

The Standards of Success: Tracking Market Capitalization in Companies

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Introduction

Financial metrics are crucial to determine what companies are doing well, what they are doing poorly, and how they should change. It is an ongoing problem of managers to focus on key metrics in order to track their company performance well and be able to focus on how to improve their bottom line.

This purpose of this study is to determine which financial metrics best track the performance of a company by evaluating various metrics which companies can use to track their performance measured against their market capitalization.

Literature Review

Berger and Di Patti (2006): The type of capital structure a company has can help fight against agency costs. More leverage is associated with more profit.

Margaritis and Psillaki (2010): They find the agency cost hypothesis to be supported, meaning a higher amount of leverage is positively associated with higher profits.

Chan, Lakonishok, and Sougiannis (2002): Companies with higher spending on research and development earn higher returns.

Research Question

What factors best track a company's market capitalization?

Hypothesis 1: A higher debt to equity ratio will be associated with an increase in market capitalization.

Hypothesis 2: An increase in the amount spent on research and development will be associated with an increase in market capitalization.

Variables

Variable	Definition
Market Capitalization (MktCap)	The total value of all of a company's shares of stock. It is found by multiplying the company unit share price by the number of outstanding shares.
Debt to Equity Ratio (DE)	Measures the amount of leverage a company holds.
Price to Earnings (PE)	A valuation metric measuring the relationship between a company's stock price and its earnings per share.
Quick Ratio (Quick)	Measures a company's ability to pay off its current liabilities with its quick assets.
R&D Expenditures (lnRDexp)	Natural log of the amount of money a company spends on research and development.
% Change in Earnings (EarnChg)	Percent change in a company's gross profit from the prior year.

Source: WRDS – CRSP, Compustat, & Financial Ratios Suite

Empirical Framework

Market capitalization is analyzed using an OLS regression for each year from 2006-2018. There are company and time fixed effects in this panel data model.

The key variable of this study is the debt to equity ratio which represents a company's capital structure.

OLS Equation:

$$\begin{aligned}
 &MktCap_{it} \\
 &= \beta_0 + \beta_1 DebtEquity_{it} \\
 &+ \beta_2 PriceEarnings_{it} \\
 &+ \beta_3 QuickRatio_{it} \\
 &+ \beta_4 \ln(RDexp)_{it} \\
 &+ \beta_5 EarnChange_{it} + \delta_i \\
 &+ \theta_t + \varepsilon_{it}
 \end{aligned}$$

List of Biotechnology Companies

Abbott Laboratories
Amgen Inc.
Bio-Rad Laboratories Inc.
Perkinelmer Inc.
Kewaunee Scientific Corp.
Thermo Fisher Scientific Inc.
Mettler-Toledo Intl Inc.
Agilent Technologies Inc.
Illumina Inc.
Bruker Corp.

Regression Results

Dependent Variable = MktCap	Regression 1	Regression with Lag
DebtEquity	0.00966** (0.00381)	0.00402 (0.00260)
PriceEarnings	5.36e-05 (3.87e-05)	3.94e-05 (3.41e-05)
QuickRatio	0.00379 (0.00280)	0.00258 (0.00236)
lnRDexp	0.0138*** (0.00386)	0.00823* (0.00442)
% Change in Earnings	0.00497 (0.00496)	0.00984 (0.00614)
MktCapL1		0.714*** (0.126)
Observations	130	120
Adjusted R-Squared	0.897	0.943
Root MSE	0.0110	0.0083
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		



Y=MktCap	Mean	Std. Dev	Min	Max
MktCap	0.025	0.034	0.000	0.127
DebtEquity	1.166	0.569	0.297	3.758
PriceEarn	35.64	41.28	-80.26	267.39
QuickRatio	1.981	1.015	0.698	5.239
lnRDexp	5.360	2.158	-0.274	8.477
EarnChg	0.119	0.241	-0.541	1.444

Conclusions & Further Research

Conclusion:

As a company increases the amount of leverage it holds, their market capitalization increases. Assuming a company wants to increase its market capitalization, it should increase the amount of leverage it holds.

Investing more in research and development is associated with an increase in the market capitalization. Companies should invest as much as they can in R&D.

Further Research:

Future studies can consider size as a control variable to assess how the size of a company influences company performance. Including a company ownership variable could be considered. This study can be applied to analyze various industries.