



Cost Shielding in Executive Bonus Plans

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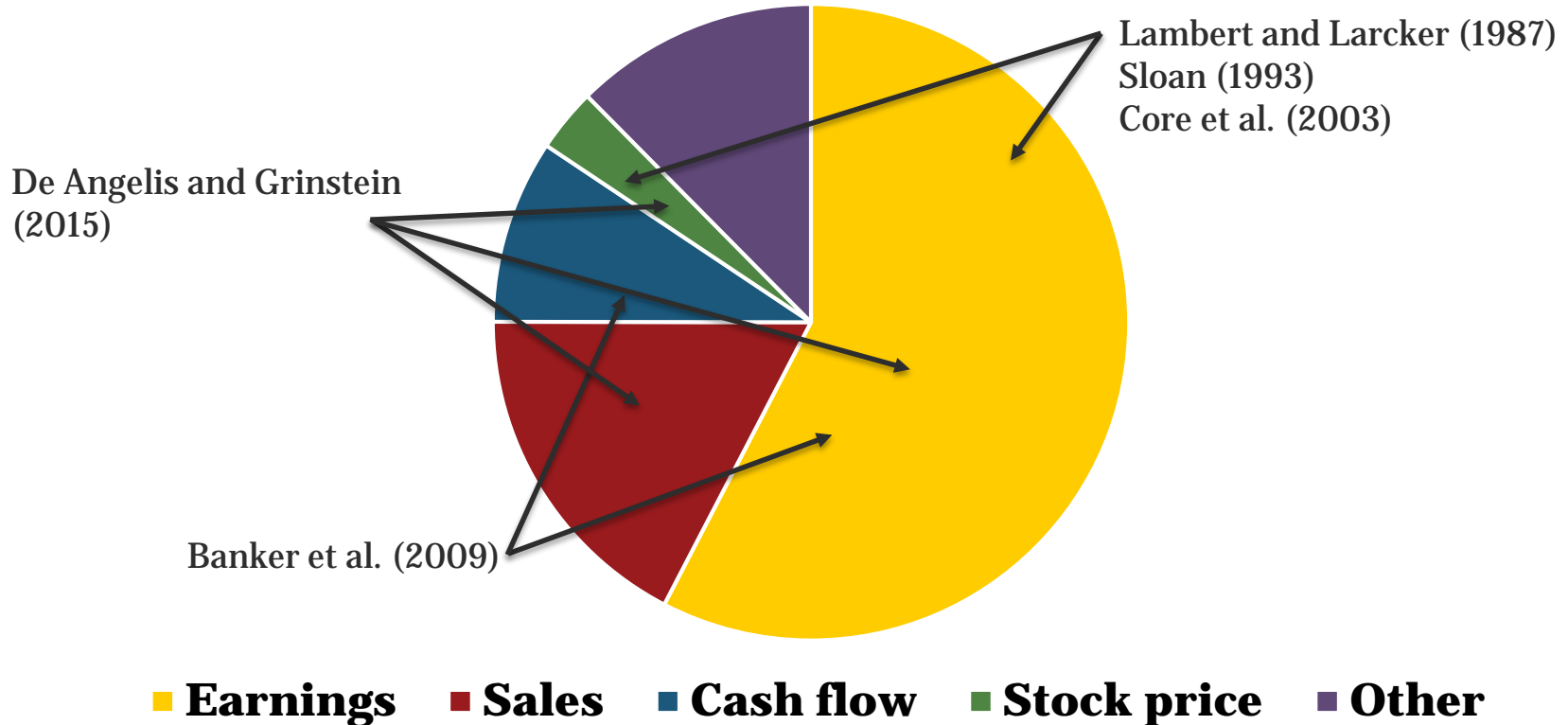
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Motivation



Financial Performance Measures in Executive Bonus Plans

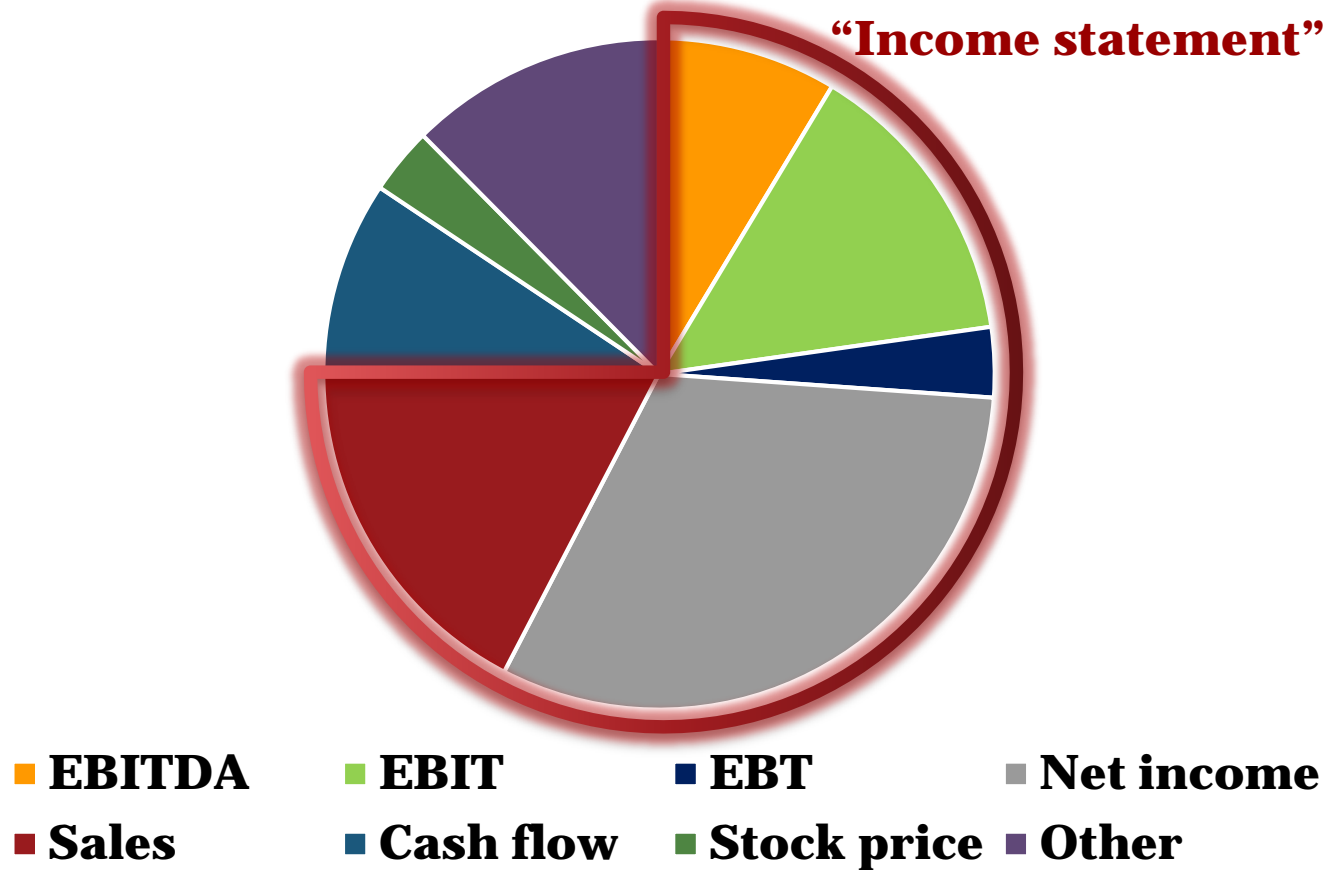


Motivation



Financial Performance Measures in Executive Bonus Plans

“Income statement” measures





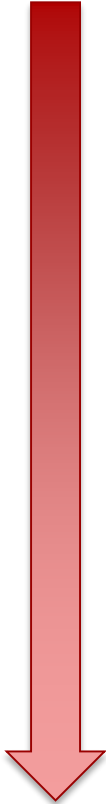
Motivation

- Most variation in performance measure choice is *within* the income statement
- What explains these *ex ante* performance measure choices?
- We examine agency-theoretic predictions on the role of “cost shielding”
 - The primary distinction between different income statement measures is the extent to which they exclude various expenses



Cost Shielding

More cost shielding



Net income = Sales minus Expenses

EBT = Net income *excluding tax expense*

EBIT = EBT *excluding interest expense*

EBITDA = EBIT *excluding depreciation*

Sales *excludes all expenses*



Cost Shielding

Macy's 2017 proxy:

“The [compensation committee] selected EBIT as the performance metric to ensure that the maximum potential payout is determined as a percentage of controllable profit.

Excluding interest and taxes ensures that profit is defined based on operating results that the Named Executives can directly influence.”





Primary Questions

- Do boards use cost shielding to improve contracting efficiency and resolve issues with:
 1. Noisy costs?
 - Incentive contracts should place relatively smaller weights on noisier performance measures (Banker and Datar, 1989; Lambert, 2001)
 - Helps validate our empirical cost shielding measures
 2. Temporal mismatches between costs and benefits of investments?
 - Performance measures that include investment-related expenses can encourage myopic behavior (e.g., Stein, 1989)
 3. Costs resulting from previous management's actions?
 - Executives should be evaluated on measures that are informative about their actions (e.g., Holmström, 1979; Antle and Demski, 1988)



Main Findings

- Noisy costs:
 - We find more cost shielding when expenses are more volatile
- Temporal mismatches between costs and benefits:
 - We find more cost shielding for firms with more growth opportunities/focus on new product launches
- Costs resulting from previous management's actions:
 - We find cost shielding decreases with executive tenure



Measuring Cost Shielding

- We create a categorical variable for each performance measure within a given firm-year:
 - Net income = 0
 - EBIT = 1
 - EBITDA = 2
 - Sales = 3
- Our summary cost shielding measure (*Cost Shield*) is the firm-year mean of these categorical variables.
 - Firm using only net income: *Cost Shield* = 0
 - Firm using only sales: *Cost Shield* = 3
 - Firm using sales and net income: *Cost Shield* = 1.5



Research Design

$$\begin{aligned} \text{Cost Shield}_{i,t} = & \alpha + \beta_1 \text{Contracting Value}_{i,t-1} + \beta_2 \text{Ln(MVE)}_{i,t-1} + \beta_3 \text{Idio Vol}_{i,t-1} \\ & + \beta_4 \text{BTM}_{i,t-1} + \beta_5 \text{Free Cash Flow}_{i,t-1} + \beta_6 \text{Ln(Delta)}_{i,t-1} + \beta_7 \text{Ln(Tenure)}_{i,t} \\ & + \delta_t + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Measure}_{i,t} = & \alpha + \beta_1 \text{Contracting Value}_{i,t-1} + \beta_2 \text{Ln(MVE)}_{i,t-1} + \beta_3 \text{Idio Vol}_{i,t-1} \\ & + \beta_4 \text{BTM}_{i,t-1} + \beta_5 \text{Free Cash Flow}_{i,t-1} + \beta_6 \text{Ln(Delta)}_{i,t-1} + \beta_7 \text{Ln(Tenure)}_{i,t} \\ & + \Gamma \text{Other Measures}_{i,t} + \delta_t + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

- Contracting value measures:
 - Noisy costs: Volatility of depreciation, R&D, interest, and effective tax rate (ETR)
 - Temporal mismatches between costs and benefits: Sales growth, book-to-market, % of new products, firm age
 - Costs from previous management: Executive tenure, turnover



Noisy Costs

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>Depreciation Volatility_{t-1}</i>	8.977*** (3.62)	4.219*** (2.83)	1.998* (1.82)	-3.228** (-2.55)	-4.282*** (-3.27)
<i>R&D Volatility_{t-1}</i>	5.178*** (3.88)	5.295*** (6.56)	-3.041*** (-6.04)	-0.677 (-0.91)	-1.639** (-2.11)
<i>Interest Volatility_{t-1}</i>	7.252* (1.87)	-4.663* (-1.91)	11.663*** (6.12)	-0.032 (-0.02)	-3.391* (-1.65)
<i>ETR Volatility_{t-1}</i>	0.024 (1.23)	-0.008 (-0.67)	0.025*** (2.85)	0.019* (1.83)	0.012 (1.06)
Firm Controls	Yes	Yes	Yes	Yes	Yes
Other Metric Controls	No	Yes	Yes	Yes	Yes
Fixed Effects	Year	Year	Year	Year	Year
N	7,318	7,318	7,318	7,318	7,318
R ²	0.107	0.095	0.276	0.215	0.257



Timing of Costs and Benefits

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>Sales Growth_{t-1}</i>	0.164*** (2.67)	0.055 (1.43)	0.008 (0.26)	-0.118*** (-3.42)	-0.117*** (-2.97)
<i>Book-to-Market_{t-1}</i>	-0.309*** (-6.77)	-0.187*** (-6.04)	-0.032 (-1.32)	0.001 (0.03)	0.089*** (2.96)
Firm Controls	Yes	Yes	Yes	Yes	Yes
Other Metric Controls	No	Yes	Yes	Yes	Yes
Fixed Effects	Year	Year	Year	Year	Year
N	8,005	8,005	8,005	8,005	8,005
R ²	0.088	0.059	0.209	0.204	0.240



Timing of Costs and Benefits

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
% New <i>Products_t</i>	0.173*** (3.84)	0.132*** (4.43)	0.041** (1.97)	0.008 (0.28)	0.047 (1.55)
Ln(<i>Firm Age_t</i>)	-0.238*** (-6.29)	-0.108*** (-4.13)	-0.029* (-1.71)	-0.033 (-1.34)	0.079*** (3.31)
Firm Controls	Yes	Yes	Yes	Yes	Yes
Other Metric Controls	No	Yes	Yes	Yes	Yes
Fixed Effects	Year	Year	Year	Year	Year
N	6,498	6,498	6,498	6,498	6,498
R ²	0.121	0.076	0.191	0.198	0.243



Controllability

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>CEO Tenure Years 0-2_t</i>	0.132*** (3.34)	0.054** (2.02)	0.052*** (2.93)	0.026 (1.10)	0.045* (1.80)
<i>CEO Tenure Years 3-5_t</i>	0.102*** (2.63)	0.044* (1.66)	0.045*** (2.61)	0.012 (0.55)	0.040 (1.64)
<i>CEO Tenure Years 6-8_t</i>	0.062* (1.86)	0.032 (1.36)	0.021 (1.39)	-0.015 (-0.70)	0.016 (0.72)
Firm Controls	Yes	Yes	Yes	Yes	Yes
Other Metric Controls	No	Yes	Yes	Yes	Yes
Fixed Effects	year	year	year	year	year
N	8,009	8,009	8,009	8,009	8,009
R ²	0.087	0.059	0.208	0.202	0.239

Controllability



	(1)	(2)
Sample Restriction:	<i>External Hire_t</i> = 0	<i>External Hire_t</i> = 1
Dependent Variable:	<i>Cost Shield_t</i>	<i>Cost Shield_t</i>
<i>CEO Tenure Years 0-2_t</i>	0.089** (2.14)	0.319*** (2.79)
<i>CEO Tenure Years 3-5_t</i>	0.075* (1.83)	0.230** (2.29)
<i>CEO Tenure Years 6-8_t</i>	0.052 (1.44)	0.124 (1.40)
Firm Controls	Yes	Yes
Other Metric Controls	No	No
Fixed Effects	year	year
N	6,949	1,060
R ²	0.082	0.126



Additional Analyses

- CEO turnover as a “shock” to contracting value
- Role of the board’s financial expertise
- Robustness tests and alternative variable construction



CEO Turnover

- We examine two complementary CEO turnover settings:
 1. We hand-collect data on CEO turnover due to death or health-related reasons
 - Likely unrelated to firm/manager characteristics that influence bonus plan design (plausibly “exogenous”)
 2. We examine forced CEO turnover (Peters and Wagner, 2014)
 - Suggests board has rejected the previous CEO’s actions and the incoming CEO may require greater cost shielding
- We find significant increases in cost shielding following both types of turnover



Financial Expertise

- We examine whether our results differ between boards with relatively high and low financial expertise
- Findings for *noisy costs* and *controllability* are more pronounced among boards with greater financial expertise
 - Results primarily from substitution between different earnings-based measures
- Findings for temporal mismatches of costs and benefits *do not differ* based on financial expertise
 - Results primarily from inclusion of sales measures



Robustness Tests

- Our inferences are unchanged if we:
 - Define *Cost Shield* based on other firm-year summary measures than the mean (e.g., median, max)
 - Define *Cost Shield* using actual weights on individual performance measures
 - For example, for a bonus based 75% on sales (3) and 25% on net income (0), $Cost\ Shield = 75\% \times 3 + 25\% \times 0 = 2.25$
 - Exclude loss firms
 - Include fixed effects for number of performance measures
 - Examine the firm's lowest-paid NEO, rather than the CEO
- Collectively, these results suggest our findings are not an artifact of specific research design choices



Summary

- We show substantial heterogeneity in performance metrics within “earnings-based” pay
- We provide evidence that boards use bonus plans to focus executives’ attention on specific, more controllable objectives
- Boards appear to recognize the limitations/deficiencies of specific income statement measures and design bonus plans accordingly
- Our findings highlight an unexplored benefit of directors’ financial expertise



Thank you!



Sample

- Incentive Lab
 - Annual cash incentive plans
 - Sample period: 2006-2017
 - 8009 firm-years, 1442 distinct firms
- Other firm-level data:
 - Financial (Compustat)
 - Stock returns (CRSP)
 - Compensation/tenure (Execucomp)
 - New/existing products (Factset)



Descriptive Statistics

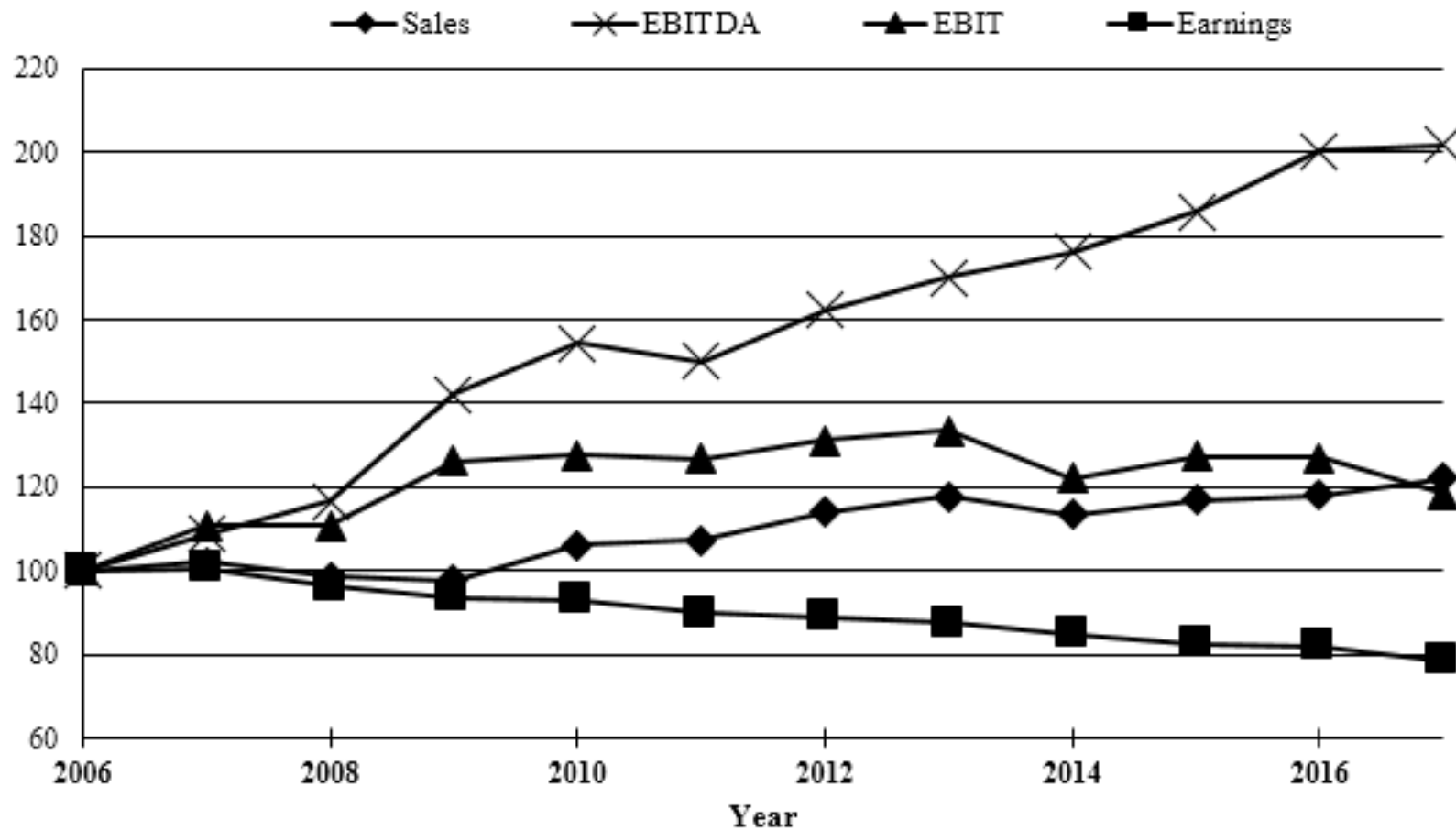
Variable	N	Mean	Std. Dev.	25th	50th	75th
<u>CEO Bonus Plan Measures:</u>						
<i>Cost Shield</i>	8,009	0.73	0.73	0.00	0.67	1.25
<i># Sales Metrics</i>	8,009	0.50	0.80	0.00	0.00	1.00
<i># EBITDA Metrics</i>	8,009	0.18	0.50	0.00	0.00	0.00
<i># EBIT Metrics</i>	8,009	0.44	0.80	0.00	0.00	1.00
<i># EBT Metrics</i>	8,009	0.09	0.35	0.00	0.00	0.00
<i># Earnings Metrics</i>	8,009	1.01	1.18	0.00	1.00	1.00
<i>Total Income Statement Metrics</i>	8,009	2.27	1.68	1.00	2.00	3.00

Variable	Δ # <i>Sales Metrics</i>	Δ # <i>EBITDA Metrics</i>	Δ # <i>EBIT Metrics</i>	Δ # <i>EBT Metrics</i>	Δ # <i>Earnings Metrics</i>	Δ # <i>Total Metrics</i>
Δ # <i>Sales Metrics</i>	1.00
Δ # <i>EBITDA Metrics</i>	0.0700*	1.00
Δ # <i>EBIT Metrics</i>	0.1093*	-0.0952*	1.00	.	.	.
Δ # <i>EBT Metrics</i>	0.0505*	-0.0356*	-0.0982*	1.00	.	.
Δ # <i>Earnings Metrics</i>	0.1458*	-0.0387*	-0.1155*	-0.0336*	1.00	.
Δ # <i>Total Metrics</i>	0.6119*	0.2665*	0.3735*	0.1457*	0.6194*	1.00



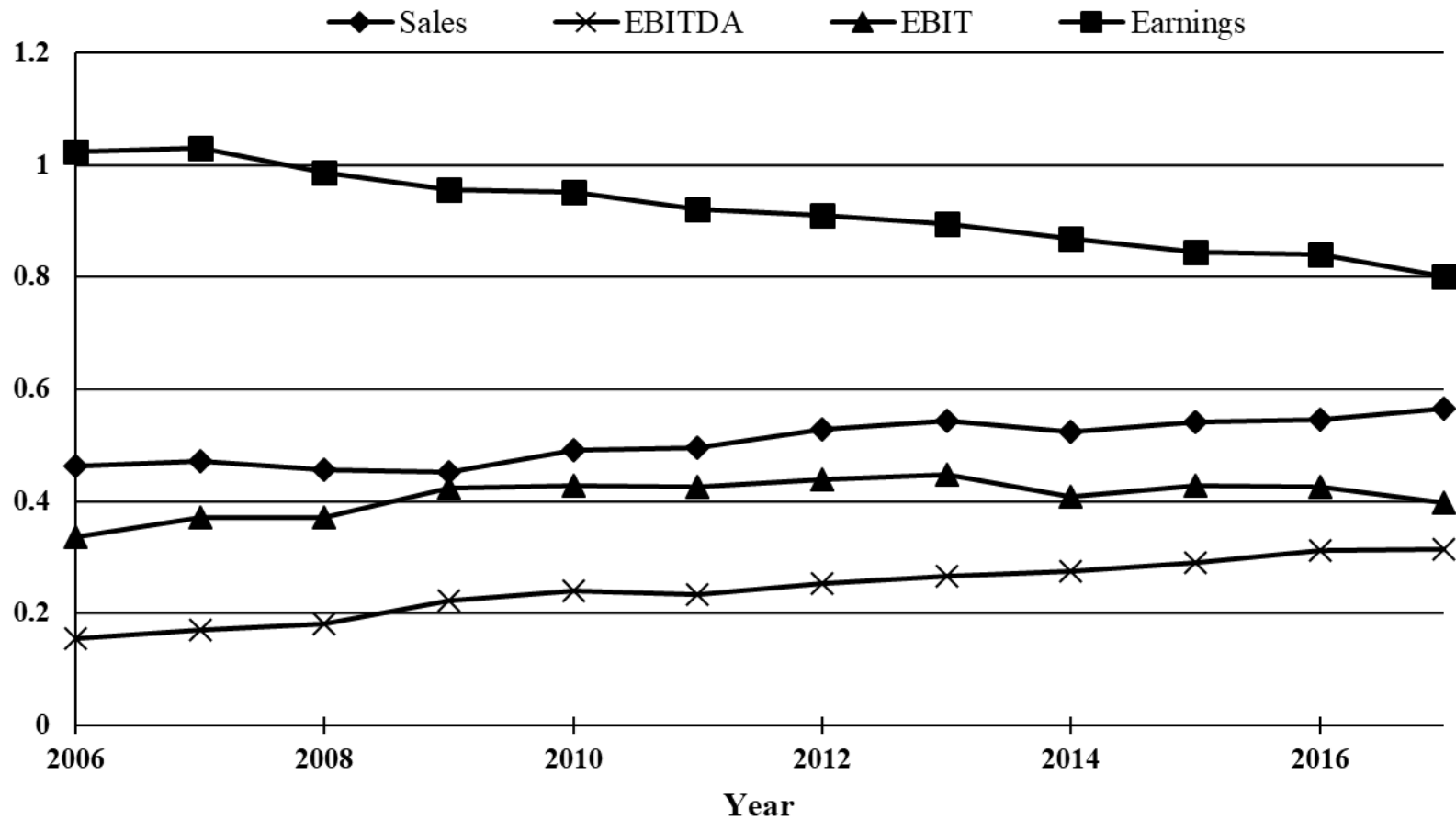
Performance Measure Usage

(2006 = 100)





Performance Measure Usage





Cost Shielding

