Investing in Customer Capital

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  - Common approach: R&D (knowledge) + 30% SG&A (organizational); (Eisfeldt and Papanikolaou 2013, Peters and Taylor 2017)
- This study: directly measure **investment in customer capital**; show that it is quantitatively large component of investment in intangible capital
  - **New data set** based on: (1) Sales and marketing expense from income statements (Capital IQ), (2) Salaries paid to workers in sales and marketing (Revelio), (3) Gemini for text describing sales and marketing from 10-Ks

Main Results

1. Show 5 basic facts with this new data set
2. Sales & marketing is an investment, not a variable cost or “overhead”
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- Bottom line: sales and marketing expense is an investment, it is large and growing, better measurement hopefully inspires more research!

Theory

Gourio and Rudanko 2014: Search frictions and customer capital

- Setup: (1) product market search frictions, (2) making a sale requires salesperson to meet with customer, (3) pricing involves discount up front, increasing price afterward, (4) standard physical investment problem
- Search frictions $\rightarrow$ firm extracts consumer surplus from existing customers
- Two key equations:

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$$v_n(k, n, z|u) = p - l_y + \beta(1 - \delta_n)E_z v_n(k', n', z'|u)$$

$$\kappa'(s) = \eta(\theta)\left(v_n(k, n, z|u) - \varepsilon\right)$$

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MV of new customer

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Markup ← Depreciation → Future markups

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Discount

Prob of match

MV of new customer

Sales and marketing expense is dynamic, forward-looking decision

- "Product market frictions turn the customer base into a form of intangible capital, which manifests itself in increased firm value, profits, and markups."
- Industry-level prediction: higher search frictions $\rightarrow$ **higher sales and marketing expense to revenue ratio** $\rightarrow$ higher Q, higher profits
- Other potential channels for customer capital:
  - Branding, loyalty (Bronnenberg, Dubé, and Gentzkow 2012, Larkin 2013)
  - Inelastic substitution across products (Dixit and Stiglitz 1977)
  - Limited attention or inertia (Della Vigna and Malmendier 2006)
  - Network effects in demand (Katz and Shapiro 1985, Rochet and Tirole 2003)

Data

Main Data Set

- Non-financial U.S.-based publicly traded firms in Compustat, 1997 to 2022
- Four main sources:
  1. **Capital IQ**: breaks down SG&A, can measure sales and marketing expense
  2. **Text from 10-K filings**: used to augment Capital IQ data, learn more about type of sales and marketing, and measure aspects of the business
  3. **Purchase price allocations**: detailed breakdown of market value of target's assets (including intangibles) during acquisition
  4. **Revelio**: alternative measure of sales and marketing expense for robustness

Text example: Kopin Corp, producer of microdisplays and optics, 2012 10-K

We believe that the technical nature of our products and markets demands a commitment to close relationships with our customers. Our sales and marketing staff, assisted by our technical staff and senior management, visit prospective and existing customers worldwide on a regular basis. We believe these contacts are vital to the development of a close, long-term working relationship with our customers, and in obtaining regular forecasts, market updates and information regarding technical and market trends. We also participate in industry specific trade shows and conferences.

Our design and engineering staff is actively involved with a customer during all phases of prototype design and production by providing engineering data, up-to-date product application notes, regular follow-up and technical assistance. In most cases, our technical staff works with each customer in the development stage to identify potential improvements to the design of the customer's product in parallel with the customer's effort.

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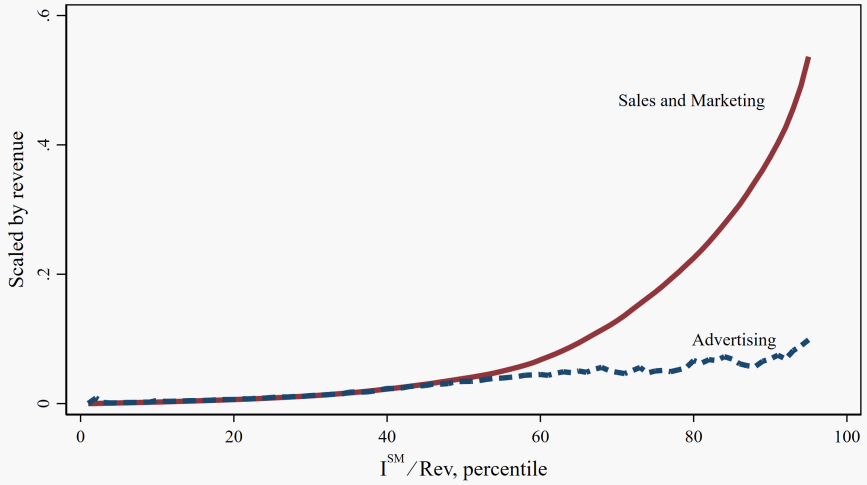
Investing in Customer Capital: Facts

Five main facts

1. Investing in customer capital is large and broad: 30% larger than R&D, similar size to capital expenditures
2. **More than advertising**: sales force, customer service, brand value, customer data
3. **Industry-level variation**: large, persistent, driven by “primitives”
4. Negatively related to capital expenditures, positively related to R&D
5. High customer capital industries **growing the most over time**

Fact 2: Sales and marketing is much bigger than advertising



Scatter

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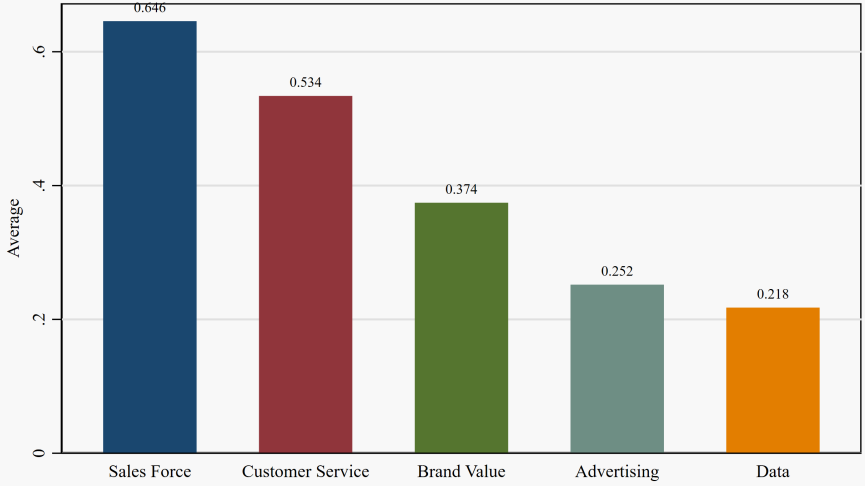
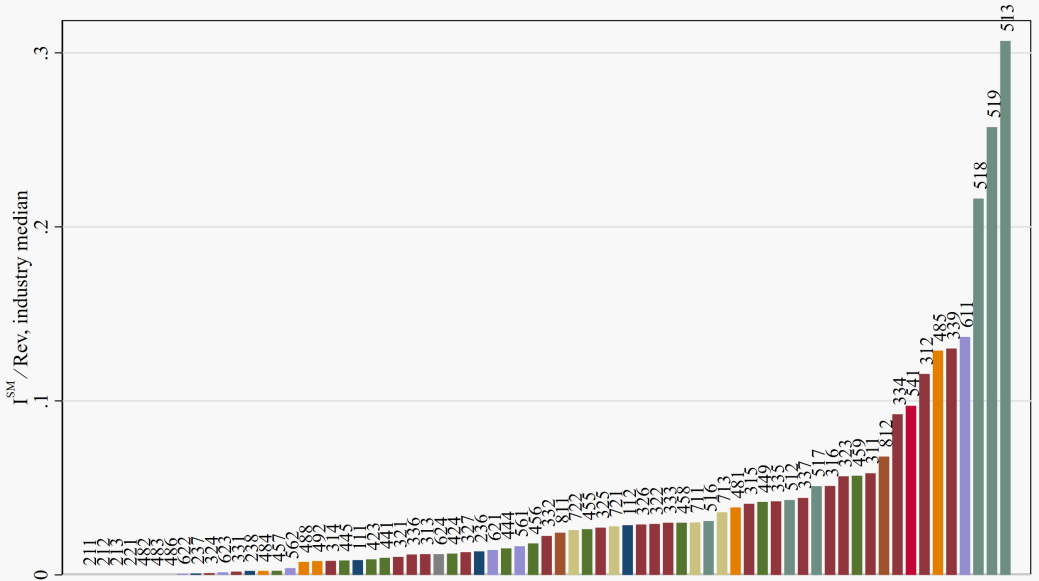
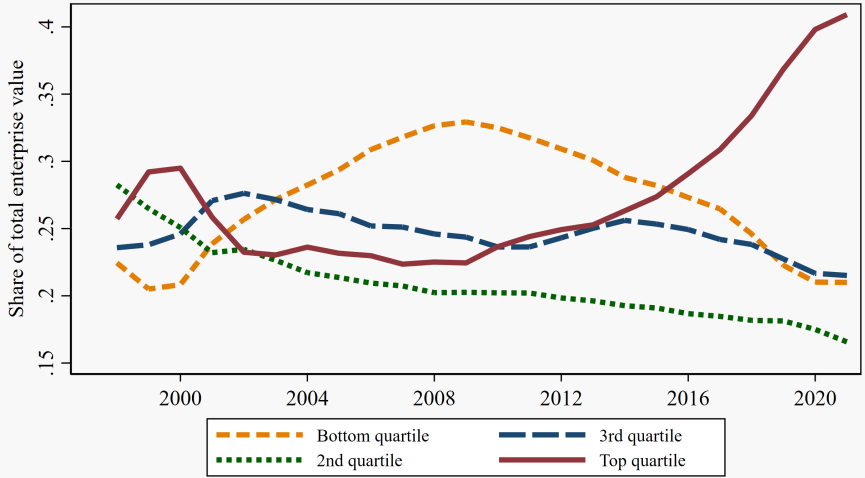


Fact 3: Large, persistent variation across industries in customer investment



Fact 5: Industries with high Customer Investment growing over time



Sales and marketing expense is an investment

Sales and marketing expense is an investment: four sets of evidence

1. **Evidence using $Q^{PH} = {}^{V}/_{K^{PH}}$ for publicly traded companies**
2. Evidence from value paid in acquisitions
3. Evidence from 10-K text using Gemini (see paper)
4. Evidence from the entrepreneurship literature (see paper)

Gourio and Rudanko test: Explaining Q^{PH} with I^{SM}/Rev

	Dependent variable: Q^{PH}, median				
	(1)	(2)	(3)	(4)	(5)
I^{SM}/Rev, median	29.09**		22.27**	21.28**	23.54**
	(4.10)		(4.11)	(4.17)	(4.17)
$(WL)^{SM}/Rev$, median		39.59**			
		(10.23)			
I^{RD}/Rev, median			14.34**	10.98**	14.44**
			(1.14)	(2.57)	(1.13)
$RSGA/Rev$, median				5.12*	
				(2.22)	
$COGS/Rev$, median					1.12
					(1.22)
Constant	1.62**	1.16**	1.64**	0.90**	0.82
	(0.21)	(0.35)	(0.19)	(0.26)	(0.90)
Observations	69	61	69	69	69
R^2	0.591	0.517	0.695	0.720	0.698

Alternative depreciation

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Specification motivated by Crouzet and Eberly 2023

- CE 2023 augment Hayashi (1982) with intangible capital and rents; key steady state equation is:

$$Q^{PH} - q^{PH} = \frac{\mu - 1}{r - g} R^{PH} + q^{IT} \frac{K^{IT}}{K^{PH}} + \frac{\mu - 1}{r - g} R^{IT} \frac{K^{IT}}{K^{PH}}$$

- Logic: Measured Q^{PH} may overstate marginal q^{PH} because of (1) rents on physical capital, (2) intangible capital, and (3) rents on intangible capital

Motivates Industry-level Regression

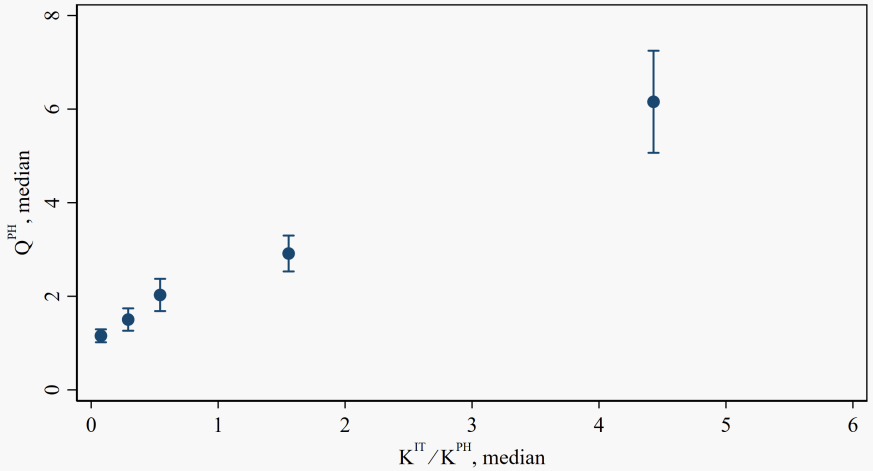
- Re-arranging terms yields:

$$Q^{PH} = \left(q^{IT} + \frac{\mu - 1}{r - g} R^{IT} \right) \frac{K^{IT}}{K^{PH}} + q^{PH} + \frac{\mu - 1}{r - g} R^{PH}$$

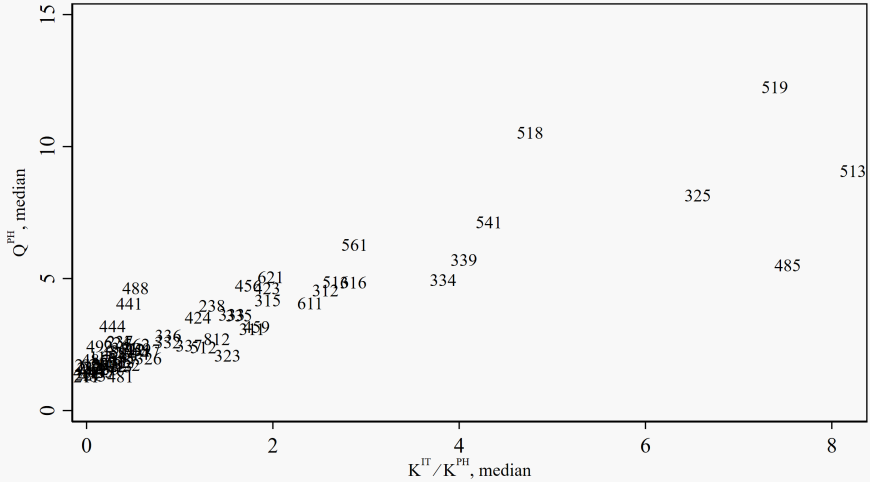
- which can then be used to motivate an across-industry regression specification:

$$Q_j^{PH} = \alpha + \beta \left(\frac{K^{IT}}{K^{PH}} \right)_j + \varepsilon_j$$

Explaining V/K^{PH}, or Q^{PH}



Explaining Q^{PH}



Explaining Q^{PH} with K^{IT}/K^{PH}

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K^{IT}/K^{PH}, median	1.04**	0.99**		1.05**
	(0.15)	(0.17)		(0.09)
Placebo K^{IT}/K^{PH}, median		0.11		
		(0.06)		
Rev g forecast, median			29.99*	-6.18
			(13.27)	(10.21)
β^A, Damodaran			0.76	0.38
			(0.79)	(0.38)
Firm age, median			-2.07	-1.65**
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Constant	1.32**	1.20**	0.70	2.02**
	(0.14)	(0.11)	(1.34)	(0.68)
Observations	69	69	69	69
R^2	0.797	0.802	0.343	0.813

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Explaining Value Paid for Intangible Assets in Acquisitions

	V^{IT}/Rev, median		V^{IT}_{cust}/Rev, median		V^{IT}_{other}/Rev, median	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Industry level						
I^{SM}/Rev, median	3.031*	2.803*	3.519**	3.365**	-0.489	-0.562
	(1.381)	(1.306)	(1.230)	(1.178)	(0.388)	(0.358)
I^{RD}/Rev, median	3.987**	3.214**	-0.285	-0.809	4.272**	4.022**
	(1.082)	(1.083)	(0.856)	(0.973)	(0.313)	(0.315)
$RSGA/Rev$, median		1.186		0.803		0.382
		(0.660)		(0.573)		(0.267)
Constant	0.283**	0.112	0.160**	0.044	0.123**	0.068
	(0.053)	(0.097)	(0.036)	(0.075)	(0.031)	(0.053)
Observations	68	68	68	68	68	68
R^2	0.426	0.449	0.278	0.299	0.569	0.576

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	(1.381)	(1.306)	(1.230)	(1.178)	(0.388)	(0.358)
I^{RD}/Rev, median	3.987**	3.214**	-0.285	-0.809	4.272**	4.022**
	(1.082)	(1.083)	(0.856)	(0.973)	(0.313)	(0.315)
$RSGA/Rev$, median		1.186		0.803		0.382
		(0.660)		(0.573)		(0.267)
Constant	0.283**	0.112	0.160**	0.044	0.123**	0.068
	(0.053)	(0.097)	(0.036)	(0.075)	(0.031)	(0.053)
Observations	68	68	68	68	68	68
R^2	0.426	0.449	0.278	0.299	0.569	0.576

Explaining Value Paid for Intangible Assets in Acquisitions

	V^{IT}/Rev, median		V^{IT}_{cust}/Rev, median		V^{IT}_{other}/Rev, median	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Industry level						
I^{SM}/Rev, median	3.031*	2.803*	3.519**	3.365**	-0.489	-0.562
	(1.381)	(1.306)	(1.230)	(1.178)	(0.388)	(0.358)
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Panel A. Industry level						
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Observations	68	68	68	68	68	68
R^2	0.426	0.449	0.278	0.299	0.569	0.576

Explaining industry-level variation

Primitives: based on theory and reading through 10-K filings

- **Primary customers are households**: Household demand may be more elastic with respect to demand-shifting inputs such as advertising and branding
- **Products are sold online**: Ability to target consumers online is a major advancement in marketing technology; when products are sold online, firms have a larger impact on consumer demand through sales and marketing efforts
- **A platform business model**: Due to network effects in demand, industries in which the value of the product sold depends on having a large number of providers and buyers of goods have a strong incentive to aggressively pursue customers on both sides of the market
- **High-tech industries**: A number of firms in high-tech industries explicitly note that the technical nature of their products requires a highly skilled sales force to help acquire and maintain customers

Explaining Variation in I^{SM}/Rev Across Industries

	Dependent variable: I^{SM}/Rev, median						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Households	-0.013				-0.001		-0.003
	(0.020)				(0.021)		(0.020)
Online		0.134**			0.052*		0.059*
		(0.036)			(0.023)		(0.022)
Platform			0.305**		0.171**		0.149*
			(0.048)		(0.042)		(0.061)
$(WL)^{EG}/Rev$, median				0.647**	0.374		0.352
				(0.239)	(0.233)		(0.239)
Rev g forecast, median						0.931**	0.161
						(0.335)	(0.155)
β^{A}, Damodaran						0.006	-0.005
						(0.024)	(0.020)
Firm age, median						0.001	0.012
						(0.030)	(0.024)
Constant	0.045**	-0.009	0.006	0.005	-0.017	-0.033	-0.027
	(0.014)	(0.009)	(0.005)	(0.009)	(0.013)	(0.039)	(0.030)
Observations	69	69	69	69	69	69	69
R^2	0.005	0.319	0.549	0.400	0.661	0.297	0.665

Explaining Variation in I^{SM}/Rev Across Industries

	Dependent variable: I^{SM}/Rev, median						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Households	-0.013				-0.001		-0.003
	(0.020)				(0.021)		(0.020)
Online		0.134**			0.052*		0.059*
		(0.036)			(0.023)		(0.022)
Platform			0.305**		0.171**		0.149*
			(0.048)		(0.042)		(0.061)
$(WL)^{EG}/Rev$, median				0.647**	0.374		0.352
				(0.239)	(0.233)		(0.239)
Rev g forecast, median						0.931**	0.161
						(0.335)	(0.155)
β^{A}, Damodaran						0.006	-0.005
						(0.024)	(0.020)
Firm age, median						0.001	0.012
						(0.030)	(0.024)
Constant	0.045**	-0.009	0.006	0.005	-0.017	-0.033	-0.027
	(0.014)	(0.009)	(0.005)	(0.009)	(0.013)	(0.039)	(0.030)
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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
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	(0.020)				(0.021)		(0.020)
Online		0.134**			0.052*		0.059*
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				(0.239)	(0.233)		(0.239)
Rev g forecast, median						0.931**	0.161
						(0.335)	(0.155)
β^{A}, Damodaran						0.006	-0.005
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						(0.030)	(0.024)
Constant	0.045**	-0.009	0.006	0.005	-0.017	-0.033	-0.027
	(0.014)	(0.009)	(0.005)	(0.009)	(0.013)	(0.039)	(0.030)
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Future Directions

Future directions

- Is there a rise in investment in customer capital over time? If so, why? And what are the broader implications?
- How does investment in customer capital affect within-industry competition? Business dynamism, market power, market concentration?
- What are finance implications? Is such investment riskier? Easier to finance such investment with debt, equity, or a combination? Venture capital?
- What are the normative implications of customer capital investment? Is society better off?

Additional Material

Fact 1: Customer capital investment is large and broad

	N	Wgt Avg	p10	p25	Median	p75	p90
Panel A							
Sales and Marketing expense to revenue (I^{SM}/Rev)	68,909	0.042	0.000	0.005	0.039	0.183	0.420
R&D expense to revenue (I^{RD}/Rev)	81,499	0.033	0.000	0.000	0.024	0.161	0.685
Capital expenditure to revenue (I^{CX}/Rev)	107,011	0.066	0.005	0.015	0.034	0.083	0.253
Residual SGA to revenue ($^{RSGA}/_{Rev}$)	67,482	0.136	0.055	0.104	0.194	0.363	1.249
Panel B. All investment variables available							
Sales and Marketing expense to revenue (I^{SM}/Rev)	54,187	0.043	0.000	0.006	0.045	0.211	0.454
R&D expense to revenue (I^{RD}/Rev)	54,187	0.036	0.000	0.000	0.029	0.178	0.711
Capital expenditure to revenue (I^{CX}/Rev)	54,187	0.056	0.005	0.014	0.032	0.072	0.201
Residual SGA to revenue ($^{RSGA}/_{Rev}$)	54,187	0.134	0.057	0.106	0.194	0.368	1.333

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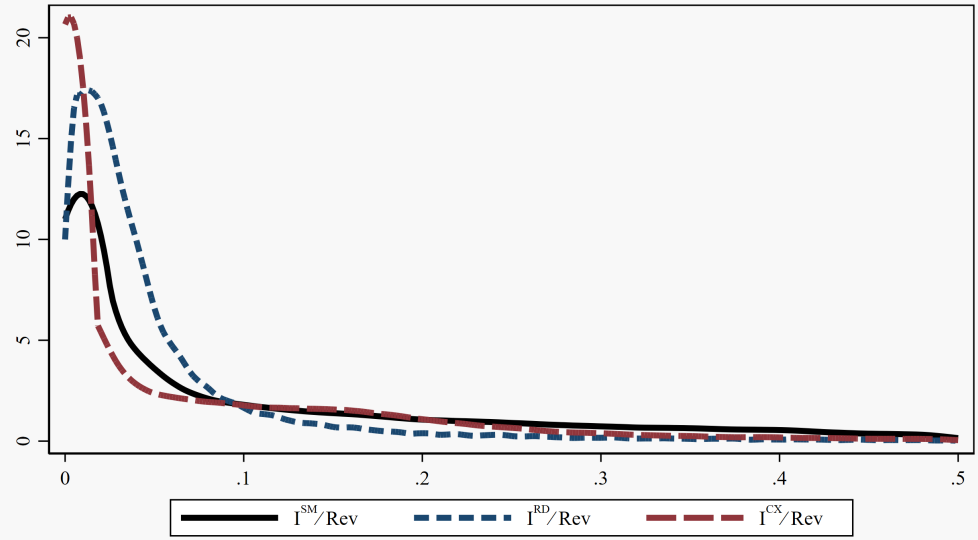
Fact 1: Customer Capital Investment is Large and Broad



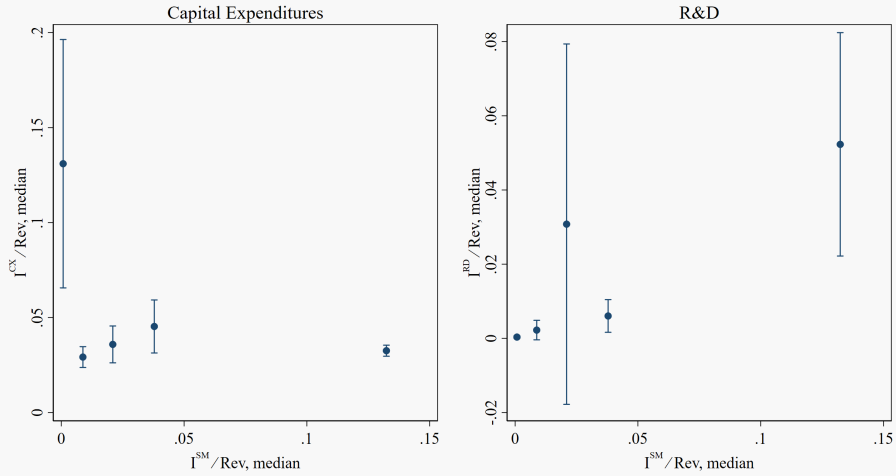
Fact 1: Customer capital investment is large and broad

	N	Wgt Avg	p10	p25	Median	p75	p90
Panel D. Components of total capital							
Physical capital (K^{PH}/K)	68,607	0.578	0.062	0.133	0.341	0.732	0.948
Intangible capital (K^{IT}/K)	68,607	0.422	0.052	0.268	0.659	0.867	0.938
Capitalized Sales and Marketing expense (K^{SM}/K)	68,607	0.154	0.000	0.027	0.180	0.480	0.686
Capitalized R&D expense (K^{RD}/K)	68,607	0.062	0.000	0.000	0.018	0.202	0.463
Externally acquired intangible capital (K^{EI}/K)	68,607	0.206	0.000	0.000	0.053	0.234	0.488

Fact 1: Customer capital investment is large and broad

	N	Wgt Avg	p10	p25	Median	p75	p90
Panel D. Components of total capital							
Physical capital (K^{PH}/K)	68,607	0.578	0.062	0.133	0.341	0.732	0.948
Intangible capital (K^{IT}/K)	68,607	0.422	0.052	0.268	0.659	0.867	0.938
Capitalized Sales and Marketing expense (K^{SM}/K)	68,607	0.154	0.000	0.027	0.180	0.480	0.686
Capitalized R&D expense (K^{RD}/K)	68,607	0.062	0.000	0.000	0.018	0.202	0.463
Externally acquired intangible capital (K^{EI}/K)	68,607	0.206	0.000	0.000	0.053	0.234	0.488

Fact 4: Negative correlation with CapEx, positive with R&D



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Additional Summary Statistics

	N	Wgt Avg	p10	p25	Median	p75	p90
Panel A. Scaled by capital variables							
I^{SM}/K	60,451	0.034	0.000	0.005	0.037	0.099	0.170
I^{RD}/K	54,668	0.025	0.000	0.000	0.019	0.080	0.158
I^{CX}/K	67,992	0.053	0.003	0.010	0.027	0.058	0.111
Q^{PH}	67,806	5.112	0.648	1.193	3.222	9.882	29.854
Panel B. All investment variables available							
I^{SM}/K	48,119	0.035	0.000	0.007	0.040	0.102	0.170
I^{RD}/K	48,119	0.024	0.000	0.000	0.021	0.081	0.156
I^{CX}/K	48,119	0.052	0.003	0.009	0.024	0.052	0.099
Q^{PH}	47,845	5.430	0.679	1.378	3.764	11.102	32.684

Additional Summary Statistics for Industry Level Covariates

	N	Average	Median	SD
Households	69	0.432	0.394	0.323
Online	69	0.356	0.314	0.245
Platform	69	0.110	0.053	0.141
$(WL)^{EG}/Rev$	69	0.052	0.032	0.057

Explaining Variation in Q^{PH} across Industries, Depreciation Robustness

	Dependent variable: Q^{PH}, median			
	(1)	(2)	(3)	(4)
$K^{IT}/K^{PH}, \delta^{SM} = .15$	1.06**		1.08**	
	(0.14)		(0.10)	
$K^{IT}/K^{PH}, \delta^{SM} = .30$		1.27**		1.29**
		(0.17)		(0.12)
Rev g forecast, median			-5.81	-5.58
			(9.65)	(9.97)
Firm age, median			-1.46*	-1.31*
			(0.59)	(0.61)
Constant	1.32**	1.38**	2.27**	2.25*
	(0.13)	(0.13)	(0.83)	(0.86)
Observations	69	69	69	69
R^2	0.812	0.804	0.823	0.813

Tab Q.A Tab Q.B

Explaining Value Paid for Intangible Assets in Acquisitions, continued

	V^{IT}/Rev		V^{IT}_{cust}/Rev		V^{IT}_{other}/Rev	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B. Target level						
I^{SM}/Rev	1.030*	1.050*	1.229**	1.326**	-0.222	-0.307
	(0.495)	(0.513)	(0.360)	(0.367)	(0.467)	(0.527)
I^{RD}/Rev	5.131**	5.075**	0.322	0.058	4.773**	5.006**
	(0.343)	(0.377)	(0.232)	(0.386)	(0.307)	(0.468)
$RSGA/Rev$		0.141		0.675		-0.594
		(0.461)		(0.402)		(0.667)
Constant	0.445**	0.425*	0.226**	0.133*	0.197	0.279
	(0.144)	(0.174)	(0.051)	(0.052)	(0.101)	(0.175)
Observations	607	607	607	607	607	607
R^2	0.251	0.252	0.0613	0.0792	0.288	0.290

Returns to Scale and Investment in Customer Capital

	Dependent variable: I^{SM}/Rev, median					
	(1)	(2)	(3)	(4)	(5)	(6)
RTS_{PC}	-0.267			-0.233		
	(0.283)			(0.148)		
RTS_{IC}		0.038			-0.001	
		(0.074)			(0.040)	
RTS_{L}			0.221			-1.098
			(1.372)			(0.624)
Constant	0.302	0.000	-0.176	0.271	0.044	1.161
	(0.280)	(0.079)	(1.388)	(0.146)	(0.042)	(0.635)
Observations	49	47	24	44	43	22
R^2	0.028	0.013	0.001	0.050	0.000	0.044

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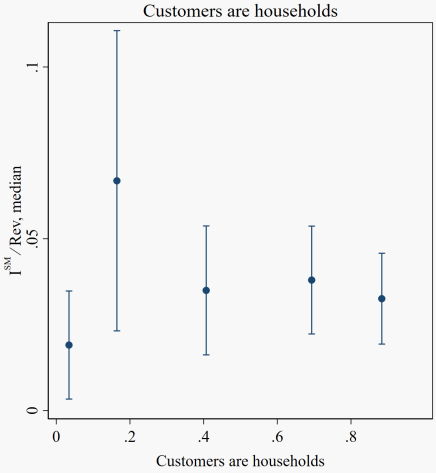
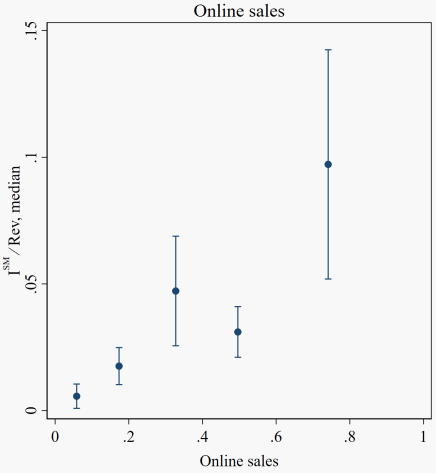
Explaining I^{SM}/Rev





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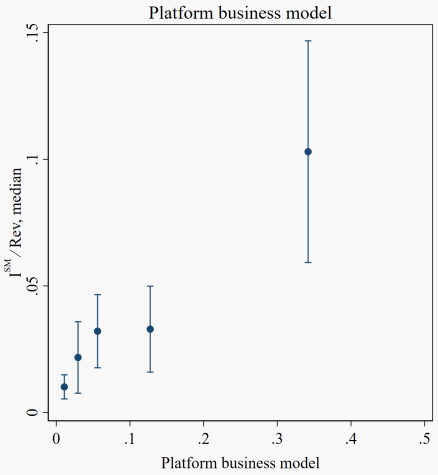
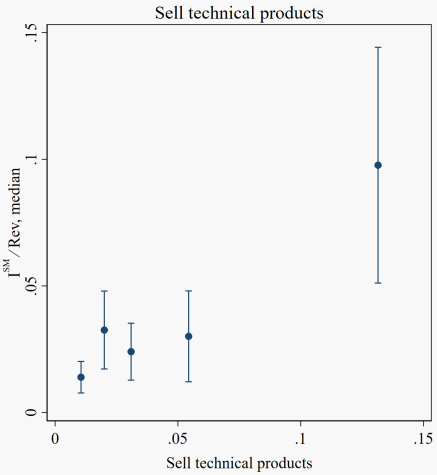
Explaining I^{SM}/Rev





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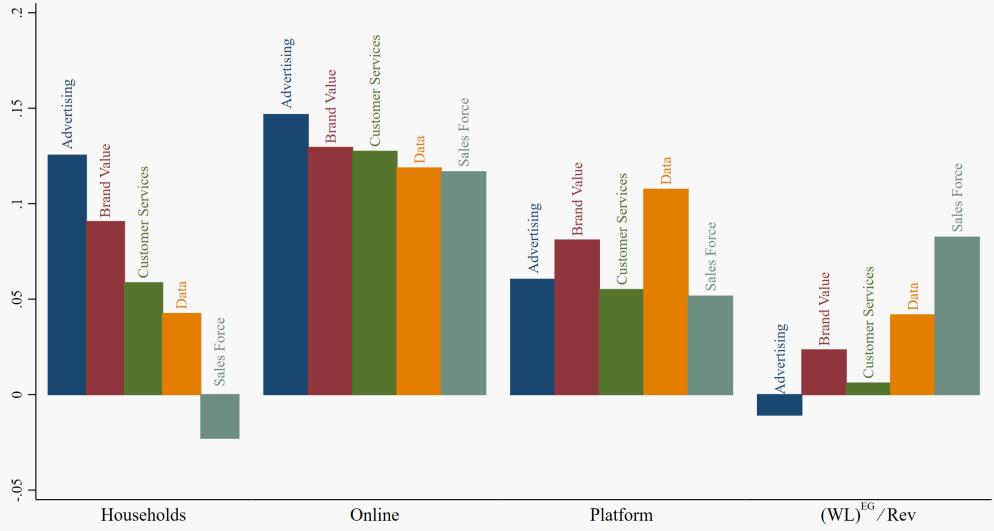
Examples of Companies with Platform Business Models

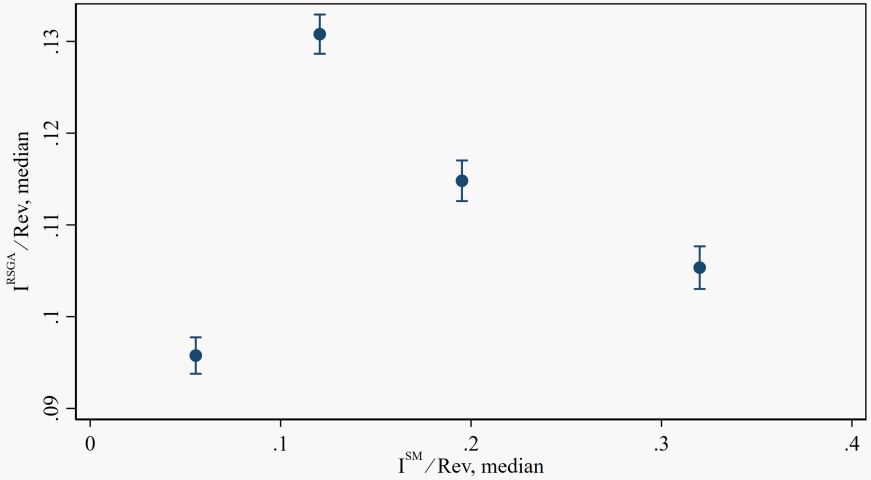
	I^{SM}/Rev	NAICS
AMAZON COM INC	0.082	459
ALPHABET INC.	0.094	518
WALGREENS BOOTS ALLIANCE, INC.	0.006	456
META PLATFORMS, INC.	0.125	519
UBER TECHNOLOGIES, INC	0.149	485
SALESFORCE, INC.	0.431	513
PAYPAL HOLDINGS, INC.	0.082	518
COUPANG, INC.	0.029	455
BLOCK, INC.	0.117	518
LIVE NATION ENTERTAINMENT, INC.	0.002	711
CARVANA CO.	0.053	441
EXPEDIA GROUP, INC.	0.523	561
EBAY INC	0.218	518

	I^{SM}/Rev	NAICS
AIRBNB, INC.	0.180	721
ACTIVISION BLIZZARD, INC.	0.162	513
SERVICENOW, INC.	0.388	513
DOORDASH, INC.	0.256	519
PETCO HEALTH & WELLNESS COMPANY, INC.	0.034	459
PALO ALTO NETWORKS INC	0.391	518
ENDEAVOR GROUP HOLDINGS, INC.	0.061	711
IAC INC.	0.365	519
SNAP INC	0.236	519
ZOOM VIDEO COMMUNICATIONS, INC.	0.386	519
LYFT, INC.	0.129	485
ADVANTAGE SOLUTIONS INC.	0.000	541

Explaining Sales and Marketing Strategies



Investment in Sales and Marketing and Residual SG&A



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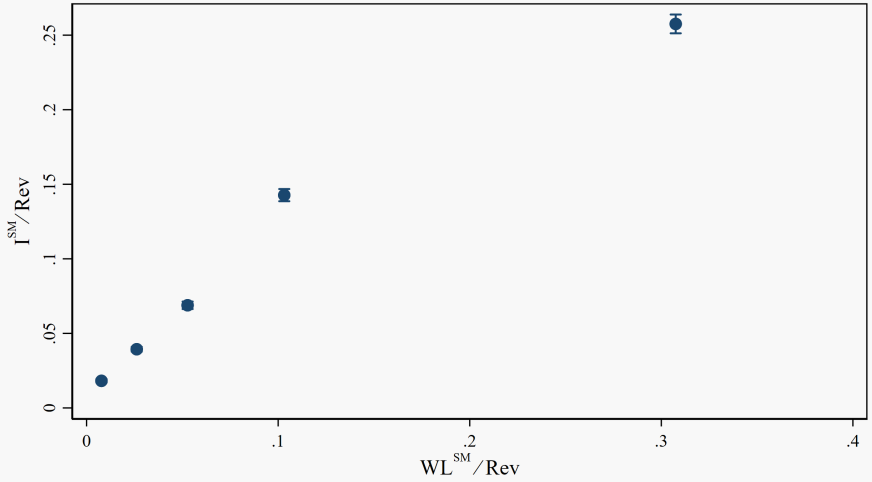
Sales and Marketing Investment and Salaries



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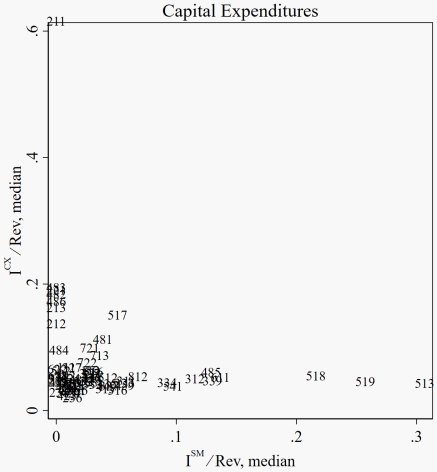
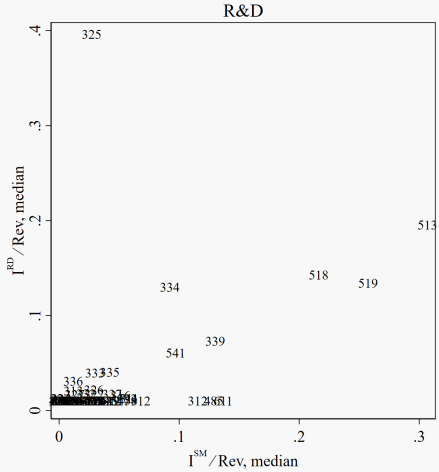
Comparison of I^{SM}/Rev with Capital Expenditures and R&D





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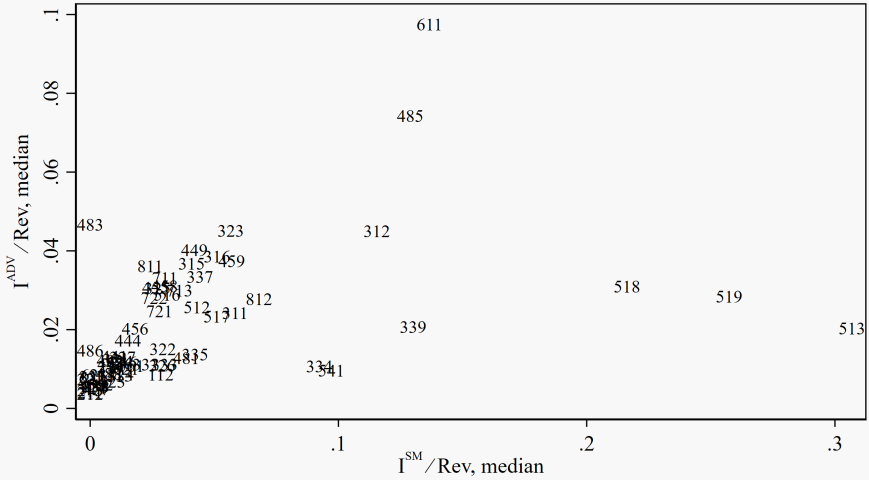
Sales and Marketing and Advertising at the industry level



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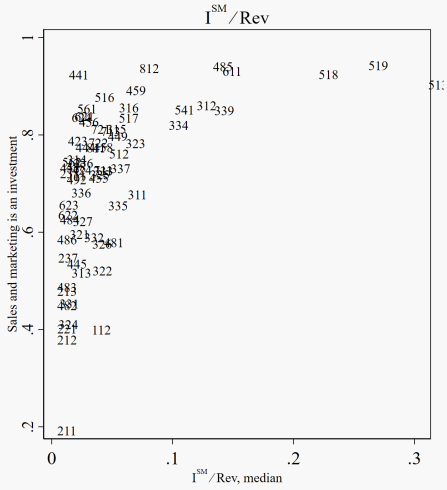
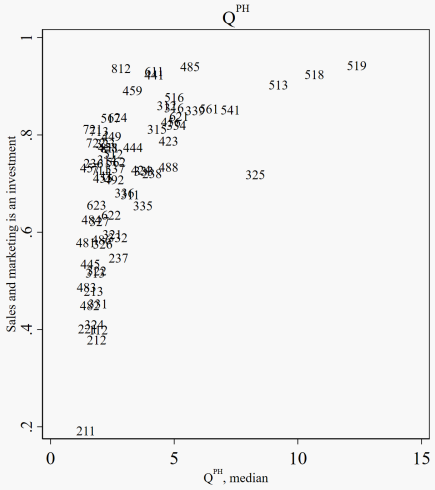
Is Sales and Marketing an Investment or Cost?





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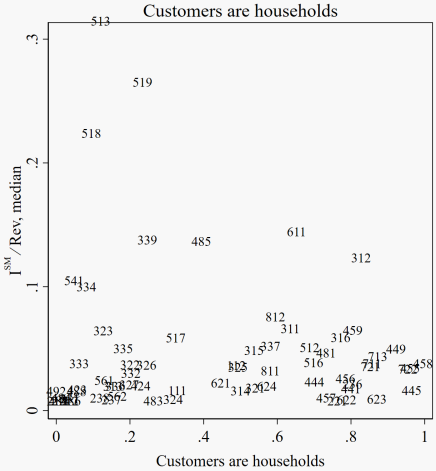
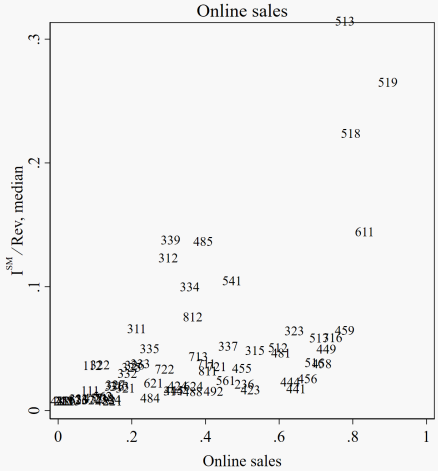
Explaining I^{SM}/Rev





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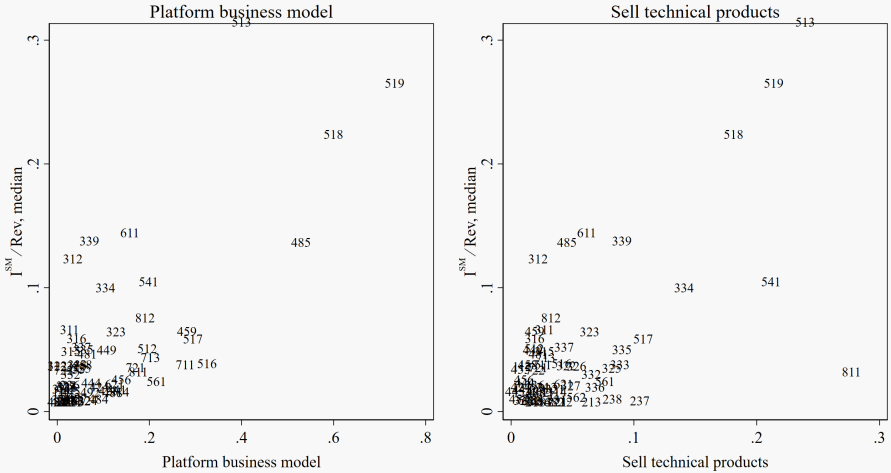
Explaining I^{SM}/Rev



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Gemini Description of Sales and Marketing Expense

The “Sales and Marketing Expense” line item on a U.S. publicly traded firm’s income statement is a broad category encompassing a variety of costs aimed at generating sales and building customer relationships. While the specific breakdown isn’t mandated to be hyper-detailed in the financial statements themselves (following GAAP, Generally Accepted Accounting Principles), a thorough understanding requires looking beyond the single line item. SEC filings (like 10-Ks) often provide more granular detail in the footnotes or management discussion and analysis (MD&A).

Here’s a comprehensive breakdown of the types of spending that typically fall under Sales and Marketing Expense, categorized for clarity:

Advertising & Promotion
Sales Force Compensation & Operations
Market Research & Analysis
Customer Relationship Management (CRM)
Other Potential Items (depending on the nature of the business)

It’s crucial to examine the footnotes to the financial statements for a more comprehensive understanding of how a specific company categorizes and reports its sales and marketing expenses. This provides a level of detail not usually visible in the main income statement.

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The RealReal, Inc (online luxury goods retailer), 2019 10-K

A strong network effect drives the growth of our online marketplace. As we bring more consignors onto our platform, we unlock more high-quality, luxury supply, which increases our merchandise assortment and attracts more buyers. This, in turn, increases sales velocity and commissions for our consignors. In addition, a meaningful share of our consignors become buyers and vice versa, which creates a differentiated flywheel that enhances the network effect of our online marketplace.

Our sales and service organization, as of December 31, 2019, included more than 240 luxury managers serving more than 40 major metropolitan markets in the United States and is responsible for obtaining exclusive supply for our online marketplace. Our sales professionals generate a robust pipeline of new consignors and build lasting relationships, which cannot be easily replicated. They consult on the consignment process and leverage data to advise consignors on pricing, expected selling time and market trends.

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Sales and Marketing

Students

Our direct to consumer marketing strategy focuses on **brand and performance marketing. Brand marketing increases awareness of the Chegg brand and its services while performance marketing drives traffic to our site.** We use several major direct marketing channels to reach students. The strength of our content flywheel drives significant organic traffic to Chegg. Our lifecycle marketing focuses on increasing activation, engagement and retention. **We utilize three types of email marketing campaigns**: onboarding programs to drive activation and retention, personalized cross-sell campaigns to deepen engagement, and promotional campaigns to drive sales and interests.

Brands

We secure contracts with brands through direct sales by our **field sales organization**, which sells brand advertising services to large brand advertisers seeking to reach and engage college and high school students. This team has field sales people and marketing support.

Student Advocacy

We are committed to **providing a high level of customer service** to our students and to fulfilling our brand promise of putting students first. We trust our students, understand the critical role our products and services have in their learning journey, and strive to resolve all problems quickly and thoroughly. Our student advocacy team can be reached directly through phone, email, and online chat during business hours. We also proactively monitor social media to identify and solve problems before we are otherwise informed of their existence. We endeavor to respond to students' concerns within five minutes.

Atmel Corp., a semiconductor manufacturer, 2012 10-K

In addition, new product introductions frequently depend on our development and implementation of new process technologies, and our future growth will depend in part upon the successful development and market acceptance of these process technologies. Our integrated solution products require more technically sophisticated sales and marketing personnel to market these products successfully to customers. We are developing new products with smaller feature sizes and increased functionality, the fabrication of which will be substantially more complex than fabrication of our current products.

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Gottschalks, Inc., department stores, 2001 10-K

The Company's marketing strategy is based on a multi-media approach, using newspapers, television, radio, direct mail and catalogs to highlight seasonal promotions, selected brand-name merchandise and frequent storewide sales events. Advertising efforts are focused on communicating branded merchandise offered by the Company, and the high levels of quality, value and customer service available in the Company's stores. In its efforts to improve the effectiveness of its advertising expenditures, the Company uses data captured through its proprietary credit card to develop segmented advertising and promotional events targeted at specific customers who have established purchasing patterns for certain brands, departments or store locations.

The Company's sales promotion strategy also focuses on special events such as fashion shows, bridal shows and wardrobing seminars in its stores and in the communities in which they are located to convey fashion trends to its customers. The Company receives reimbursement for certain of its promotional activities from some of its vendors.

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Gemini Prompts (See Appendix for all Prompts)

- "We are economists conducting research on the spending done by firms on sales and marketing. Your task is to read the following document and determine the extent to which the firm spends resources on marketing, advertising, product promotion, branding, customer service, sales force, and other closely related activities. Based on your reading of the document, please use your best judgement to classify the extent of their spending on such activities into one of three categories: minimal, moderate, or substantial. Please limit your answer to one word from the following three: minimal, moderate, or substantial. Here is the document:"
- "We are economists conducting research on the spending done by firms on sales and marketing. Your task is to read the following document and determine the specific factors that the firm spends resources on in their sales and marketing strategy. Based on your reading of the document, please use your best judgement to answer the following question: Is an emphasis on obtaining and using customer data an important element in the firm's sales and marketing strategy? Please provide an answer that is only a single word, either yes or no. Here is the document:"
- "We are economists conducting research on the spending done by firms on sales and marketing. Your task is to read the following document and determine the specific factors that the firm spends resources on in their sales and marketing strategy. Based on your reading of the document, please use your best judgement to answer the following question: Is an emphasis on customer service an important element in the firm's sales and marketing strategy? Please provide an answer that is only a single word, either yes or no. Here is the document:"
- "We are economists conducting research on the underlying business models used by firms. One business model involves building a platform on which individuals or other entities interact. A platform business model involves profiting from a platform that allows two or more groups of users to interact. Your task is to read the following document and answer the following question: Is such a platform part of the business model of the firm? Please provide an answer that is only a single word, either yes or no. Here is the document:"

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Ask Gemini: Is sales and marketing an investment or cost?

- "Firms frequently describe some of their operations as 'sales and marketing'. We are economists trying to determine whether firms conduct sales and marketing activities as a cost of doing business, where they have to spend on sales and marketing to make each sale, or as an investment in long-lived customer relationships that prove valuable to the company over time. Please read the following document and tell us whether the firm describes its sales and marketing expenses as costs of making each sale or as an investment in building and maintaining a customer base, which retains some of its value over time like a type of asset. Please provide an answer that is only a single word, either 'cost' or 'investment'. Here is the document:"

- Mean across full sample: Gemini says "investment" for 78% of firm-year observations

Gemini reasoning behind investment answer (1)

- Consolidated Communications Holdings Inc, a communications services company, 2014 10-K
- “Investment. Consolidated Communications explicitly states that their sales and marketing activities aim to increase customer loyalty and retention (page 10). **The company also highlights their efforts to “increase revenue per customer” through service bundles and value-added services (page 17), indicating a focus on building long-term relationships rather than simply covering the cost of each individual sale.** The description of their marketing strategy as a key component of their overall business strategy further supports the interpretation of sales and marketing as an investment in customer relationships.”

Gemini reasoning behind investment answer (2)

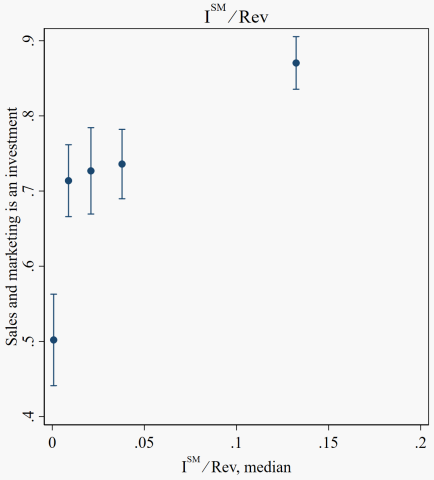
- Dean Foods Company, a food and beverage company focused on dairy products, 2019 10-K
- "Investment. Dean Foods describes their sales and marketing as integral to their long-term strategy. The company states their strategy is "to invest and grow our portfolio of brands while strengthening our operations and capabilities to achieve a more profitable core business" (Item 1. Business, Current Business Strategy). **This explicitly frames sales and marketing not as a per-unit cost, but as an investment in brand building and growth, implying a long-term return on these expenditures.** Further, the description of their sales force operating on a local and regional basis, with some national accounts managed centrally, suggests a focus on building and maintaining customer relationships rather than simply making individual sales."

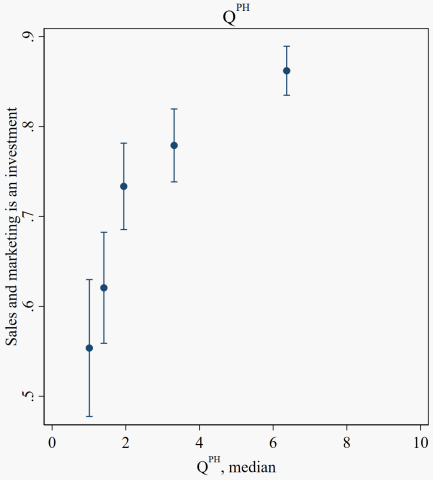
Gemini reasoning behind cost answer

- HKN, Inc, an energy-based company that owns oil and gas assets in the Gulf Coast region, 2010 10-K

- "Cost. The provided 10-K filing focuses heavily on the firm's oil and gas operations, describing sales and marketing activities implicitly rather than explicitly. The document details production costs, revenue generation tied directly to production volume and commodity prices, and expenses related to maintaining and improving existing assets (e.g., upgrades to Main Pass 35). There is no mention of marketing campaigns, advertising, customer relationship management systems, or other activities typically associated with building long-term customer relationships. The emphasis is entirely on the cost of extraction and sale of oil and gas, with revenue directly tied to production. Therefore, sales and marketing are treated as a cost of doing business, inextricably linked to the immediate act of production and sale."

Is sales and marketing an investment or cost?





Scatter

Evidence from entrepreneurship literature: LTV to CAC ratio

- Customer acquisition cost (CAC): include both variable and new fixed costs to acquire a new customer. Use sales and marketing expense per customer and then subtract the part of the sales and marketing expense that is directed toward existing customers. This is the “investment cost” per new customer.
- Lifetime value of the customer (LTV): the present value of the future marginal profits per customer per year. The marginal profits are what we would call future markups
- The LTV to CAC ratio is just NPV; “good” firms have an LTV to CAC ratio above 3 (average instead of marginal)

Proponents of this framework clearly think CAC is investment

- David Skok: “SaaS businesses face significant losses in the early years (and often an associated cash flow problem). This is because **they have to invest heavily upfront to acquire the customer, but recover the profits from that investment over a long period of time.** The faster the business decides to grow, the worse the losses become. Many investors/board members have a problem understanding this, and want to hit the brakes at precisely the moment when they should be hitting the accelerator.”

- Updata Partners: “rCAC is the multiple of acquisition cost provided by a customer’s lifetime gross profit (rCAC = LTV/tCAC). rCAC provides a churn-adjusted view of unit economics by combining GMPP [Gross Margin Payback Period] with expected customer lifetime. **In conventional terms, this is the ROI [Return on Investment] on the spend to acquire a customer, perhaps the most important thing to know when analyzing a business model.**”

General Catalyst: Customer base is an asset for lending

- "GC created the Customer Value strategy to solve the issue of how to fund S&M/CAC [sales and marketing/customer acquisition cost] … **We did this by treating S&M/CAC as though it's an asset**. With this strategy, GC pre-funds a company's S&M budget. In return, GC is entitled only to the customer value created by that spend, and GC's entitlement is capped at a fixed amount. After GC reaches that fixed amount, the remaining lifetime value of the customers is the company's to keep forever."

Example of financing for investment in customer acquisition

Dated as of June 28, 2023

LEMONADE, INC.,
as Company

and

GC CUSTOMER VALUE ARRANGER, LLC,
as Arranger, on behalf of the Investors

CUSTOMER INVESTMENT AGREEMENT

CUSTOMER INVESTMENT AGREEMENT

This CUSTOMER INVESTMENT AGREEMENT (this "**Agreement**") is entered into as of June 28, 2023 (the "**Effective Date**"), by and between Lemonade, Inc., a Delaware public benefit corporation (together with its affiliates, successors and assigns, "**Company**") and GC CUSTOMER VALUE ARRANGER, LLC, a Delaware limited liability company, as arranger (in such capacity, together with its successors and assigns in such capacity, the "**Arranger**"), on behalf of certain funds and accounts specified as "Investors" in acceptance herewith (the "**Investors**").

RECITALS

Company has requested, and Arranger has agreed, that Arranger shall facilitate funding to Company pursuant to the terms of this Agreement and as further set forth in each Investment Request, to fund the acquisition of Reference Cohorts during a given Growth Period through advertising, marketing, or other related expenses designed to attract new Customers.