

Problem & System Description

The goal of this study is to determine the existence of and identify a relationship between a the marketing strategy, specifically in regards to slogans, of Fortune 500 companies and those companies' relative financial performance. The study will seek to answer questions like "Are certain qualities of a company's slogan associated with that company's relative financial success?"

Our **independent variables** will include slogan characteristics that measure length, use of special characters like punctuation, the overall sentiment conveyed, whether it contains the company name, any possessive or relative pronouns, whether it rhymes, and how old the slogan is. Finally, we will also include the industry sector of each company as an independent variable so as to compare marketing effectiveness of different slogans only within a given sector, since every sector of the economy has its own unique structural characteristics and complexities that should be controlled for in this study.

Instead of measuring and comparing each company's overall financial strength or success, we will focus on specifically the financial effectiveness of each company's advertising campaign. This will be accomplished by using a metric called Advertising-to-Sales ratio or "A to S" for short as a **dependent variable**. A to S is calculated by dividing total advertising expenses by sales revenue. A low ratio indicates that the company's advertising campaign generated high sales relative to its advertising expense while a high ratio indicates that advertising expenses were high relative to the sales generated. The advertising-to-sales ratio is designed to show whether the resources a firm spends on an advertising campaign helped to generate new sales, and to what extent it generated those sales. Results can vary dramatically from industry to industry. So when calculating the figure, it is necessary to compare it to others within the same sector or industry. By using this metric, the focus is on the marketing effectiveness of each company, allowing the ability to attempt to explain that effectiveness by the slogan characteristics measured as the independent variables.

If statistically significant relationships between company success and certain slogan characteristics are found, it will be useful information for any company marketing team to apply the winning characteristics to their slogan writing. This is an opportunity to identify and explain the unique differences between slogans that appear to be effective in marketing a company's products and services, and those that don't.

Data Requirements

Data used for this project will be collected from 2 main sources. **(1)** From a list of Fortune 500 slogans from sloganlist.com that we will initially assume to be independent of each other. From that list, we will derive most of the project's independent variables. The next two sources will be used to calculate the advertising to sales ratio, our dependent variable. **(2)** The

advertising expenses will be researched by looking at the “marketing expense” or “advertising expense” in the income statement of each company and the sales revenue of the company will also be found on the company’s income statement. These are the two numbers required to calculate the advertising to sales ratio.

<i>Variable Name</i>	<i>Formula</i>	<i>Type</i>	<i>Dependent/ Independent</i>
CharacterCount	number of characters in a slogan (no punctuation)	Integer	Independent
WordCount	number of words in a slogan	Integer	Independent
UsePunctuation	True if punctuation (!?) is included in the slogan, False if not	Bool	Independent
SentimentScore	Use a machine learning library to obtain a score indicating the degree of positive/negative sentiment of the words in a slogan	Integer between -1 and +1	Independent
NameIncluded	True if the company slogan includes at least a part of the company’s name	Bool	Independent
PossessiveIncluded	True if the slogan includes a possessive determiner (i.e: my, your, etc.)	Bool	Independent
Sector	The company’s operation sector	Qualitative	Independent
RelativePronounIncluded	True if the slogan includes a relative pronoun (i.e: <u>How</u> it is done)	Bool	Independent
SloganAge	Data Year - Year of Creation of the Slogan	Integer	Independent
Rhymes	True if the slogan rhymes	Bool	Independent
A to S (ad-to-sales ratio)	As defined in the Problem & System Description	Ratio	Dependent

The project will start by exploring if a linear relationship between any of the derived slogan variables and the advertising to sales (A to S) ratio data exists, and will transform the response variables' data into categorical variables representing different ranges of values for use in a logistic regression in the event that no significant linear relationship is found.

Sources:

World's Most Admired companies:

<https://fortune.com/fortune500/2019/search/?worlds-most-admired-companies-y-n=true>

Slogan data: <https://www.sloganlist.com/Fortune500-Slogans-List/> or
<https://kopywritingcourse.com/company-slogans/>

Industry Data: <https://fortune.com/fortune500/2019/visualizations/> and
<https://data.world/aurielle/fortune-500-2017>

Fortune 500 Data:

<https://fortune.com/fortune500/2019/search/?worlds-most-admired-companies-y-n=true>

Sentiment Score: <https://textblob.readthedocs.io/en/dev/quickstart.html#sentiment-analysis>