Value Creation vs. Value Appropriation

How should firms allocate their resources in an everchanging landscape?

Abstract Marketing strategy refers to an organization concentrating its finite resources in the optimal manner to achieve sustained competitive advantage, resulting in superior financial performance. Two processes, which combine and interact, are fundamental to achieving this outcome. One process concerns the creation of customer value (i.e. innovating and delivering products to the market) and the other concerns appropriating value in the marketplace (i.e. extracting profits). Both processes must be used in tandem to achieve the intended outcome of marketing strategy. However, due to a firm's limited resources, a firm faces the critical decision of which process it emphasizes over the other.

We define strategic emphasis as the relative emphasis a firm places on value appropriation relative to value creation and attempt to explore the effect of strategic emphasis on the product performance in the marketplace in which it is offered. Although previous studies have analyzed not only the strategic and tactical trade-offs firms make, but also the effects of strategic emphasis on financial performance **[1]**, we attempt to discover patterns with regards to the choice of strategic emphasis across firms in diverse business sectors and how managers should allocate their resources in various states of the market (i.e. growth, stagnation, recession). To capture the greatest degree of information in our results, we focus on firms in two business sectors with markedly different characteristics: Information Technology and Manufacturing, and attempt to provide both marketing and managerial insights to firms across the board by estimating and interpreting a carefully chosen model for the task.

Our first research goal is to analyze whether firms in different industries should focus on value creation or value appropriation by using sales as a performance metric.

A preliminary data analysis revealed (1) a significant change in sales and firm value during the 90s and early 2000s for the IT sector (Dot-com Bubble) (**[Graph 1]**,**[Graph 2]**), and (2) a significant change in firm value for the manufacturing sector in the early 2000s and 2008 (Global Financial Crisis) **[Graph 4]** . Thus, we formulate a second research goal of examining how managers should allocate their resources with regards to strategic emphasis in various states of the market.

With regards to our second research goal, studies on both Advertising Strategy and R&D Spending provide mixed opinions. Regarding advertising, some studies (Kijewski 1982 **[2]**) report that decreasing advertising during recessions does not affect profits, while others (Kamber 2002 **[3]**) report that increasing advertising (emphasis on value appropriation) in recessions also increases firm earnings. Regarding R&D, Graham and Grankenberger (2008) **[4]** report that increasing R&D spending (emphasis on value creation) during recessions causes an increase in profits.

Not only do the studies provide mixed opinions, but they also fail to address how Advertising Spending and R&D Spending should be used in tandem. Using Strategic Emphasis, we fuse Advertising and R&D into a single metric that could provide clarity on the topic.

Hypotheses:

We formulate the following hypotheses:

H_{1SE}: Given the highly competitive nature of the sectors, firms in both the IT Sector and Manufacturing Sector should focus on value creation.

H_{2MG}: In a recession, a firm should focus on value creation. In a Boom, a firm should focus on value appropriation.

Discussion:

Hypothesis 1: According to the HHI the Manufacturing Sector is more competitive than the IT Sector. Due to the highly competitive nature of both sectors, firms must innovate over their competitors to gain a sustained competitive advantage over time. We believe firms in the Manufacturing Sector should place an extreme emphasis on value creation and, although less extreme, so too should firms in the IT Sector.

Hypothesis 2: Given the highly competitive nature of the industries and the findings of Graham and Frankenberger (2008) **[4]** , we believe that an emphasis on value creation in recessions causes an increase in sales.

Variable Selection:

Our selected dependent variable is Sales and focal variable of interest is Strategic Emphasis. With regards to Strategic Emphasis, positive scores indicate a firm has stronger commitment to value appropriation and negative scores indicate stronger commitment to value creation. Strategic Emphasis is a constructed variable and was generated using the following formula:

$$SE = (Advertising\ Spending - R\&D\ Spending) \,/\, Total\ Assets$$

Selection of Strategic Emphasis as the Focal Variable of Interest:

The following reasoning provides an argument for the significance of Strategic Emphasis on Sales: Given that (1) Advertising Spending is significant on sales **[5]** and (2) R&D Spending is significant on sales in innovative and highly competitive markets, Strategic Emphasis, which is defined as the combination of the two, scaled by assets, is likely significant on Sales.

To enhance the validity of our research, we use the following control variables to limit the influence of other confounding and extraneous variables: Herfindahl-Hirschman Index (HHI), Leverage, Advertising Share of Voice (asov), Market Growth Rate (mgrowth), Total Assets (assets)

Note: The formulas used to derive the variables are in ***Appendix 1***

The selection of our control variables is based on both marketing and accounting literature. We use *Firm Total Assets* (proxy for Firm Size) to control for firm effects **[7]**, *Leverage*, because it should provide capital needed to grow sales, *Market Growth Rate* to control for industry effects **[8]**, *HHI* as we believe it will be positively correlated to sales, since firms in concentrated industries hold greater market power, *Advertising Share of Voice* as unlike advertising expenditure, it is not endogenous to firm sales as prior research suggests **[9]**.

Data Description:

The following tables provide descriptive statistics including the mean, median, minimum, maximum 25th percentile, 75th percentile, and standard deviation of our variables (Table 1) and correlation coefficients for the variables included in the model (Tables 2 & 3).

Table 1 Univariate Analysis

Variables	Mean	Median	Minimum	Maximum	25th Percentile	75th Percentile	St. Dev
IT Sector							
Sales	2943.686	134.861	0	181265	39.9045	486.2465	13857.39
Strategic Effect	-0.0979	-0.0658	-89.75	2.0890	-0.1323	-0.0128	1.2166
Advertising Share of Voice	0.0054	0.0002	0	0.6515	0	0.0012	0.0312
Leverage	0.0887	0.0025	0	2.851	0	0.1193	0.1715
Assets	5,689.043	196.542	0.004	551,669	59.2305	849.9665	28,533.27
Market Growth	0.0818	0.0644	-0.1284	0.4591	0.0199	0.1202	0.1241
HHI	0.1464	0.0937	0.0668	0.4636	0.0842	0.1153	0.1185
Manufacturing Sector							
Sales	3,378.936	202.5665	-1.632	276,644	40.551	1,295.086	13,564.88
Strategic Effect	-0.0463	-0.0276	-15.8436	3.3654	-0.0874	0.0016	0.1806
Advertising Share of Voice	0.0019	0	0	0.1472	0	0.0003	0.0088
Leverage	0.1443	0.0707	0	5.7529	0	0.2273	0.2081
Assets	4,337.548	206.9345	0.179	473,712	42.803	1,408.995	19,396.7
Market Growth	0.0403	0.0326	-0.1958	0.2535	-0.0176	0.0835	0.0961
HHI	0.0264	0.0274	0.0172	0.0322	0.0242	0.0285	0.0035

Univariate Analysis: Both IT and Manufacturing Sector:

Regarding Sales and Assets, while conducting preliminary analysis, the (1) high standard deviations of Sales and Assets and (2) significant difference between the Minimum and Maximum values suggests that these variables may have a highly skewed distribution with a strong presence of outliers.

Regarding Strategic Effect, Advertising Share of Voice and Leverage, the large ranges and unbalanced quartiles indicate a high degree of skewness and the presence of outliers. Further analysis reveals that these variables (including Sales and Assets) are indeed highly skewed with a strong presence of outliers (**[Graph 7]**, **[Graph 8], [Graph 9]**, **[Graph 10]**, **[Graph 11]**, **[Graph 12]**).

Bivariate Analysis: Both IT and Manufacturing Sector

Table 2: Correlation Matrix (Information Technology)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Sales (sales)	1.000						
(2) Strategic Emphasis (SE)	0.013	1.000					
(3) Advertising Share of Voice (asov)	0.599	0.013	1.000				
(4) Financial Leverage (Leverage)	0.092	0.019	0.053	1.000			
(5) Firm Total Assets (assets)	0.947	0.013	0.520	0.098	1.000		
(6) Herfindahl-Hirschman Index (HHI)	-0.046	-0.005	0.094	-0.026	-0.061	1.000	
(7) Market Growth Rate (mgrowth)	-0.037	-0.028	-0.007	-0.024	-0.038	0.058	1.000

Table 3: Correlation Matrix (Manufacturing)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Sales (sales)	1.000						
(2) Strategic Emphasis (SE)	0.048	1.000					
(3) Advertising Share of Voice (asov)	0.623	0.108	1.000				
(4) Financial Leverage (Leverage)	0.064	0.043	0.059	1.000			
(5) Firm Total Assets (assets)	0.943	0.035	0.584	0.070	1.000		
(6) Herfindahl-Hirschman Index (HHI)	0.036	0.015	0.023	0.035	0.033	1.000	
(7) Market Growth Rate (mgrowth)	-0.024	0.014	0.005	-0.059	-0.037	0.309	1.000

The correlation between the dependent and the independent variables is significant. The correlation between independent variables, although significant, does not indicate the presence of Multicollinearity.

Dependent Variable and Focal Variable Trends:

The mean of the IT Sector Sales Variable increases in the 90s due to the technological boom and has a stark drop in the 2000s due to the Dot-com bubble. After, the Sales of the IT industry follows an upward trend **[Graph 1]**. Strategic Emphasis for the IT Sector remains relatively stable at a value of -1, apart from the 2000s where it falls starkly due to the Dot-com bubble **[Graph 5]**.

The mean of the Manufacturing Sector Sales Variable follows an upward trend **[Graph 3]**. However, looking at firm value, we can see the Manufacturing Industry underwent an extreme recession during the 2008 Global Financial Crisis **[Graph 4]**. We can see a significant decrease in the Strategic Emphasis in the Manufacturing sector during 2008 due to the Global Financial Crisis **[Graph 6]**.

Model Development:

To empirically test the hypothesized role of Strategic Emphasis on Sales we estimate a single model on various sets of data. To normalize the distributions of Sales and Assets we use logarithmic transformations.

$$log(sales)_{it} = \beta_0 + \beta_1 SE_{it} + \beta_2 asov_{it} + \beta_3 Leverage_{it} + \beta_4 log(assets)_{it} + \beta_5 hhi_t + \beta_6 mgrowth_t + \beta_7 SE_{it} * mgrowth_t + \delta Year_t + \epsilon_{it}$$

Robustness Checks:

To check for the consistency of the result, we run the model on two sets of data: (1) Raw Data and (2) Data with outliers removed using Winsorization. Given the occurrences of strong outliers in our data, we Winsorize Sales, SE, ASOV, Assets and Leverage at both the 1% and 99% levels to reduce the impact of outliers.

Model Estimation and Interpretation:

Table 4: Regression Table

	Model (1) Raw Data IT	Model (2) Winsorized Data IT	Model (3) Raw Data Manufacturing	Model (4) Winsorized Data Manufacturing
Strategic Emphasis (SE)	-.479***	-.581***	-.148***	-.259***
	(.069)	(.101)	(.019)	(.065)
Advertising Share of Voice (asov)	2.095***	8.275***	5.751***	12.525***
	(.312)	(.889)	(1.204)	(1.582)
Leverage	.104**	-.012	.032	-.067**
	(.044)	(.051)	(.023)	(.026)
Log(assets)	.703***	.699***	.744***	.754***
	(.009)	(.009)	(.006)	(.006)
HHI (hhi)	-1.711***	-2.104***	45.214***	41.669***
	(.601)	(.579)	(4.214)	(4.109)
Market Growth rate (mgrowth)	1.882	2.323	-.679***	-.63***
	(1.541)	(1.486)	(.097)	(.095)
Strategic Emphasis * Market growth (c.SE#c.mgrowth)	-.218	-.425	.466*	.707**
	(.331)	(.381)	(.244)	(.289)
Constant	1.645***	1.734***	.242***	.272***
	(.148)	(.144)	(.092)	(.089)
Observations	4432	4432	13177	13187
R-squared	.76	.772	.732	.744
Year Dummies	Yes	Yes	Yes	Yes

Standard errors are in parentheses

*** $p<.01$, ** $p<.05$, * $p<.1$

Information Technology

As shown in Table 4 Model (1), R^2 reveals that the model explains the data relatively well. The model result suggests that Strategic Emphasis has an impact on Sales ($\beta_1 = -0.479,\ p < 0.01$). Moreover the negative sign implies that a shift towards value appropriation (increase SE) has a negative impact on sales while a shift towards value creation (decrease SE) has a positive impact on sales. Asov ($\beta_2 = 2.095,\ p < 0.01$), Leverage ($\beta_3 = 0.104,\ p < 0.05$), log_assets ($\beta_4 = 0.703,\ p < 0.01$) are all significant and have a positive impact on sales. This means that an increase in Advertising Share of Voice, Leverage and Firm Size (log_assets) corresponds to an increase in log_sales. HHI ($\beta_5 = -1.711,\ p < 0.01$) is significant and the negative sign implies that as the industry becomes more concentrated sales decrease. Market Growth Rate ($\beta_6 = 1.882,\ p < 0.3$) does not have a statistically significant impact on sales, however the positive sign suggests that as the market grows, sales increase which is consistent with the findings of **[6]**.

Manufacturing

As shown in Table 4 , Model (3) R^2 reveals that the model explains the data relatively well. The model result suggests that Strategic Emphasis has an impact on Sales ($\beta_1 = -0.148,\ p < 0.01$). Moreover the negative sign implies that a shift towards value

appropriation (increase SE) has a negative impact on sales while a shift towards value creation (decrease SE) has a positive impact on sales. Asov ($\beta_2 = 5.751,\ p < 0.01$) and log_assets ($\beta_4 = 0.744,\ p < 0.01$) are significant and have a positive impact on sales. This means that an increase in Advertising Share of Voice and Firm Size (log_assets) corresponds to an increase in log_sales, which is consistent with the literature **[5]**. Leverage ($\beta_3 = 0.032,\ p < 0.2$) is not significant. HHI ($\beta_5 = 45.214,\ p < 0.01$) is significant and the positive sign implies that as the industry becomes more concentrated sales increase. Market Growth Rate ($\beta_6 = -0.679,\ p < 0.01$) has a statically significant impact on sales. The negative sign suggests that as the market grows, sales decrease. A possible explanation for this phenomena is that a growing market may attract more competitors, which will drive individual firm sales down as suggested by the positive coefficient of HHI.

**The interaction terms for all models will be analyzed in the Interaction Effects section.*

Robustness Analysis:
Given the strong presence of outliers we decided to check the robustness of the results by conducting the same analysis on Winsorized data.

The results displayed in Table 4 Model(2) show consistency. One difference to note is Leverage is no longer significant, which is consistent with the findings of **[6]**.

The results displayed in Table 4 Model(4) show consistency. The only notable difference is leverage becomes significant at the 5% level. Moreover we can observe that Strategic Emphasis, Advertising Share of Voice and the Interaction Term have a significantly stronger impact on Sales.

Hausman Test:
The result of the Hausman test on both sectors and both datasets (Raw and Winsorized) report a P-value of 0, therefore we reject the null hypothesis and use the Fixed Effects Model. **[Appendix 2]**

Interaction Effects:

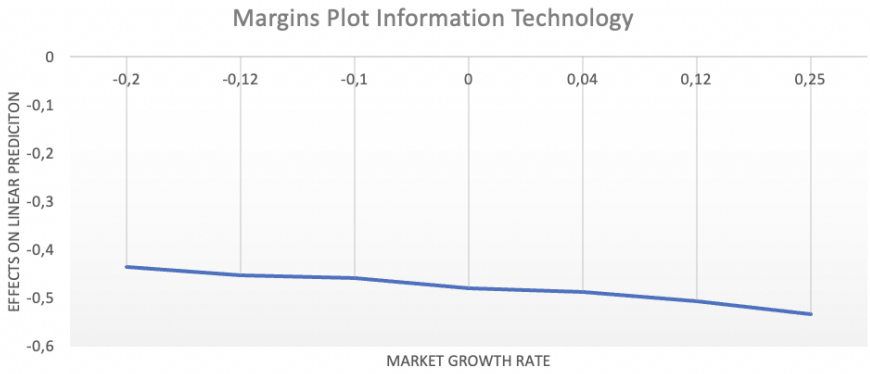
We decided to include the interaction effect as we believe it could provide guidance for managers in a changing environment. We wanted to develop a model that could answer the following question:

- Should Managers emphasise value creation or value appropriation during recession/growth/stagnation?

IT Sector:
The interaction term (SE*Market growth rate) ($\beta_7 = -0.218,\ p < 0.6$) is not significant, likely because the growth rate is not significant. However the negative sign suggests firms should

respond to an increase in growth rate with a shift towards value creation. On the contrary, managers should respond to a recession by increasing Value Appropriation which is consistent with the findings of Raji Srinivasan, Gary L. Lilien, & Shrihari Sridhar **[6]**.

These effects do not take into consideration the magnitude of the coefficient of Strategic Emphasis. When accounting for the coefficient of Strategic Emphasis, it appears that a strategy based on value appropriation yields a negative effect on sales regardless of market growth, as shown by the margins plot.

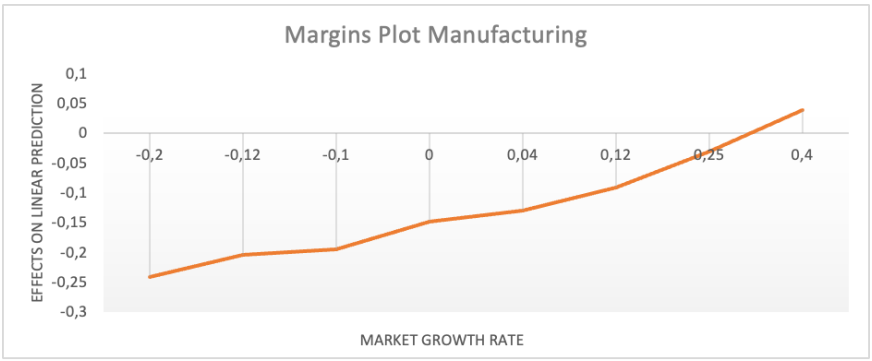


IT Sector Margins Plot Analysis:
The margin plot shows that:

- Pursuing a Value Appropriation Strategy (SE > 0) in a growing market (Market Growth Rate > 0) yields negative effects on sales with the negative effect growing as the magnitude of the growth rate increases.
- Pursuing a Value Appropriation Strategy (SE > 0) in a growing market (Market Growth Rate < 0) yields negative effects on sales with the negative effect decreasing as the magnitude of the growth rate decreases.

Manufacturing Sector:
The interaction term (SE*Market growth rate) ($\beta_7 = 0.466,\ p < 0.01$) is significant. The positive sign suggests that Managers should react to an increase in market growth with a shift towards value appropriation. On the contrary, managers should react to a market contraction with an emphasis on value creation, which is consistent with Graham and Frankenberg (2008) **[4]**.

These effects do not take into consideration the magnitude of the coefficient of Strategic Emphasis. When accounting for the coefficient of Strategic Emphasis, it appears that a strategy based on value appropriation in a growing market yields a positive effect on sales only when market growth reaches 30%.



Manufacturing Sector Margins Plot Analysis:
The margin plot shows that:

- Pursuing a Value Appropriation Strategy (SE > 0) with a growing market (Market Growth Rate > 0) yields a positive effect on Sales only when the growth rate is approximately 30%.
- Pursuing a Value Appropriation Strategy (SE > 0) with a receding market (Market Growth Rate < 0) will decrease sales.

Comparison Between IT and Manufacturing Sectors:
A comparison between the results in the different sectors highlight two important differences:

1) A change in the significance of the Interaction Term
2) A change in the sign of the coefficient

A possible explanation for (1) is that Market Growth is not significant in the IT sector. As a consequence, an interaction term describing how strategic emphasis changes with market growth will not be significant. A possible explanation for (2) is that these sectors are vastly different in the products/services offered. Therefore we believe that the difference in sign could be due to the intrinsic differences in the industries.

Evaluation of Hypothesis 1:
Strategic Emphasis has a negative coefficient in both models. This implies that firms in both sectors should emphasise value creation over value appropriation which is consistent with our first hypothesis.

Evaluation of Hypothesis 2:
For the IT Sector, the negative sign of the interaction effect is not consistent with our hypothesis. However, the variable in question is not significant. For the Manufacturing Sector, the positive sign of the interaction effect is consistent with our hypothesis. However, it's important to note the magnitude of the coefficient of Strategic Emphasis. Unless there are significant changes in the market growth rate (e.g. +30%), managers should not re-adjust their strategies based on market growth, and should always emphasize value creation.

Managerial Implications:

Given a stable market environment, we recommend managers in both the IT Sector and Manufacturing Sector emphasize value creation over value appropriation. This means focusing on innovation, production and the delivery of goods to the market.

Overall, managers in the IT Sector can disregard tailoring their strategy based on the condition of the market and should emphasize value creation.

Managers in the Manufacturing Sector should change their strategic emphasis based on the conditions of the market and consider the following guidelines:

- Market Growth → Emphasize value creation over value appropriation, unless there is a significant change in the market growth rate (e.g. +30%). Given a significant change, managers should emphasize value appropriation over value creation.
- Market recession → Emphasize value creation over value appropriation.

References:

[1] Trading off between Value Creation and Value Appropriation: The Financial Implications of Shifts in Strategic Emphasis

[2] Kijewsky, V. (1982), "*Media Advertising When Your Market Is in a Recession*", Cahners Advertising Research Report, Strategic Planning Institute

[3] Kamber, Thomas (2002), "*The brand manager's dilemma: Understanding how advertising expenditures affect sales growth during a recession*", *Journal of Brand Management,* 10(2), 106–120

[4] Graham, Roger and Kristina Frankenberg (2008), "*The Earnings Effects of Advertising Expenditures During Recessions" ,* New York: American Association of Advertising Agencies.

[5] Leigh McAlister, Raji Srinivasan, Niker Jindal, and Albert A. Cannella (2016), " Advertising Effectiveness: The Moderating Effect of Firm Strategy", Journal of Marketing Research Vol. LIII (April 2016), 207–224

[6] Raji Srinivasan, Gary L. Lilien, & Shrihari Sridhar (2011), "Should Firms Spend More on Research and Development and Advertising during Recessions?", Journal of Marketing VOl. 75 (May 2011), 49-65

[7] Panzar, John C. and Robert D. Willig (1977), "Economies of Scale in Multi-Output Production," Quarterly Journal of Economics, 91 (3), 481–93.

[8] McDougall, Patricia P., Jeffrey G. Covin, Richard B. Robinson, and Lanny Herron (1994), "The Effects of Industry Growth and Strategic Breadth on New Venture Performance and Strategy Content," Strategic Management Journal, 15 (7), 537–54.

[9] Bass, Frank M. (1969), "A New Product Growth for Model Con- sumer Durables," Management Science, 15 (5), 215–27.

Appendix 1: Formulas

Variable	Created/Given	Formula
Herfindahl-Hirschman Index (hhi)	Created	$HHI = \sum (s_1)^2 + (s_2)^2 + \cdots + (s_n)^2$
Leverage	Created	$Leverage = \frac{Debt}{Total\ Assets}$
Advertising Share of Voice (asov)	Created	$ASOV = \frac{Advertising\ Spending}{Total\ Advertising\ Spending\ in\ Industry}$
Market Growth Rate (mgrowth)	Created	$\text{mgrowth} = \log(tot.sales\ sector\ yr.t) - \log(tot.sales\ sector\ yr.t-1)$
Total Assets (assets)	Given	-

Total Assets is measured as firm total assets and we use it as a proxy for Firm Size.

Appendix 2: Hausman Tests

Hausman Test: IT (Raw Data)

	Coef.
Chi-square test value	287.023
P-value	0

Hausman Test: IT (Winsorized Data)

	Coef.
Chi-square test value	230.094
P-value	0

Hausman Test: Manufacturing (Raw Data)

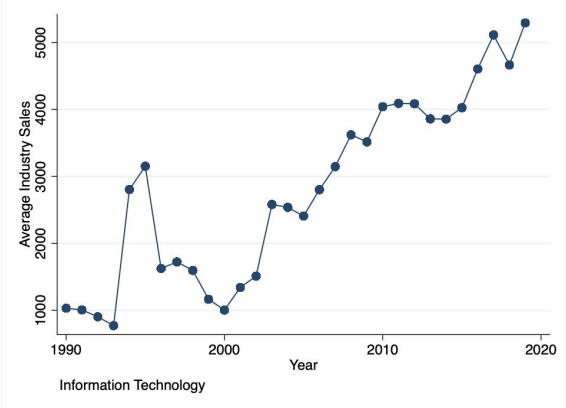
	Coef.
Chi-square test value	1063.775
P-value	0

Hausman Test: Manufacturing (Winsorized Data)

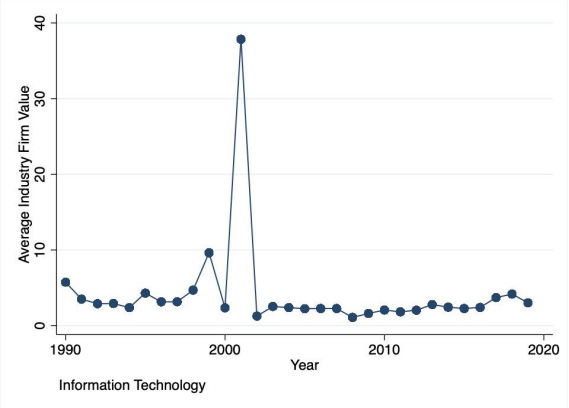
	Coef.
Chi-square test value	1127.535
P-value	0

Appendix 3: Graphs

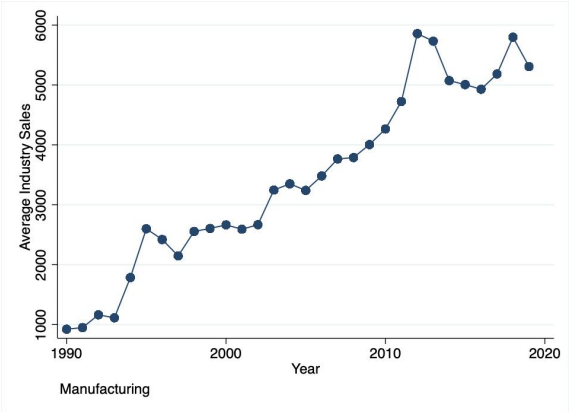
Graph 1: *Average Industry sales (IT)*



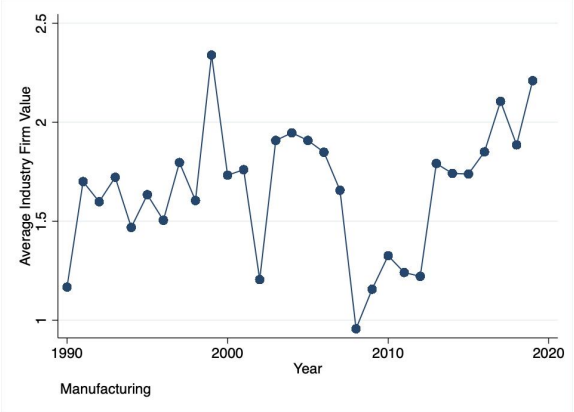
Graph 2: *Average Industry Firm value (IT)*



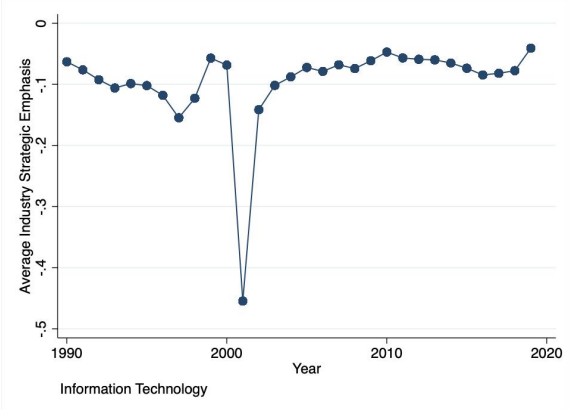
Graph 3: *Average Industry sales(Manufacturing)*



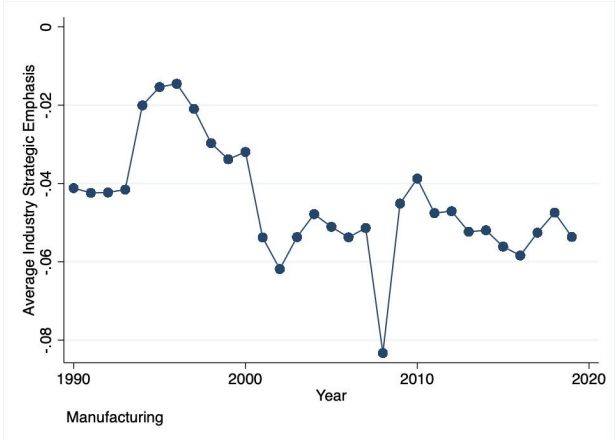
Graph 4: *Average Industry Firm value (Manufacturing)*



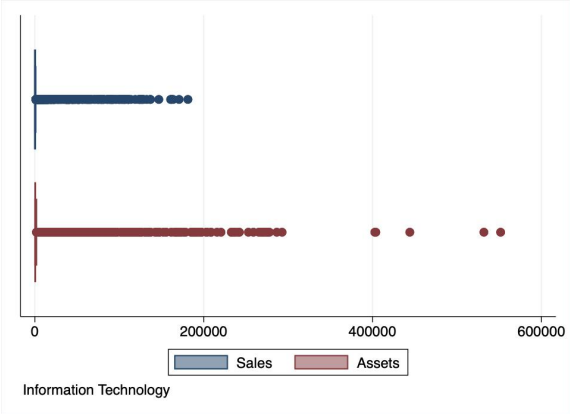
Graph 5: *Average Industry SE (IT)*



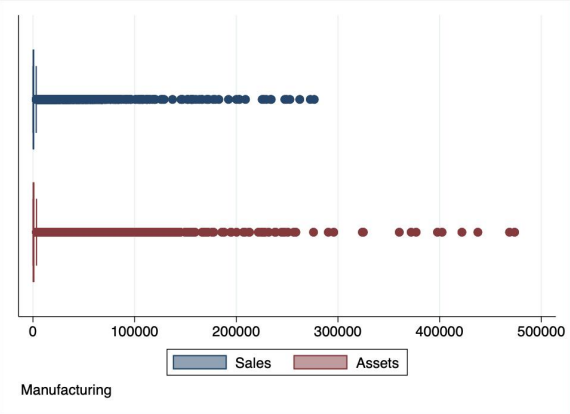
Graph 6: *Average Industry SE (Manufacturing)*



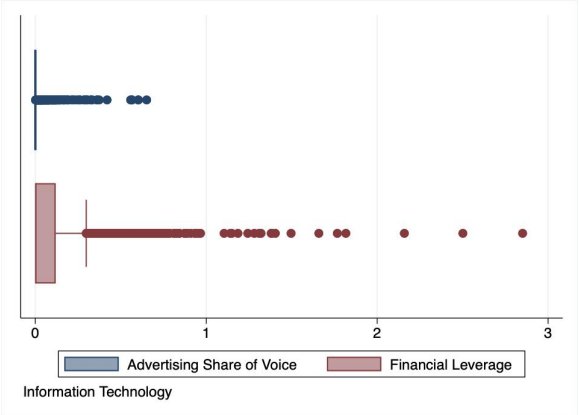
Graph 7: *Box Plot Sales and Assets (IT)*



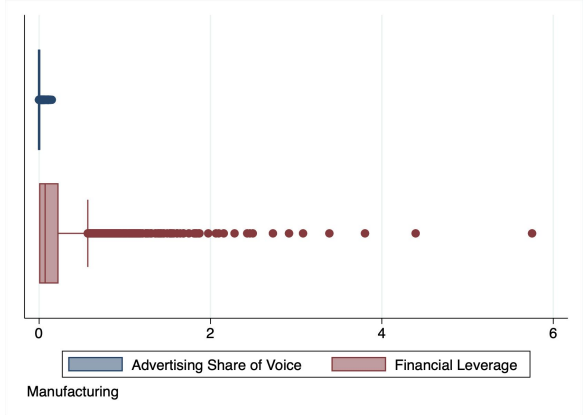
Graph 8: *Box Plot Sales and Asset (Manufacturing)*



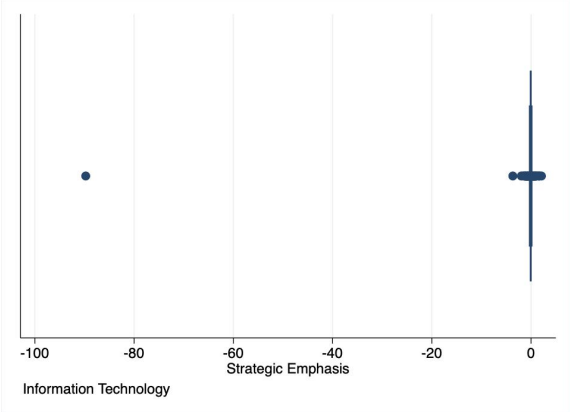
Graph 9: *Box Plot ASOV and Leverage (IT)*



Graph 10: *Box Plot ASOV and Leverage(Manufacturing)*



Graph 11: *Box Plot Strategic Emphasis (IT)*



Graph 12: *Box Plot Strategic Emphasis (Manufacturing)*