and insufficient indicators for overall effects of public relations activities.

The environment for measuring organization-level evaluation has ripened with the mounting needs of public relations practitioners. The Excellence Study (Grunig, et. al., 1992) also has ushered researchers to the development of organization-level evaluation. However, organization-level evaluation has been rarely dealt with in empirical research. Admittedly, scholars have not devised the methodology for measuring effects at the organizational level. This study is one endeavor for exploring that uncharted territory.

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### Hypotheses and model specification for testing.

Showing the relationship between public relations expense and public relations goals becomes a critical task in the public relations industry. Thus, the first purpose of this study is to hypothesize and test the relationship between public relations expense and the public relations goal.

Grunig (1993) suggests three dependent variables of public relations effectiveness: reputation from the public, relationship with stakeholders, and satisfaction of employees. Because of negative connotations related to public relations, he replaced 'image' with 'symbolic relationship.' He used symbolic relationships as the object of micro-level public relations and behavioral relationships as the object of macro-level public relations. Thus reputation means "substantive behavioral relationships," not "superficial symbolic activities."

Corporate image represents the summed perception about an organization (Marken, 1990). Public relations academicians do not use the word "image" due to its manipulative meaning (Grunig, 1993; Cutlip, 1991); instead, they use "reputation" as the better way of defining corporate image because reputation represents behavioral relationship with the public (Grunig, 1993).

As one fundamental public relations goal, reputation is a key dependent variable of public relations activities (Hon, 1997b; O'Neill, 1984). Public relations efforts strive to improve the

organization's reputation. Thus the first hypothesis is

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related to the relationship between public relations expense<sup>2</sup> and the company's reputation:

Hypothesis 1) Increasing public relations expense will have a positive relationship on the company's reputation.

L. Grunig, J. Grunig, and Ehling (1992) argued communication objectives should be connected to broader organizational goals. Other researchers and practitioners also agreed with the importance of that task (Bissland, 1990; Hon, 1997b; Newlin, 1991; Webster, 1990). This exploratory study also is in line with the assumption that public relations goals should be connected to the organizational goals to measure the contribution of public relations to the organization.

Organizational contribution can be defined as achieving organizational goals (Grunig & Hunt, 1984). Campbell (1977) defined 30 organizational effectiveness measures such as productivity, efficiency, profit, quality, control of the environment, adaptation/flexibility to the environment, revenue growth, job satisfaction, stability, and information management and communication. In the context of economic value, profitability and revenue are the most common indicators of organizational goals. In the multiple-goal theory, which suggested various goals in each stage of organizational efforts (Seashore & Yuchman, 1967), profitability and revenue were listed as the ultimate goals in the organization.



Public relations expense data are collected through the self-administered questionnaire. Several methodological remedies for increasing the validity and reliability of data are described in the methodology section. In this study, other dollar-value variables such as inflation and price change are not considered for simplicity of testing.

Thus, the second hypothesis lies in the relationship between the company's reputation and revenues:

Hypothesis 2) Improving the reputation of the company will have a positive relationship on the company's revenues.

In addition to the previous two hypotheses, another market variable was inserted into the proposed model.<sup>3</sup> besides market share as a most important exogenous (independent) variable, other variables also can be considered. Age of brand, order of entry, current and past advertising share, and competitors' marketing activities have been discussed as other factors (Simon & Sullivan, 1993). However, market share has sufficient explanatory power for explaining the competitive market situation (Stone & Duff, 1993; Earns & Reibstein, 1979). For the simplicity of the model, only market share is included for model testing. A hypothesis related to market share is established:

Hypothesis 3) Market share will have a positive relationship on the company's revenues.

Previously discussed models were carried out mostly using a single equation within a linear

or nonlinear model. But, it is difficult to explain a complex reality with a single equation. And nonlinear models need complicated mathematical procedures in practical applications. In this context, the model that can handle two

~ Market share was inserted as a market variable, and also it functions to evade the identity problem of the proposed model.

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stage relationships (in this study, public relations expense - reputation - returns) fits the purpose of this study.

The structural equation model<sup>4</sup> has been broadly utilized in marketing research in the case of more than two dependent variables (the public relations goal and the organizational goal) as suggested in this study (Bagozzi, 1977; Finn, 1988; Joreskog & Sorbom, 1982; Mackenzie, 1986; Rinehart & Page, 1992). Apparently the structural equation model seems to be the optimal option here because two equations in the same system are needed to test the model containing two dependent variables.

Based on the previous discussion, a full evaluation model at the organizational level can be described as Figure 1. Thus, a theoretical model utilized two functions as follows:

Public relations goal =  $f$ (public relations expense, explanatory factors) (1) Organization goal =  $f$   
(the goal of public relations, explanatory factors) (2)

The full model for measuring public relations efficiency has two steps:

measuring the economic impact of public relations goal (reputation) on revenues and the impact of public relations expense on public relations goal (reputation).

~ “Sometimes structural equation models are called LISREL models, analysis of covariance structures, or analysis of moment structure. Regardless of the name or notation, the terms refer to general models that include confirmatory factor analysis, classical simultaneous models, path analysis, multiple regression, ANOVA, and other common techniques as special cases” (Hoyle, 1995, xix). However, in fact, all principles are the same with the regression model except some cases. Thus, methodological complexity will not be discussed in detail in this study because the structural equation model can be basically interpreted as one of many other regression measures.

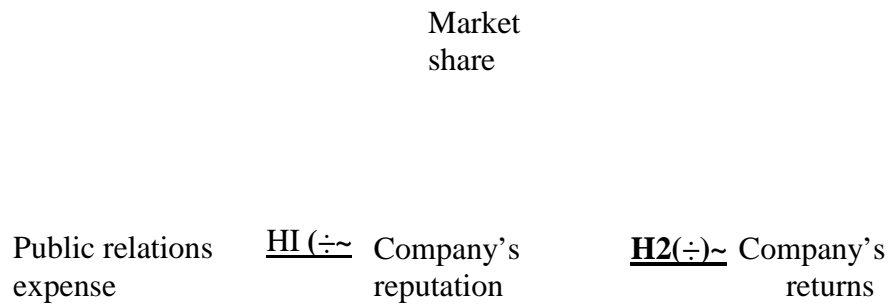


Figure 1.

The two-stage model of measuring the economic value of public relations in the organizational level

## Methodology

### The research population

*Fortune* 500 corporations<sup>5</sup> were selected as the population because *Fortune* 500 corporations represent American industry well and have systematic annual databases for each company which can be obtained through the *Fortune* magazine database. In 1998, *Fortune* 500 corporations were represented by 61 industry categories. Thus, this study can be characterized as a convenience sample with limited generalization to 61 American industries.

### Survey instrument

The survey obtained public relations expense data from all *Fortune* 500 Corporations that participated in the annual *Fortune's* corporate reputation survey. The survey was conducted through the mail using a self-administered questionnaire. In spite of the limitation of the self-administered survey, this is the only way to collect public relations expense data.<sup>6</sup> Other studies related to public relations expense data such as Thomas L. Harris/Impulse Research Public Relations Agency Survey (1993-1 997), The Survey of Managing Corporate

~ *Fortune* 500 companies were chosen for samples because they are recognized as the most successful **companies in the business** community and spending considerable **amounts of money for public relations activities (Wilson, 1994)**. This study **needed to choose companies that practice consistent public relations** activities to clarify **the impact of public relations**. **Also they have** been frequently studied **and equipped with** accumulated databases (PR News. 1998. March 30, Troy, 1993), Thus they were chosen because they are **the most accessible** and feasible category. However this does not mean that companies outside Fortune 500 are not conducting effective public relations. *Fortune* 500 in this study **denotes Fortune 500 industrial and Fortune 500 service companies (Troy, 1993)**.

**6** Using self-administered questionnaire could be a limitation of this study. However, this method **seems to be an only choice** under the condition of no databases **and also other previous** studies used this method **to collect the public relations** expense data (Thomas L. Harris and

**Impulse Research. 1997~ Troy, 1993; PR News, 1998, March 39). Compared to the subjective assignment of the bottom-line impact by CEOs in the Excellence Study (1998), this method is much more objective.**



Communications in a Competitive Climate (The Conference Board, 1993), and The Survey of Corporate Contributions (The Conference Board, 1995) all used self-administered questionnaires.

The survey consisted of two parts. First, public relations expense data were explored. Extreme care was taken to make the definitions of public relations expenditures universally acceptable. The primary definition of public relations activities was the one used in the *O'Dwyer's Directory of Corporate Communications* (1997) and the *Survey of Managing Corporate Communications in a Competitive Climate* (Troy, 1993). In Troy's survey, the management of internal and external communications in firms was the focus. Company samples were drawn from the 1991 *Fortune* 500 manufacturers and *Fortune* 500 service firms. Out of 700 companies, 157 responded (response rate 22.4%). This study grouped 12 tasks as communication activities for budget allocations: media/press relations, speechwriting, employee communications, corporate advertising, community relations, creative services, video/AV/teleconferencing, contributions, issue analysis, stockholder relations, investor relations, and government relations.

In *O'Dwyer's Directory of Corporate Communications*, expenditures are defined as all dollars spent for conducting these activities:

A well established PR/communications department at a major company has responsibility for press relations, employee communications, local community relations, government affairs at the local and federal levels, environmental and safety affairs, financial relations including stockholder and Wall Street communications, corporate identity programs, contributions, corporate training programs and may also handle exhibits, conventions and trade shows. It may produce a wide range of written and audio-visual materials

such as annual and quarterly reports, sales brochures and videocassettes for use at distant plant locations. And, depending on its mandate from management, it may spend much of its time counseling management on how to best fulfill its responsibilities to the public and avoid confrontations in the media. (p. A5)

By integrating two definitions of public relations expense, this study defined public relations expense as nine categories: 1) medial press relations, 2) employee communications, 3) local community relations, 4) government affairs at the local and federal levels, 5) environmental and safety affairs, 6) investor relations including stockholder and Wall Street communications, 7) contributions, 8) corporate advertising, and 9) other tasks: producing written and audio-visual materials such as speechwriting, annual and quarterly reports, sales brochures, video, and other materials for teleconferences; exhibits, conventions and trade shows; creative services and corporate identity; counseling management, and issue analysis.

To save practitioners' time when completing the questionnaire and to reassure practitioners concerned about divulging proprietary information, increasing or decreasing rates of public relations expenditure were measured.

Some socio-demographic questions and budget information were included at the end of the questionnaire.

#### Operationalization and data collection

*First*, reputation in this paper does not imply symbolic image or manipulation of the

company image in the asymmetrical world view. Reputation as the goal of public relations represents the relational image between the organization and publics. Relationships with publics include strategic constituencies (J. Grunig, et. al., 1992;

J. Grunig & L. Grunig, 1992) such as consumer relations, employee relations, investor relations, and community relations. This study accepts the *Fortune's* approach which utilized an instrument measuring relational image and represented the symmetrical world view. In a future study, devising an organizational database for the level of reputation or relationship is an essential requisite for the development of public relations evaluation. However, in this stage, it is somewhat fortunate to utilize existing legitimate and consistent time-series data which represent the company's reputation in the symmetrical world view.

Thus, reputation data were collected from the results of *Fortune's* annual corporate reputation survey (Stuart, T. A. & Harrington, A., 1998; Robinson, 1997; Fisher, 1996). Reputation is measured by eight key attributes: quality of management, quality of products or services, ability to attract, develop, and keep talented people, value as a long-term investment, use of corporate visible and invisible assets, financial soundness, innovativeness in corporate culture, and community and environmental responsibility (See Belch & Belch, "Introduction to advertising and promotion: An integrated marketing communication perspective," 1995, p. 542 for eight key attributes of corporate reputation). In 1998, the survey was conducted with 12,600 respondents, who included senior executives internal and external to the companies as well as business analysts. They rated reputations among a total of 476 companies. Reputation data also were computed into increasing and decreasing rates from previous scores.

*Second*, other economic variable data such as revenues, market share, and other possible explanatory variable data were collected from existing databases. For measuring contributions to the organization, there are two options: profitability and revenue. Revenue was chosen for measuring the direct impact of reputation following Stone and Duffy (1993). For profitability, more exogenous variables are needed for an accurate analysis. For the revenue data, increasing rates compared to the previous year's revenue were measured. Revenue data collected from *Fortune's* (1996, 1997) revenue change (%) item were used as a final dependent variable in the model.

As an explanatory variable, market share was chosen. It is impossible to conceptualize all of the explanatory variables. Also, including all possible explanatory variables is not recommended at all in the modeling (Earns & Buzzell, 1979). In the promotional elasticity modeling, market share is the most common explanatory variable. This study used Earns and Buzzell's operational definition of market share: "market share is the ratio of each business unit's dollar sales to the total size of its served market (p. 115)." Szymanski, Bharadwaj, and Varadarajan (1993) divided the definition of market share into absolute market share (ratio compared to total sales in the served market) and relative market share (the ratio compared to the largest several firms). This research is the integration of both methods because the average number of the one category was more than nine. Total size and market shares were calculated from *Fortune* (1996, 1997).

*Third*, public relations expense data were collected from the mail survey. Mailing addresses of public relations executives and managers were obtained from *O'Dwyer's Directory of Corporate Communication* and the *National Directory of Corporate Public Affairs* (Columbia Books). The annual Thomas L. Harris/Impulse Public Relations Agency Survey for collecting combined in-house and agency budgets of 4,000 companies also used those clients listed in the *O'Dwyer's Directory of Corporate Communications 1997*. Four weeks after sending out the first survey, the follow-up letter and the second survey were sent.

#### Data tabulation and analysis

The priority of analyses is the 1997 data. All collected data were used for the analysis. Reliability of reputation data was conducted for the 1997 data. However, this study used pooled data from 1995 to 1997 for comparison purposes. In spite of the difficulty of collecting data, analyses based on cross-sectional time-series data can be more rigorous than the cross-sectional only data. First of all, the variation of public relations data depends on economic and social changes. Data in a specific year are insufficient for establishing the evaluation model. Second, pooled data have a methodological and analytical advantage by increasing the degrees of freedom. Increasing the degrees of freedom can enhance the statistical stability of parameter estimates.

The survey data were analyzed for model testing in two ways. First, for model testing with public relations expense data, data were analyzed using AMOS 3.61 for structural equation model testing<sup>7</sup>. AMOS (Analysis of Moment Structure) 3.61

For testing the structural **equation model**, several computer programs are available in the market. Among

is the most recent computer software for testing these kinds of models and compatible with the SPSS data tabulation. The parameters were estimated by the maximum likelihood (ML) full information analysis.<sup>8</sup>

## **Outcome**

### Sample Description

The questionnaire was sent to 476 companies that participated the 1997 annual reputation survey. One hundred eleven companies responded the questionnaire after two mail surveys. Some companies were not reachable because of a merger, acquisition, company name change, and closure. Seven companies supplied incomplete information. After dropping those companies, data from 104 companies were analyzed (21.85 % response rate). Table I shows the sample description.

Original reputation survey used eight items for measuring the company's reputation: quality of management, quality of products or services, ability to attract, develop, and keep talented people, value as a long-term investment, use of corporate visible and invisible assets, financial soundness, innovativeness in corporate culture, and community and environmental responsibility. Intercorrelations among items were checked. Cronbach's Alpha indicated highly stable reliability of the eight-item scale ( $\alpha = .9812$ ). Over 70% is an acceptable score (Litwin, 1995).

them. LISREL, EQS, and AMOS have been generally used. AMOS provides the graphical



interface and **it** makes model testing easier **than other models**. **Recently, LISREL 8.2 has** started **to** provide **the** graphical interface. However, they have basically same functions. All **these** practical information and theoretical discussions can be obtained **from** SEMNET interest group (listserv~ã~ualvm.ua.edu).

- ~ Maximum likelihood estimation (ML) has **the** same property with **the least** square approach **in the large** sample. ML **is** used here because parameters **in the structural** equation model are highly nonlinear **and the** iteration method should **be** used **to find parameters**. This process is not possible with ordinary least squares.

**However.** all coefficients **in the outcome** can be interpreted in the same way as in the regression model.

Variable	Table 1.	32.7	Percent
	The sample description of participated	19.2	
	companies	13.5	
	1997 Fortune rank	10.6	
		24.0	

	-100	
	101 -200	
	201-300	
	301-400	
	400-	
Public relations budget	Frequency	
	34	
20		
14		
11		
25		\$25,000,001 -\$50million

Industry category

PR budget structure

Department title	8
	36
	46

PR person title in charge

Service  
Industrial

Under \$25,000  
\$25,000-\$500,000  
\$500,001 -\$1 million

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\$1,000,001 -\$25million		52.9
Missing		47.1
55		
49		1.9
2		2.9
3		34.6
36		42.3
44		17.3
18		1.0
I		
Internal > external	57	54.8
Internal = external	3	2.9
Internal <external	44	42.3
Public Relations	18	
Corporate Communication		17.3
45		43.3
Public Affairs	16	15.4
Marketing Communication		3.8
4		2.9
Investor relations	3	17.3
Others	18	
		7.7
Manager		34.6
Director		44.2
Vice President		

### Hypothesis Testing

Proposed hypotheses were tested using the structural equation model. The structural equation model (SEM) is a very flexible and powerful method. SEM is the integration of two approaches: the measurement part and the structural part (Long, 1983). SEM overcomes the limitations of OLS such as simultaneous relationships between independent variables and dependent variables and more than two dependent variables in one model. Especially, the nonrecursive situation can be expected in model testing. However, OLS cannot handle nonrecursive models.

The SEM analysis follows the system approach that considers all the equations in the model at the same time. Thus, comparing the model fitting is more important than testing a single parameter in some occasions.

The Proposed model (Figure 2) indicated an appropriate model fitting (chi-square = .192, df = 3, p0.979). In this situation, the evidence against the null hypothesis is not significant at the 5 percent level (or at any conventional level). In the SEM, this chi-square test allows the null hypothesis test that a proposed model provides an acceptable model fit of the observed data because the null hypothesis could not be rejected in this case.

The nonrecursive model is conceivable in any model. For example, as the company's reputation affects the company's revenue, the company's revenue can affect the company's reputation. In this case, the relationship between the company's reputation and the company's revenue is nonrecursive. The

nonrecursive models were also tested (Figure 3, Table 4: Model A). The model containing a nonrecursive relationship between reputation and revenue also showed an appropriate model fitting (chi-square = .143, df = 2, p = .931). In this case, the proposed model is nested in the model containing a nonrecursive relationship. Chi-squares can be statistically compared to choose the better model.

The difference of chi-square tests is used to test nested models. The difference of chi-square tests also has a chi-square distribution. The improvement in fit obtained by adding additional parameters to the model can be tested by the difference of chi-squares between two models. In this case, the difference of chi-squares is 0.049 (0.192-0.143) and the difference of degree of freedom is 1 (3-2). If the difference of chi-square exceeds the critical value in the statistical table with the difference of degree of freedom, the hypothesis that the constraints imposed on the model containing the nonrecursive relationship to form the proposed model can be rejected. However, the hypothesis could not be rejected in this case. Thus, relaxing the constraint (here, adding a nonrecursive relationship) did not result in any statistically significant improvement. The initial proposed model is supported.

Also any other possible model did not show any improvement in model fitting (See Figure 4 and Table 4: model B containing the parameter from market share to reputation). Even though the model containing a parameter from market share to reputation indicated an appropriate model

fitting (chi-square = .095, df = 2, p = .954), the difference of chi-squares test did not show any improvement in the model specification. Also, most notably, both the model containing a nonrecursive

relationship and the model containing an added parameter did not produce significant coefficient as shown in Table 4. The parameter estimate from the company's revenue to the company's reputation in Model A is 0.030 (C.R. = 0.224) and is not statistically significant. The parameter estimate from market share to the company's reputation in model B is 0.002 (C.R. = 0.312) and also is not statistically significant. Thus, the proposed two-stage model is supported for hypothesis testing.

Hypothesis 1) Increasing public relations expense will have a positive relationship on the company's reputation.

Hypothesis 2) Improving the reputation of the company will have a positive relationship on the company's revenues.

Hypothesis 3) Market share will have a positive relationship on the company's revenues.

Based on the model fit with the sample correlations (Table 2), each hypothesis was tested. Table 3 shows the parameter estimates of the proposed model. HI is supported. Public relations expense is positively related to the company's reputation (estimate = 0.276, C.R. = 2.914). The

critical ratio (C. R.) is obtained by dividing the estimate by its standard error. The ratio is interpreted as a z-statistic. Thus using a significance level of .05, critical ratios greater than 1.96 would be called significant (within small samples, t-statistic can be used) (Kline, 1998). From the standardized estimate, when a unit of public relations expense increases, reputation is improved by 0.28 unit. This positive relationship between public relations expense and



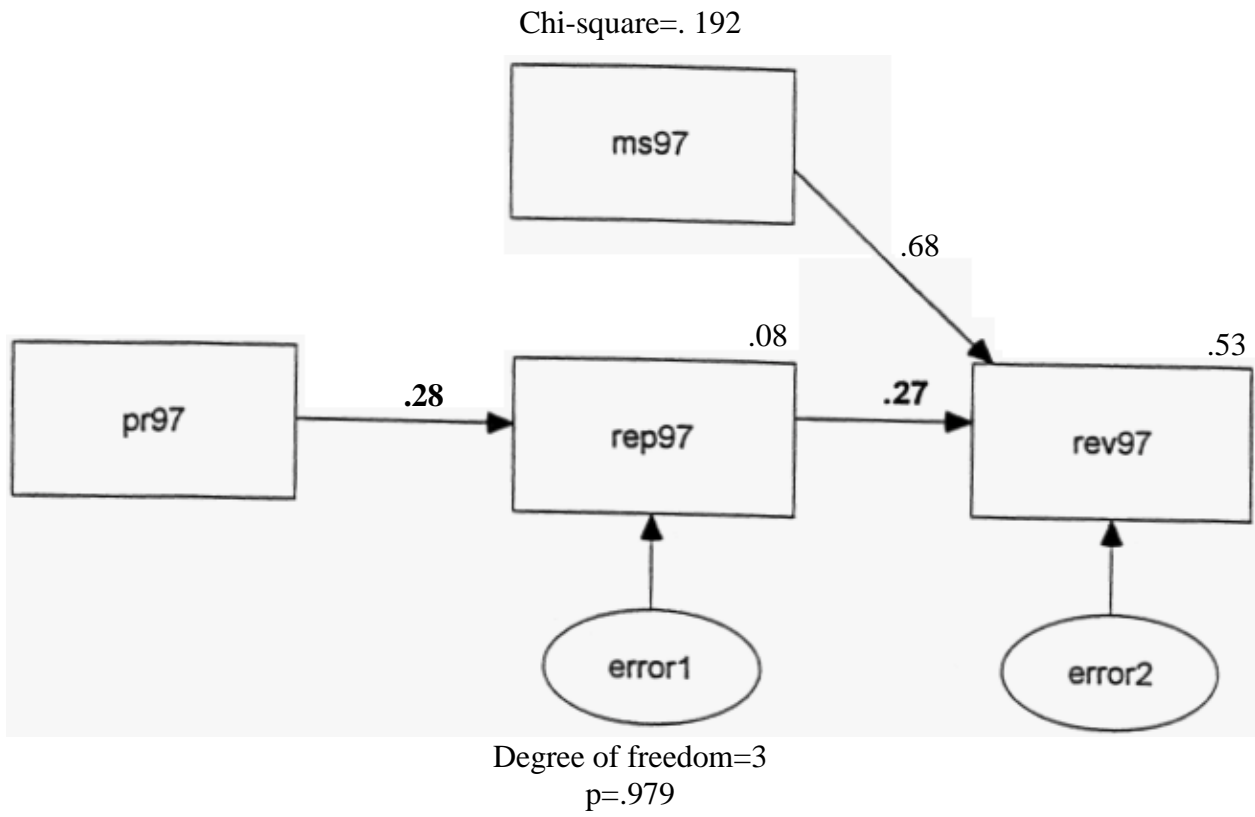
public relations goal indicates the empirical effectiveness of public relations activities.

H2 is supported. The company's reputation is positively related to the company's revenue (estimate = 0.268, CR. = 3.984). The estimate is statistically significant ( $p < 0.05$ ). From the standardized estimate, when a unit of the company's reputation increases, the company's revenue is increased by 0.27 unit. This positive relationship between the public relations' goal and the company's goal showcases the bottom line impact of achieving public relations' goal.

H3 is supported. Market share is positively related to the company's revenue (estimate = 0.680, C.R. = 10.104). The estimate is statistically significant ( $p < 0.05$ ). The positive relationship between market share and revenue because high market share can be correlated with revenue increase.

By the statistically significant support for both hypothesis I and 2, the attainability of the two-stage model for measuring the bottom-line impact of public relations expense also is supported. Squared multiple correlation (SMC) represents the explained percentage of dependent variables by the proposed model. In Table 3, SMC for the company's reputation is 0.076 and SMC for the company's revenue is 0.534. About 7.6 percent of reputation can be explained and 53.4% of the company's revenue can be explained by the proposed model.





**Figure 2.**  
The analysis of the two-stage model of measuring the economic value of public relations at the organizational level. Standardized estimates.

Table 3.

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The outcome of the two-stage model of measuring the economic value of public relations at the organizational level

Parameters

Models

PR expense- ~)	Reputation	0.086	0.030	2.914~	0.276
Reputation ~	Revenue	0.762	0.191	3.984~	0.268
Market Share Variance	* Revenue	0.099	0.010	10.104*	0.680
PR expense		345.942	48.204	7.176*	
Market Share		12854.709	1791 .260	7.176*	
Error1		31.321	4.364	7.176*	
Error2		127.698	17.794	7.176*	

Regression Weights	<b>C.R.</b>	<b>Standardized</b>	
Estimate S.E.		Estim	ate

Squared Multiple Correlations

Reputation  
Revenue

Chi-square = .192  
Degree of freedom = 3

Revenue 0.684      0.0980.288

1.000

p= .979

Model fitting indexes

0.076  
0.534

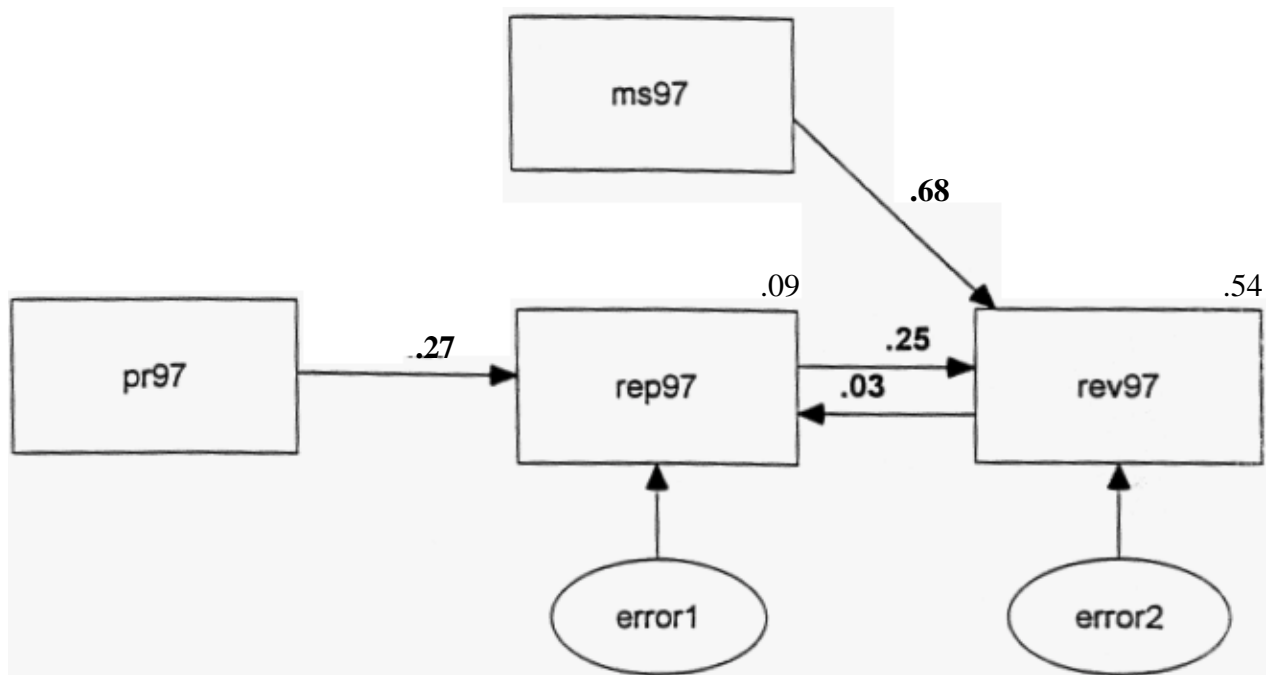
**GEI** = 0.999      NFI = 0.998  
TLI = 1.068      RMSEA =  
**AGFI** =            0.000  
0.997 CFI =  
1.000

Note. \* ~ <0.0001 ~P<0.05

Revenue 0.684

0.0980.288

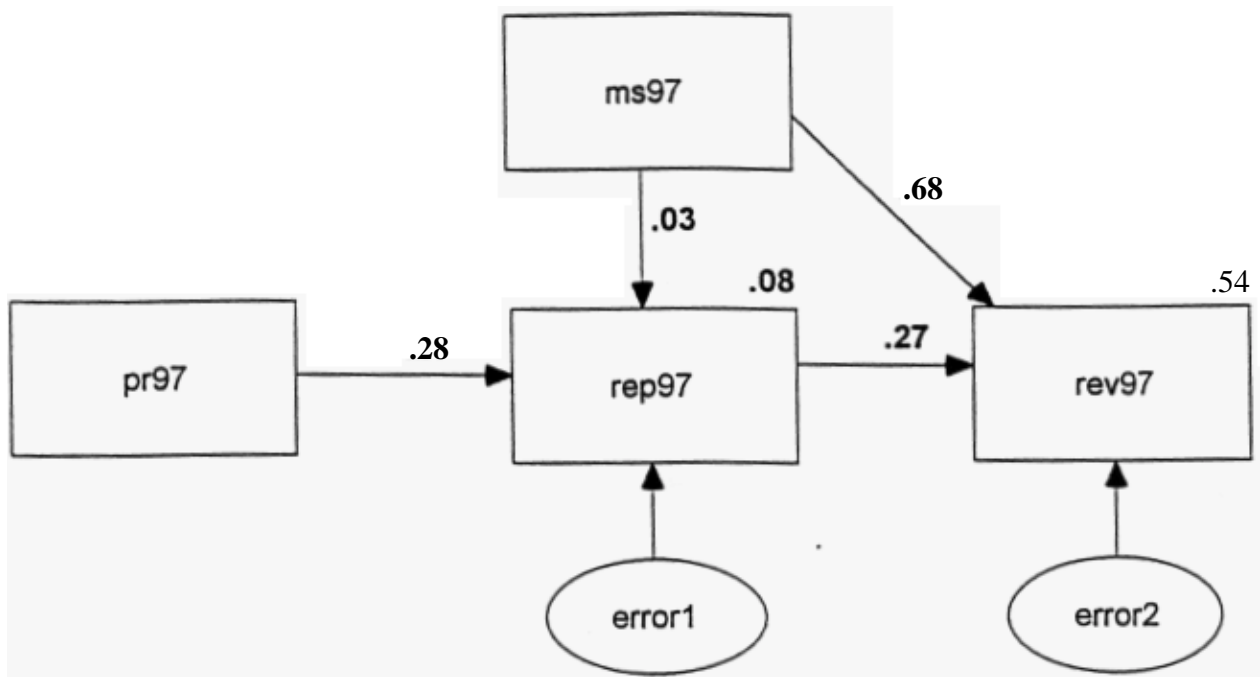
1.000



Chi-square=. 143  
 Degree of freedom=2  
 p=.931

**Figure 3.**

**The analysis of the two-stage model with a nonrecursive relationship between reputation and revenue. Standardized estimates.**



Chi-square=.095  
 Degree of freedom2  
 p=.954

**Figure 4.**

**The analysis of the two-stage model with an added parameter from market share to reputation**

Table 4.

The outcome of the two stage model of measuring the economic value of public relations at the organizational level using a nonrecursive parameter (Model A) and a parameter from market share to reputation (Model B)

<b>PR expense-&gt; Reputation</b>	<b>0.273</b>	<b>2.892~</b>	<b>0.276</b>	<b>2.913~</b>
Reputation -> Revenue	0.678	10.105*	0.030	3.982~
Market Share -> Revenue	0.253	2.763*	0.676	10.100*
Revenue 4 Reputation	0.010	0.224~	NA	
Market Share 4 Reputation	NA		0.002	0.312~
Variance				
PR expense	345.942	7.176*	345.932	7.176~
Market Share	12854.709	7.176*	12854.709	7.176~
Error1	31.321	6.456*	31.291	7.176~
Error2	127.698	7.176*	127.698	7.176**
	0.537		0.077	
	0.090		0.539	
	0.008			
	0.143		0.095	
	2		2	
			0.954	
Parameters	Model A		Model B	
Regression Weights	Estimate C. R.		Estimate C. R.	
p	0.931			
<b>GFI</b>	0.999			
<b>NFI</b>	0.998			
<b>TLI</b>	1.068			
<b>CFI</b>	1.000			
<b>RMSEA</b>	0.000			

Revenue 0.684

0.0980.288

1.000



Squared Multiple Correlations

Revenue

Stability index

Reputation

Chi-square

Degree of freedom

Model fitting indexes

Note. \* $p < 0.001$

~ $P < 0.05$

1.000

0.997

1.070

1.000

0.000

Until now, hypotheses and the feasibility of the two-stage model were successfully supported. Other analyses were added to further check the efficacy of the proposed model and give some more perspectives into the proposed model.

The three-year pooled data were tested to check the validity of the proposed model over different years. Not all the companies had data from 1997 to 1995. Only 93 out of 104 companies had complete three-year data because of a merger, acquisition, inaccurate information, and new inclusions to the database. Thus, 279 data ( $93 \times 3$ ) were analyzed after stacking all three-year data.

The chi-square test showed an appropriate model fitting (chi-square = 2.815,  $df = 3$ ,  $p = .421$ ) (See Figure 5 and Table 6). The parameter estimate from public relations expense to the company's reputation is 0.112 (C.R. = 1.876) and is statistically significant at the level of 0.10. Using .10 level of significance is appropriate in SEM due to the complexity of the model (Long, 1983). Thus, Hypothesis I was marginally supported by the three-year data. The parameter estimates from reputation to revenue (0.186, C.R. = 3.508) and from market share to revenue (0.424, C.R. = 7.975) are statistically significant ( $p < 0.05$  and  $p < 0.001$ ). Hypothesis 2 and hypothesis 3 were supported across the three-year data.

The explanatory power of the model was decreased compared to the one-year data. As shown in Table 6, SMC for reputation is 0.013 and SMC for revenue is

0.214. Only 1.3 percent of reputation can be explained and 21.4 percent of revenue can be explained by this model. However, positive relationships among variables

.Regressions estimates were standardized.

and SMCs showed the same pattern with the one-year data. Thus, there is no reason to discount that the proposed model can be applied over a long period, especially since model fitting indexes indicated highly stable fitting scores: GFI (= 0.995), AGFI (= 0.983), CFI (= 1.000), and RMSEA (= 0.000).

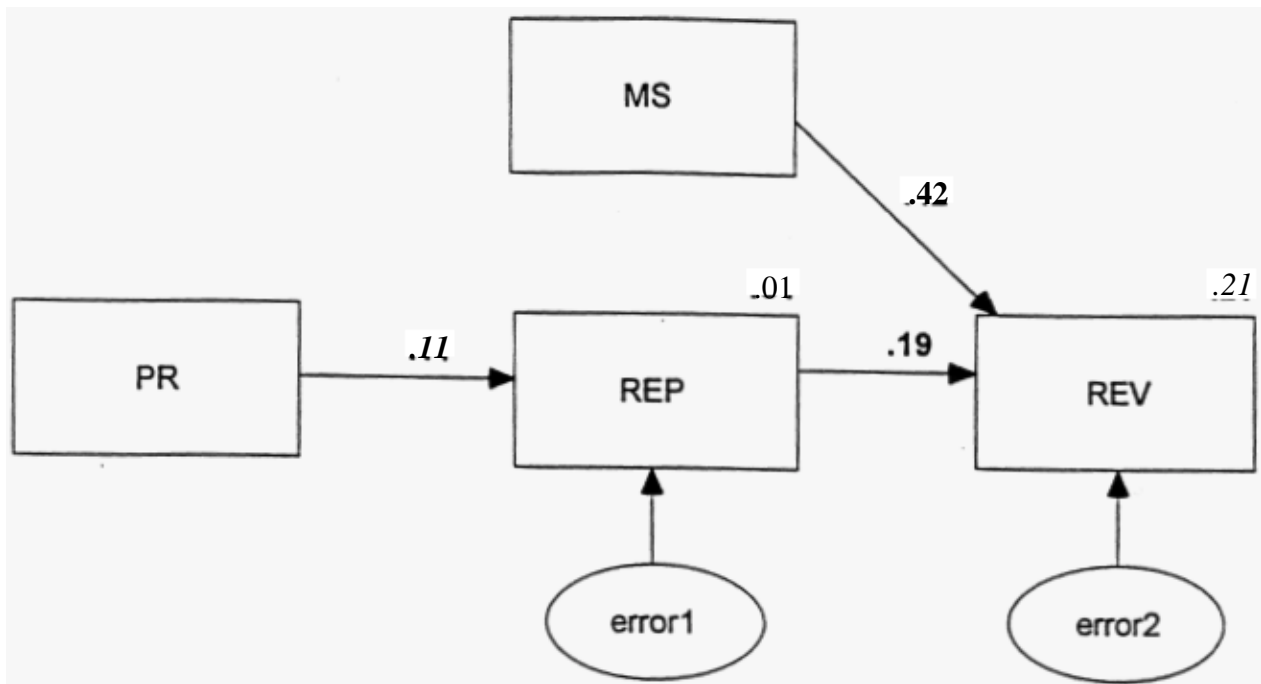
	ms	pr	reputation	revenue
ms	1.000			
pr	0.019	1.000		
reputation	0.028	0.112	1.000	
revenue	0.428	-0.055	0.198	1.000

Table 5.

of three-year data

Sample correlations

.Regressions estimates were standardized.



Chi-square=2.81 5  
 Degree of freedom=3  
 p=.421

**Figure 5.**

**The three-year data analysis of the two-stage model of measuring the bottom line impact of public relations at the organizational level.**

.Regressions estimates were standardized.

Table 6.

The outcome of three-year analysis of the two-stage model of measuring the economic value of public relations at the organizational level

		Parameters		Model	
Regression Weights				1.876~	0.112
Estimate S.E.				3.508~	0.186
C.R. Standardized				7~975*	0.424
Estimate		267.370	22.678	11.790*	
e		4966.937	421.290	11.790*	
		43.548	3.694	11.790*	
		187.723	15.922	11.790*	
<b>PR expense-&gt; Reputation</b>					
Reputation 9 Revenue			Market Share		
Market Share 9 Revenue			Error1		
			Error2		
Variance		0.045	0.024		
		0.434	0.124		
PR expense		0.093	0.012		

Squared Multiple Correlations

Reputation  
Revenue

Chi-square = 2.815

Degree of freedom = 3 p=0.421

Model fitting indexes

0.013

0.214

**GFI** = 0.995

**NFI** = 0.962

**ILI** = 1.005

**RMSEA** =

**AGFI** =

0.000

0.983

**CFI** = 1.000

.Regressions estimates were standardized.

Note. \* $p < 0^{000}1$  ~  $P < 0.05$

.Regressions estimates were standardized.

## Discussion

The proposed model showed an appropriate model fitting and was statistically significant. All three hypotheses were supported. Hypothesis one about the positive relationship between public relations expense and reputation was supported. The coefficient was statistically significant. From this outcome, as the unit of public relation expense increases, a positive increase in the company's reputation can be expected. Hypothesis two about the positive relationship between the company's reputation and the company's revenue also was supported. The statistically significant coefficient demonstrated the positive impact of the company's reputation on the company's revenue.

Thus, by integrating hypothesis one and two, the proposed two-stage model for measuring the bottom-line impact of public relations activities was completed. Public relations expense affects the company's reputation positively and the company's reputation impacts the company's revenue positively. Thus, public relation expense indirectly affect the company's revenue.

As discussed in the literature review, measuring the bottom-line impact of public relations activities was the integration of the effectiveness measure (between public relation activities and the company's reputation) and the efficiency measure (between the company's reputation and the company's revenue) at the organizational level. This proposed theory was successfully supported through the hypothesis testing and model fitting.

.Regressions estimates were standardized.

Also, this outcome was confirmed by other analyses. The models including other possible coefficients were tested. The models including the nonrecursive relationship between the company's reputation and the company's revenue and the model including the parameter from market share to the company's reputation did not have statistically significant coefficients and the model fittings were inferior to the proposed model. All these results supported the stability of the proposed model.

Upon all those results, the test with the three-year stacked data also showed a consistent outcome. Even though the explanatory power of the proposed model was a little reduced, the coefficient and the model fitting showed a similar outcome as the one-year data testing. In fact, this outcome is very meaningful for the application of the proposed model. It is supported that the model can be applied across more than one year.

This study suggests an innovative methodology for measuring the bottom-line impact compared to the previous research such as Ehling's 1992 work. The introduction of an econometric methodology can enlarge the scope of public relations evaluation research.

To improve this methodology, public relations data from research organizations (such as A. C. Nielsen in the advertising field) would be indispensable for national data cumulating and reliability checks. Also the most imminent task of public relations academicians and practitioners is to find agreeable constructs for dependent variables of public relations. This process is critical for getting consistent outcomes.

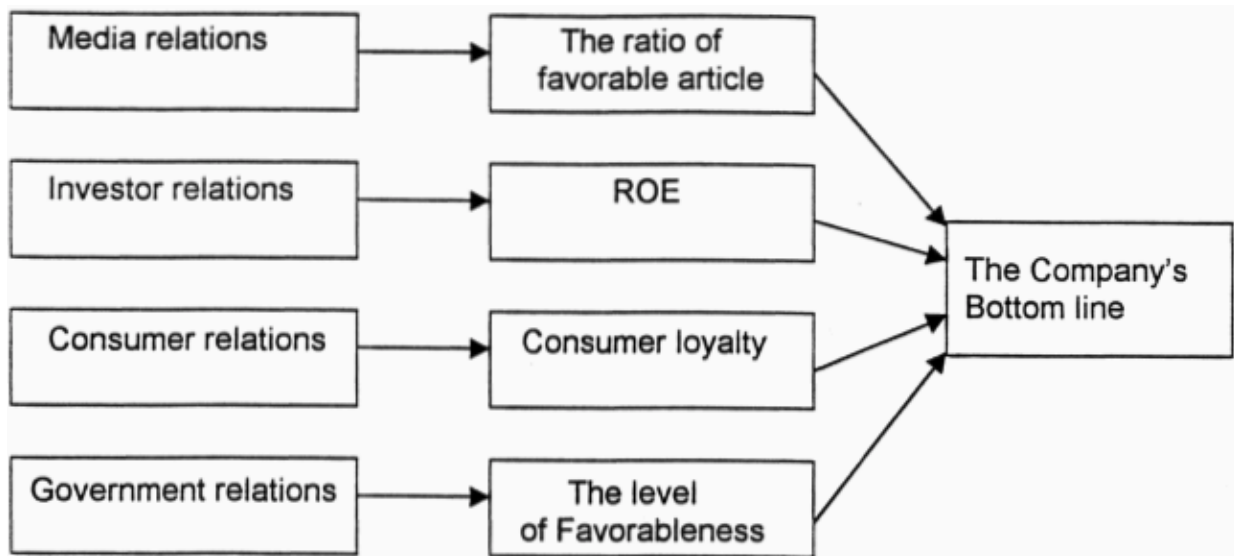


The development of models can be accelerated through application to diverse industry and product categories. Or diverse public relations industries (financial, non-profit, health care, new technology, and corporate public relations) can determine different kinds of estimation models.

### Managerial application

This public relations evaluation model has a lot of application in public relations management. First, the two-stage model can be applied to most public relations evaluation at the organization level. For example, the number of articles or the ratio of favorable articles can be inserted into the measurement of the bottom-line impact of media relations. Or P/E (Price/Equity) or ROE (Return on equity) can be inserted into the measurement of the bottom line impact of investor relations.

Second, all corporate communication activities can be measured together in the same model. For example, if one company has several public relations functions such as media relations, investor relations, consumer relations, and government relations, mediating variables for the process of measuring the bottom line impact of corporate communication activities can be included. Examples are the ratio of favorable articles against unfavorable articles, ROE, the level of consumer loyalty, and support of government officials. By testing all these public relations activities in the same model, the impact of each activity can be compared. Rather than depending on one activity source, communication executives or CEOs can have a comprehensive view of all of their corporate communication activities. This example is described in Figure 6.



**Figure 6.**  
**The example of measuring the bottom-line impact of each public relations function.**

.Regressions estimates were standardized.

Third, this proposed public relations evaluation model can be expanded into the much-debated IMC evaluation model (Figure 7). At the organizational level, public relations and advertising effects can be integrated into the same goal of contribution to the organization. Integration is possible only in view of the organizational goal. Thus, public relations dominance or advertising dominance using the IMC concept impairs the full function of effective communication activities for the organization. Public relations and advertising have their independent goals — reputation and brand equity. When each domain of communication activities work toward its specific goals and maintain its independence, communication activities in the organization are optimized and the bottom-line impact is maximized. The assumed IMC model contains this basic idea.

Fourth, practitioners can provide CEOs with tangible results using the presented evaluation models as other members of the dominant coalition do. To improve the company's reputation, each public relations program can be legitimately chosen by public relations practitioners with tangible justification. This justification provides the basis for scientific public relations budgeting.

#### Limitation

This study's outcome cannot be generalized to all American companies. The development of a general model is not the intention of this paper. The economic model should be developed industry by industry. Also, independent variables were

.Regressions estimates were standardized.

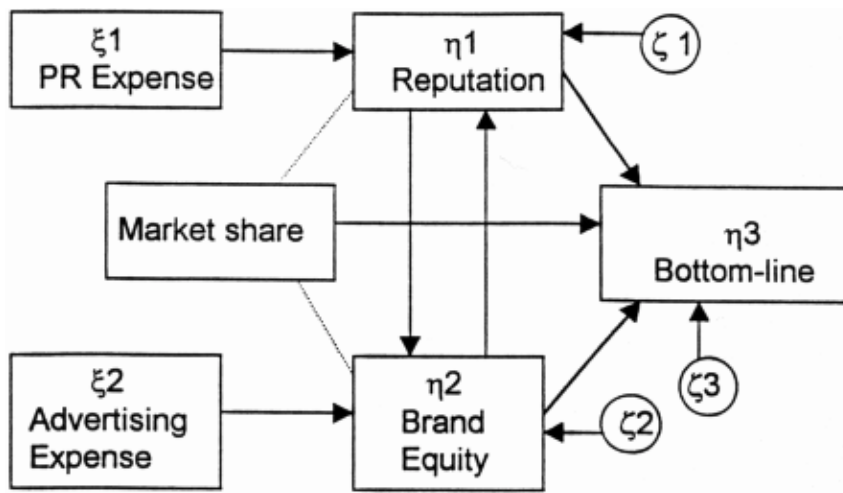


Figure 3. The assumed model for IMC evaluation

Note. : testable relationships.

~ implies an error term.

.Regressions estimates were standardized.

limited due to data availability. More independent variables should be considered in subsequent studies.

Halo effects and long-term effects<sup>9</sup> (Stone & Duffy, 1993) in evaluative measures were not considered at this stage. But cumulative components of evaluation measures should be reflected in a future model. In addition, the

possibility of interaction effects among explanatory variables is an important consideration that should be investigated in future study.

~ Halo effects mean lagged effects. Independent variables can affect dependent variables over a long period of time, rather than having a direct impact in a specific time. In case of reputation, these lagged effects can be assumed in the model.

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