# How Do CEOs Make Strategy?

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### Motivation

- Large literature documenting effects of CEOs in private and public sector organizations
  - Fixed effects (Bertrand and Schoar, 2003, Fee et al, 2016, Janke et al, 2019)
- Growing evidence on CEO traits and behavior
  - Psychological traits (Kaplan et al, 2016, Malmendier and Tate, 2014)
  - Behavior (Bandiera et al, 2018)
- But evidence on differences in *decision making*—critical CEO skill—still scarce
  - Even less so on *organizational*" decisions

### **This Paper**

- Focused on "strategic decisions"
  - Key managerial task, decisions often irreversible and with important repercussions for performance
  - Strategy core to business education programs
- Design and roll out a new survey instrument to describe in a comparable way different approaches to strategic decision making process across large samples of managers
  - Idea generation, selection and implementation
  - Large sample of HBS alumni
- Three results
  - Large differences in decision making approaches
  - Correlated with firm level outcomes
  - MBA training as a source of variations

## **Related Literature**

- Role of strategy
  - Van den Steen (2017): Direction
  - Dessein et al (2016): Importance of focus
- Cognitive hierarchy model and strategic ability
  - All firms engage in some level of strategic behavior, but some firms "fall short" of playing the Nash equilibrium
  - Goldfarb and Xiao (2010): entry decisions
  - Hortacsu et al (2019): oligopoly pricing setting
- Measurement
  - Bloom and Van Reenen (2007) approach expanded to new domain of firm activities

#### Outline

- Survey
- Firm Outcomes
- Drivers
- Conclusions and Next Steps

# Survey Methodology: Overview

#### 1) Developing strategy questions

 Scorecard for 15 strategy practices questions ≈ 60 minute phone interview of CEOs

#### 2) Getting CEOs to participate in the interview

- Population of HBS alumni, currently CEOs of manufacturing companies in the US or Canada
- Introduced as research interview, no financials
- Recruitment via email, followed by phone (30% response rate)

#### 3) Obtaining unbiased comparable responses, "Double-blind"

- Interviewers do not know the company's performance
- CEOs are not informed (in advance) they are scored

#### Sample Characteristics (N=262)



# Developing a Strategy Survey

- No existing "best practice" in strategy decision making
- Iterative design to determine relevant and surveyable areas of interest
  - Literature review
  - Focus group with friendly CEOs
  - Pilot
- Converged on three main phases of strategy decision making:
  - Formalization
  - Development
  - Implementation

# **Type of Strategic Decisions**

#### **Appendix 1: Types of Strategic Changes**

M&A: merger or acquisition Geographic expansion New technology (including IT) Large capital expenditure New product or business line New business process Organizational restructuring Focusing business (divestiture) Outsourcing Cooperation with other firms (e.g. joint venture, alliance etc) Moving service in-house (in-sourcing, vertical integration) Re-orientation of priorities (market/business lines) Supply chain re-orientation Change in distribution channels Hiring IPO Significant change in funding sources Other

Note: Types of strategic changes are not mutually exclusive, and all types of changes relevant to a particular decision, as described by an interviewee, were selected. For example, if a decision to enter a new product market required both vertical integration into new manufacturing processes and expenditure on new manufacturing equipment, we would categorize the strategic decision as involving (1) New product or business line, (2) Large capital expenditure, and (3) Moving service in-house.

# **Survey Content**

Strategy Formalization

How deliberate and distinct are firms' strategies?

Strategy Development

How do CEOs come up with strategic ideas and how do they choose among alternatives?

- Van Den Steen, 2016; Collis and Ruckstad, 2008
- Porter, 1996

- Simon, 1947
- Ocasio, 1997
- Lafley, Martin, Siggelkow and Rivkin, 2012; Zenger, 2013

Strategy Implementation

How are strategies executed and how do CEOs learn from strategy outcomes?

- Drucker, 1967
- Lafley, Martin, Siggelkow and Rivkin, 2012; Zenger, 2013

## Aggregating the Scores







"The task of administration is so to design this environment that the individual will approach as close as practicable to rationality." Simon, 1949

How A/B Testing Can DriveBusiness Decisions

Google Linked in facebook

amazon.com



Forbes Communications Council CommunityVoice (i)

Microsoft

# **Scoring Principles**

Answers get a higher score if they show signs of:

#### Consistency

- Practices are formalized
- Actions are rules-based

#### Proactivity

- Forward-looking
- Recognition of potential risks

#### Evidence-base

- Hypothesis-driven learning
- Seek out data in targeted way

#### **Strategy Formalization**

Strategy Statement: What is your company's strategy?

2 Strategy scope and advantage: What is your most important choice of "where to compete" in terms of products, geography or customers?

B Mode of Competing: If I asked your customers, how your company differs from the competition, either in the products/services you offer or in the way you provide them, what would they say?

# What would you say is your most important choice of "where to compete"?



#### **Scoring Formalization Practices**

#### Strategy Formalization

Strate	egy Formalization	1	3	5
1	Strategy Statement: What is your company's strategy?	Respondent is unable to summarize	There is an informal statement, covering scope and possibly goals.	A formalized, concise statement exists, that summarizes: goals, scope and (competitive) advantage.
2	Strategy scope and advantage: What is your most important choice of "where to compete" in terms of products, geography or customers?	No priorities are set, regarding scope.	There are clear priorities, but reasons for these priorities are vague.	Clear priorities are related to internal advantage and external market opportunities.
3	<b>Mode of Competing:</b> If I asked your customers, how your company differs from the competition, either in the products/services you offer or in the way you provide them, what would they say?	The company is neither different in terms of products, nor in terms of business process or price, relative to the competition.	The company is different, in terms of products, processes or prices, relative to the competition. But information that ensures uniqueness is mostly informal (e.g. customer feedback).	The company is unique either in terms of in terms of products, processes or prices, relative to the competition. Data on customer feedback, and competitors is utilized to track how unique the company is.

#### Strategy Development

Proactivity and External focus: How do you typically first come to consider changes to strategy?

Strategy selection-relevant information: What type of information do you use to select a strategic change rather than its alternatives?

Strategy Development frequency: How often do strategy development meetings take place? And why? Are there recurring themes across strategy development meetings?



 Long before performance effects, look for subtle environmental shifts

#### **Scoring Development Practices**

#### Strategy Development 1 3 5 We go with our gut to decide Change strategy before imminent Proactively seek opportunities based on Proactivity and External subtle shifts, using a broad range of Δ whether change is needed. performance changes. Qualitative focus: How do you typically and quantitative info from internal guantitative and gualitative information on first come to consider current and future external conditions to and external sources used, but no changes to strategy? details are mentioned. determine the need for change. Regular information updates combine internal and external sources. To decide on a strategic To select among alternatives, we To select among alternatives, we use a Strategy selection-5 change, we don't use any use quantitative information on broad range of quantitative and qualitative relevant information: information beyond our own external conditions. But no details information on current and future external What type of information do intuition. are provided. When we lack data, conditions. Regular information updates you use to select a strategic we make our best guess. combine internal and external sources. change rather than its When we lack data, we articulate ``what alternatives? would have to be true" for an alternative to be optimal. We do not have regular Most strategic decisions are made in Strategy development is embedded in Development— Strategy 6 meetinas dedicated annual strategy exercises (strategy regular formal and informal meetings, as to frequency: How often do strategy development. retreats, annual planning cycle of strategy and implementation go together. strategy development functional staff). Budgeting and Strategy discussions take priority. meetings take place? And compensation questions dominate. why? Are there recurring themes across strategy development meetings? We do not have regular Recurring meeting structure is Recurring meeting structure is dominated Strategy Development dedicated meetings to dominated by presentations. by discussions, with detailed advance involvement: How are strategy development. Process is led by functional staff preparation. CEO and operating strategy development (strategy, finance..) managers jointly lead the process. meetings prepared? What is the typical structure? Who participates? What is the role of the different participants?

### **Strategy Implementation**

Implementation planning: When you make a strategic decision, which implementation details are clear and what remains to be figured out?

Strategy review and follow-ups: How do you review the progress of a strategic change?

2 Learning from strategy outcomes: How would you typically know whether a strategic change has succeeded or failed? What happens if a strategic change does not meet your expectations, either positively or negatively? How would you typically know whether a strategic change has succeeded or failed?



#### **Scoring Implementation Practices**

#### **Strategy Implementation**

Strate	gy implementation	1	3	5
10	Implementation planning: When you make a strategic decision, which implementation details are clear and what remains to be figured out?	Steps to implement a strategy are typically not articulated at the time of the decision.	The most important steps for implementation are clearly defined for directly involved department heads Department targets reflect these steps. But no details on performance targets or incentives are clear.	Detailed steps and intermediate targets for all directly and indirectly involved departments and individuals are defined. Performance and compensation were tied to the completion of these steps at the individual and team level.
11	<b>Strategy review and</b> <b>follow-ups:</b> How do you review the progress of a strategic change?	No or irregular review.	Reviews discuss successes/failures and follow-up goals are usually stated. But either discussion minutes or follow-ups do not regularly exist.	Strategy review discussions discuss successes/failures, risks/opportunities and review of initial assumptions. Minutes document discussion and follow up plans with clear goals.
12	Learning from strategy outcomes: How would you typically know whether a strategic change has succeeded or failed? What happens if a strategic change does not meet your expectations, either	We typically do not know whether a strategy succeeded or not.	We use performance in a targeted area to measure success but often do not know how strategy worked. Large surprises are reviewed but often no adjustment steps are taken or lessons for strategy discussed.	We judge success/failure relative to targeted effects using customized measures informative about the way strategy works and try to separate luck from design. We investigate why outcome was surprising and have an ongoing detailed dialogue on surprise outcomes and their implications for operations and strategy
13	Strategy Communication: When and how are employees outside top management typically informed about strategic changes?	As changes take place, ``word trickles out".	Official (CEO) memos go out in advance and announce the change. Employees mostly do not interact with superiors during communications.	inform employees through a variety of channels such as CEO statements, town-
14	<b>Resistance to change:</b> There might sometimes be individuals opposed to a strategic change? How do find out about them? Are you usually able to overcome their resistance? If so, how?	We do not identify resisters.	Before the decision, we identify resisters, as they voice opposition. Resisters are sidelined, neutralized or compliance is bought.	

# Aggregate Scores

	Strategy Formalization		Strategy Development				Strategy Imp	oleme	entation
1	Strategy Statement: What is your company's strategy?	4	Proactivity and External focus: How do you typically first come to consider changes to strategy?	7	Strategy Development— Involvement: How are strategy development meetings prepared?	10	Implementation Planning: When you make a strategic decision, which implementation details are clear?	13	Strategy Communication: When and how are employees outside top management typically informed about strategic changes?
2	Strategy Scope and Advantage: What is your most important choice of "where to compete"?	5	Strategy Selection- Relevant Information: What type of information do you use to select a strategic change rather than its alternatives?	8	Exploration of Alternatives: Do you typically consider alternatives to given possible strategic change?	11	Strategy Review and Follow-ups: How do you review the progress of a strategic change?	14	Resistance to Change: How do you find out aboutindividuals opposed to a strategic change?
3	Mode of Competing: If I asked your customers, how your company differs from the competition, what would they say?	6	Strategy Development— Frequency: How often do strategy development meetings take place?	9	Structured Criticism: When you are considering a strategic change, when and how do people express potential concerns?	12	Learning from Strategy Outcomes: How would you typically know whether a strategic change has succeeded or failed?		







## **Additional Data**

- Type of competitive advantage pursued
  - Low cost, differentiation, etc,
- Type of strategic decisions
  - Types of decisions: M&A, CapEx, product & process innovations, restructuring etc.
  - Number of decisions
  - Decision time
  - Implementation time
- CEO biographies from LinkedIn
- Audio recordings of interviews ("language of strategy")

Appendix Table 1. Oth	(1)	(2)	(3)	(4)	(5)	(6)
			Strategy I	. ,		
log rel. tenure position	-0.272**					
0 1	(0.117)					
log rel. tenure company		-0.101				
		(0.083)				
log executive age		~ /	-1.440***			
			(0.290)			
Family ownership				-0.047		
				(0.156)		
Public firm					0.742***	
					(0.200)	
log firm age						0.095
						(0.069)
Noise controls	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Obs	262	262	262	262	262	262

#### **Appendix Table 1: Other Firm and CEO Correlates of the Strategy Score**

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**Figure 3:** Unconditional Correlation of Strategy Practices and Firm Size

**Note:** The Structured Strategy Process score is an unweighted average of the score for each of the 14 strategy questions, where each question is normalized to have zero mean and standard deviation of one. Employment is measured as the number of full-time employees at the company.

# Strategy and Firm Size

#### Table 2: Strategy and firm size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable			log	g employees			
Strategy Practices	0.980***	0.864***	0.692***				
	(0.141)	(0.126)	(0.132)				
Formalization				0.340***			0.256**
				(0.117)			(0.109)
Development					0.597***		0.501***
					(0.131)		(0.142)
Implementation						0.391***	0.162
						(0.134)	(0.145)
log firm age		1.109***	0.996***	1.103***	0.969***	1.056***	1.031***
		(0.119)	(0.146)	(0.151)	(0.149)	(0.150)	(0.149)
Noise controls	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES
Additional Firm and CEO controls	NO	NO	YES	YES	YES	YES	YES
Obs	262	262	262	262	262	262	262

Notes: Strategy Practices score is a normalized z-score with unit variance which is the sum of all 14 normalized strategy questions with mean zero and unit variance. Formalization (F1-F3), Development (D1-D6) and Implementation (I1-I5) are also z-scores with unit variance. Noise controls include interviewer fixed effects, time of day, interview duration, ratings of interviewee expertise and interviewee honesty and non-CEO dummy. Industry fixed effects are 3 digit NAICS dummies. Additional firm and CEO controls include: family ownership dummy, public ownership dummy, CEO age, CEO tenure in position. Missing observations are imputed at sample means with imputation dummies included whenever observations are imputed. Significance levels are: \*: 10%, \*\*: 5%, \*\*\*: 1% and robust standard errors are reported in parentheses.

## Strategy and Firm Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	log	log	1-year firm	1-year firm	5-year firm	5-year firm
Dependent variable	employees	employees	growth	growth	growth	growth
Strategy Practices	0.476**	0.464**	0.046***	0.047***	0.096***	0.095**
	(0.190)	(0.198)	(0.012)	(0.012)	(0.035)	(0.037)
log firm age	1.076***	1.145***				
	(0.138)	(0.155)				
log initial employees			-0.048***	-0.049***	-0.096***	-0.095***
			(0.007)	(0.007)	(0.018)	(0.019)
Noise controls	YES	YES	YES	YES	YES	YES
Industry FE	NO	YES	NO	YES	NO	YES
Obs (rounded)	200	200	2000	2000	1300	1300
No of firms (rounded)	200	200	200	200	150	150

 Table 3: Strategy practices and firm size / firm growth in Census data (LBD)

Notes: Results are based on merging the strategy practice data into the Longitudinal Business Database (LBD) and aggregating the data to the firm level. Strategy Practices score is a normalized z-score with unit variance which is the sum of all 14 normalized strategy questions with mean zero and unit variance. Growth rates are based Davis, Haltiwanger and Schuh (1996) formula. Industry fixed effects are 2 digit NAICS dummies. Additional firm and CEO controls include: family ownership dummy, public ownership dummy, CEO age, CEO tenure in company, CEO tenure in position. Missing observations are imputed at sample means with imputation dummies included whenever observations are imputed. Significance levels are: \*: 10%, \*\*: 5%, \*\*\*: 1%. Robust standard errors are used for columns (1) and (2), while all other columns have standard errors clustered at the firm-level. Standard errors are reported in parentheses.

#### **Strategy Outcomes**

Table 4: Strategy	<b>Practice</b>	Scores and	l strategic	changes

	(1)	(2)	(3)
	log number of strategic changes	log decision time (weeks)	log implementation time (weeks)
Strategy Practices	0.132*	0.281***	0.103
	(0.067)	(0.107)	(0.079)
Formalization	-0.004	0.083	0.021
	(0.070)	(0.093)	(0.081)
Development	0.061	0.269**	0.104
	(0.065)	(0.107)	(0.078)
Implementation	0.190***	0.131	0.055
	(0.058)	(0.095)	(0.069)

Notes: Each coefficient corresponds to a different regression. Number of strategic changes is the estimated number of changes over a 5 year horizon. Strategy Practices score is a normalized z-score with unit variance which is the sum of all 14 normalized strategy questions with mean zero and unit variance. All columns include controls for noise controls (interviewer fixed effects, time of day, interview duration, ratings of interviewee expertise and interviewee honesty and non-CEO dummy), and firm and CEO controls (firm age, family ownership dummy, public ownership dummy, CEO age, CEO tenure in company, CEO tenure in position). All columns include controls for decision type fixed effects include dummies for 17 non-exclusive types of strategic changes pursued. All columns include controls for industry fixed effects, which are 3 digit NAICS dummies. Missing observations are imputed at sample means with imputation dummies included whenever observations are imputed. Significance levels are: \*: 10%, \*\*: 5%, \*\*\*: 1% and robust standard errors are reported in parentheses.

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#### The Impact of Business Education



Similar idea behind "Jensen effect", Jung and Shin, 2019, ASQ

#### A Discontinuous Change in the Curriculum

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companies face. In its concern with how a total enterprise can be related to its environment, Business Policy I aims to

integrate the work of other functional courses.

# **RDD** Approach

- Exploit discontinuous change in curriculum (exogenous to the students) to estimate the causal effect of Porter on strategy process practices
- Local, non-parametric RD design using the optimal bandwidth selection procedure of Imbens and Klyanamaran (2012)

$$X_{i} = f(C_{i}) + \beta_{1} \cdot \mathbb{1}_{\{C_{i} \ge 1983\}} + \epsilon_{i}$$

- Caveat
  - Focus only on MBA students (185)
  - Small sample with data hungry methods
  - Porter already present in 2<sup>nd</sup> year MBA courses=>lower bound

#### **Graduation Year Distributions**



Full potential sample pool vs. Interviewees, by Graduation Year

#### **Table 5: Porter RDD Estimates**

Panel A: Formalization						
	(1)	(2)	(3)			
Dependent Variable:	Formalization Score					
	Baseline: 1983	Placebo 1: 1982	Placebo 2: 1984			
Baseline	0.845**	0.413	0.056			
	(0.424)	(0.363)	(0.601)			
Firm size control	0.790**	0.361	0.075			
	(0.393)	(0.357)	(0.544)			
Obs	185	185	185			
Panel B: Implementation						
	(1)	(2)	(3)			
Dependent Variable:	Ir	nplementation Sco	ore			
	Baseline: 1983	Placebo 1: 1982	Placebo 2: 1984			
Baseline	-1.165***	-0.499	0.139			
	(0.302)	(0.577)	(0.565)			
Firm size control	-1.004***	-0.283	0.004			
	(0.262)	(0.524)	(0.483)			
Obs	185	185	185			

#### **Panel A: Formalization**

Notes: Effects show the impact of MBA cohort year after the cutoff date shown on top. Local regressions use constants only. Noise control is non-CEO dummy. Firm size control is log of number of employees. Formalization (F2-F3), Development (D1-D6) and the Implementation (I1-I5) are averages of the underlying questions, normalized to zero mean and unit variance. Sample includes only HBS MBA alumni. Significance levels are: \*: 10%, \*\*: 5%, \*\*\*: 1% and robust standard errors are reported in parentheses.

Regression discontinuity plot of the causal impact of the HBS core strategy course restructuring by Michael Porter on **the Formalization Score** by CEOs with an HBS MBA.



**Note:** The dependent variable is the normalized version of the Formalization Score with zero mean and standard deviation of one. The sample are all interviewed executives with an HBS MBA.

Regression discontinuity plot of the causal impact of the HBS core strategy course restructuring by Michael Porter on **the Implementation Score** by CEOs with an HBS MBA.



**Note:** The dependent variable is the normalized version of the Implementation Score with zero mean and standard deviation of one. The sample are all interviewed executives with an HBS MBA.

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### Conclusions

- First attempt at measuring a key managerial trait
  - Approach towards strategic decisions
- Findings
  - Heterogeneity (even within homogenous samples)
  - Correlated with firm outcomes
  - Role of education (or of one educator...)
- Implications
  - Theory, teaching, policy
- Next steps
  - Extend sample
  - RCT

# **Scoring Example**

# 4. Proactivity and external focus What TYPICALLY prompts you to think about a strategic change? (NOTE: Look for most frequent/dominant reason). Go with gut React to performance drops Look for widely reported, imminent shifts. Before performance effects: look for apparent trend changes. Long before performance effects: look for subtle shifts in the environment.

	Used?	Broad range? (3+ indicators)	Forecast on future?
QUAL. info			
QUANT. info			

What are the most important indicators of EXTERNAL conditions used to INSPIRE strategic change?

