



Improving the Bottom Line Using the OCEC



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Mackay Research Group

Prepared for NTMA

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OCEC Overview

- Operating Costs Report
- Executive Compensation Report
- Individual Company Report

Median Results	<u>NTMA</u>
Participants	203
Revenue	\$5,532,407
Gross Margin	21.7%
Profit Margin	4.2%
Return On Assets	8.4%
EVA	\$4,010

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Segmenting the Data

- Typical & High Profit
- Sales Volume Categories
- Line of Business
 - Tools & Dies
 - Molds
 - General Machining
 - Aerospace Machining
 - Special Machines
 - Production Operations
- Exec Compensation by region

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Move Toward World Class Manufacturing

1. **Good decisions begin with good information**
2. **Assess what is most important**
 - a. Identify strengths & weaknesses
 - b. Speculate about own performance
 - c. Industry standards provide evidence to rethink assumptions
3. **Informed Decision-Making**
 - a. Limited resources
 - b. Shift resources from historical beliefs
4. **Motivate Employees**
 - a. Reinforces good performance
 - b. Identifies performance below competitors
 - c. Support expenditure decisions
 - d. Reduce resources with least negative impact



Financial Results

Income Statement

	Dollars	%
Sales	\$5,500,000	100.0%
<u>Cost Of Goods Sold</u>		
Direct Materials	1,463,000	26.6
Direct Labor	1,265,000	23.0
Indirect Labor	462,000	8.4
Plant Depreciation	209,000	3.8
Other Factory Costs	<u>907,500</u>	<u>16.5</u>
Total COGS	\$4,306,500	78.3
Gross Margin	\$1,193,500	21.7
<u>S, G&A Expenses</u>		
Selling Expenses	200,750	3.7
General & Admin.	<u>761,750</u>	<u>13.9</u>
Total S, G&A	962,500	17.5
Profit Before Taxes	231,000	4.2%

Balance Sheet

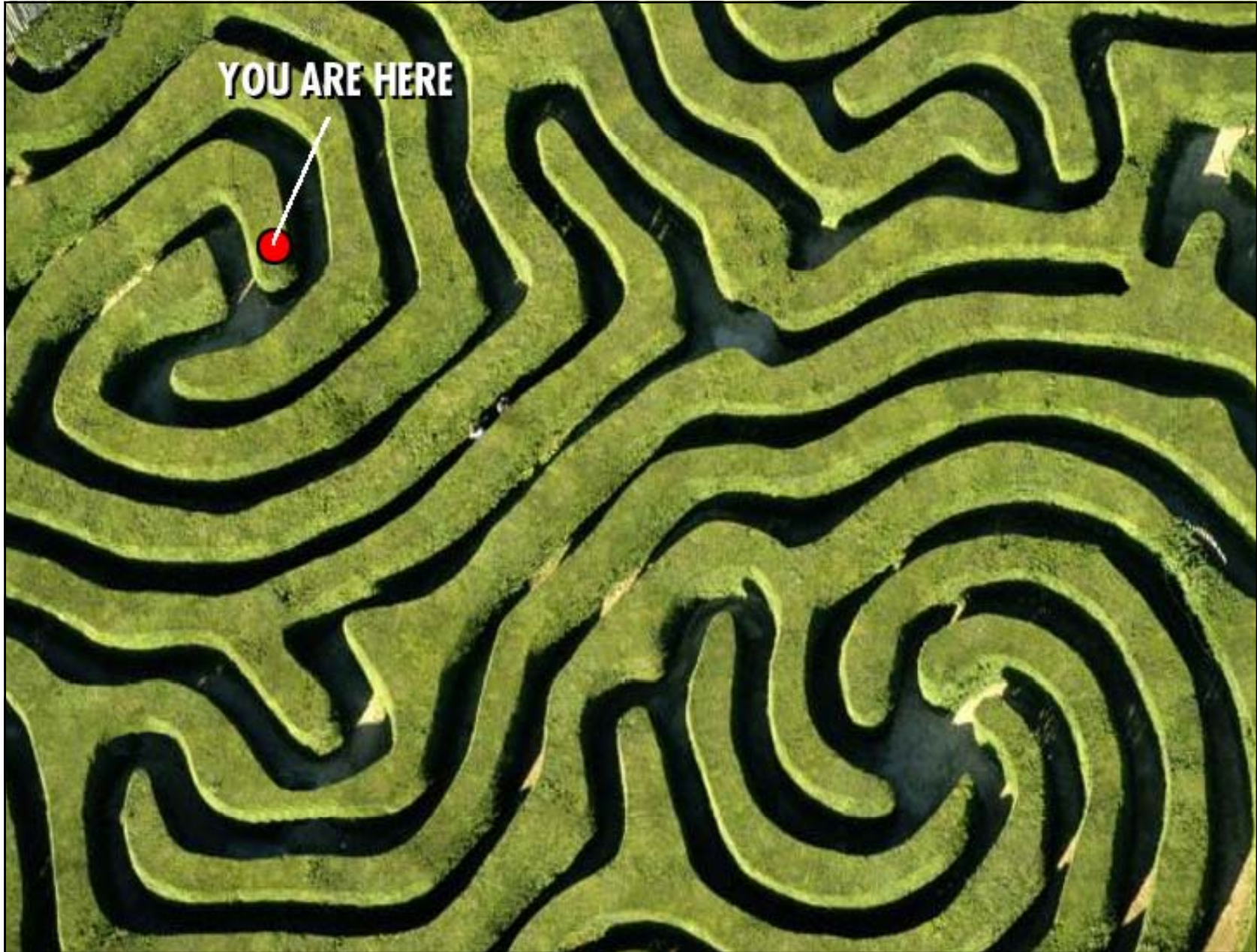
	Dollars	%
Assets		
Cash	\$247,500	9.0%
Accounts Receivable	722,000	26.3
Inventory	515,000	18.7
Other Current	<u>165,500</u>	<u>6.0</u>
Current Assets	1,650,000	60.0
Gross Fixed Assets	3,575,000	130.0
Acc. Depreciation	<u>2,612,500</u>	<u>95.0</u>
Net Fixed Assets	962,500	35.0
Other Fixed Assets	<u>137,500</u>	<u>5.0</u>
Total Assets	\$2,750,000	100.0%

Source: 2007 NTMA Operating Costs Report

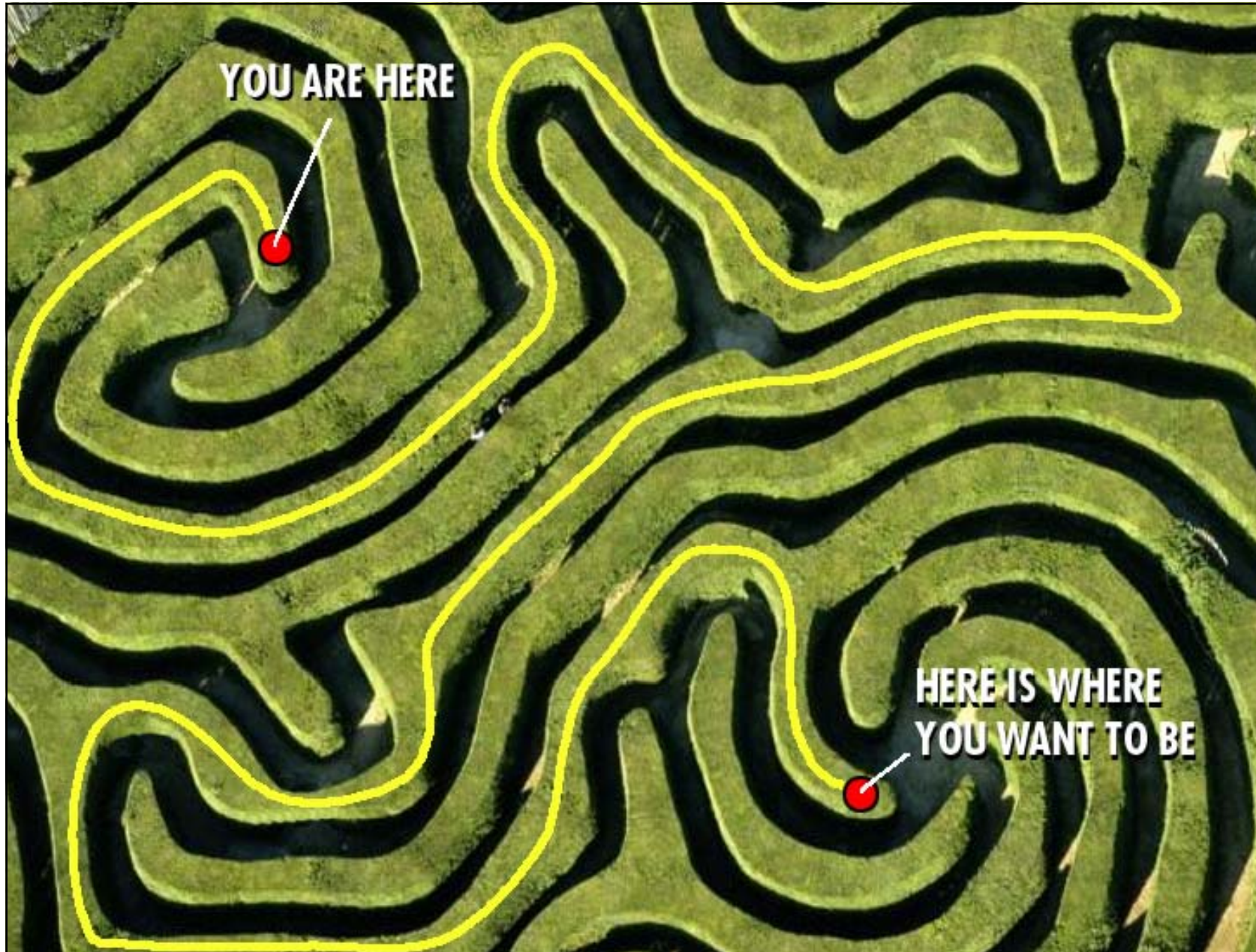
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YOU ARE HERE

**HERE IS WHERE
YOU WANT TO BE**



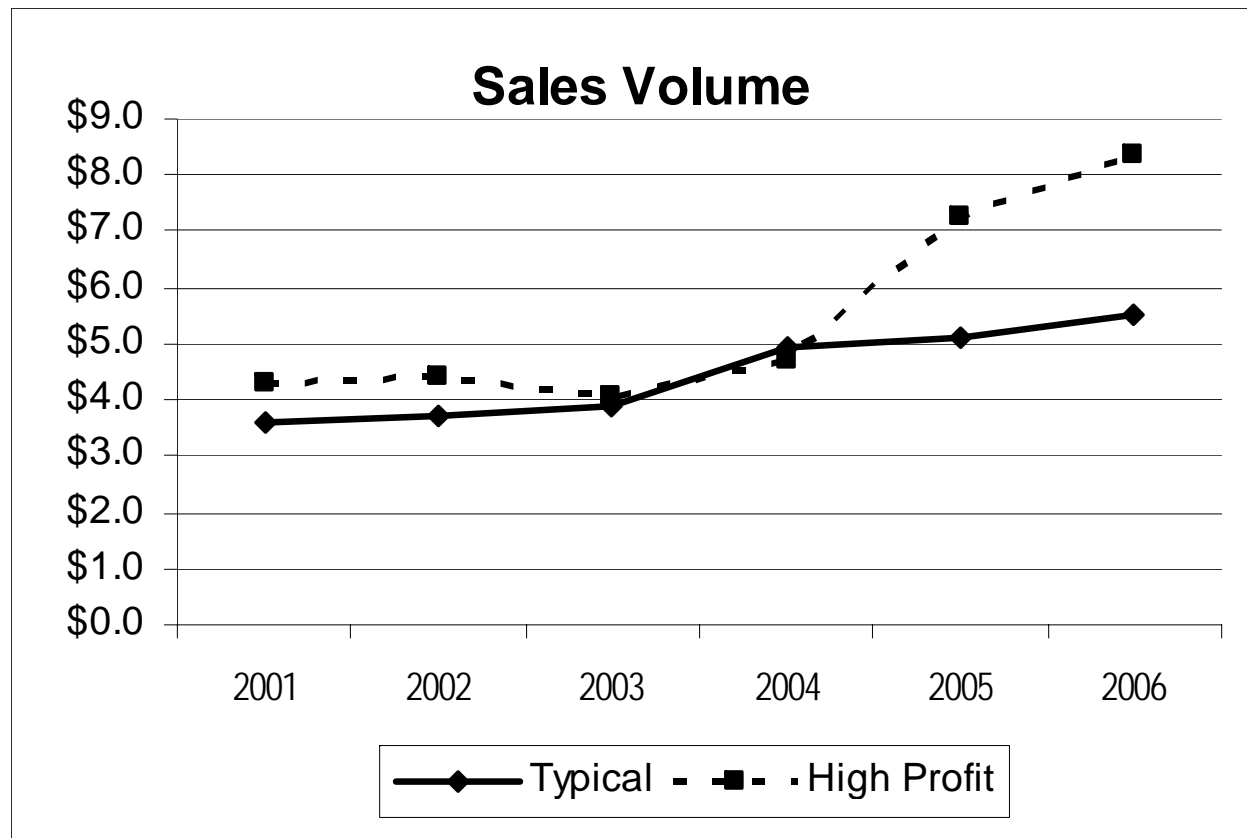
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A Tale of Two Firms

	You Are Here		You Want To Be Here	
	<u>Dollars</u>	<u>%</u>	<u>Dollars</u>	<u>%</u>
Sales	\$5,500,000	100.0%	\$5,500,000	100.0%
<u>Cost Of Goods Sold</u>				
Direct Materials	1,463,000	26.6	1,551,000	28.2
Direct Labor	1,265,000	23.0	1,116,500	20.3
Indirect Labor	462,000	8.4	396,000	7.2
Plant Depreciation	209,000	3.8	170,500	3.1
Other Factory Costs	<u>907,500</u>	<u>16.5</u>	<u>841,500</u>	<u>15.3</u>
Total COGS	4,306,500	78.3	4,075,500	74.1
Gross Margin	1,193,500	21.7	1,424,500	25.9
<u>S, G&A Expenses</u>				
Selling Expenses	200,750	3.7	159,500	2.9
General & Admin.	<u>761,750</u>	<u>13.9</u>	<u>616,000</u>	<u>11.2</u>
Total S, G&A	962,500	17.5	775,500	14.1
Profit Before Taxes	\$231,000	4.2%	649,000	11.8%



Sales Size



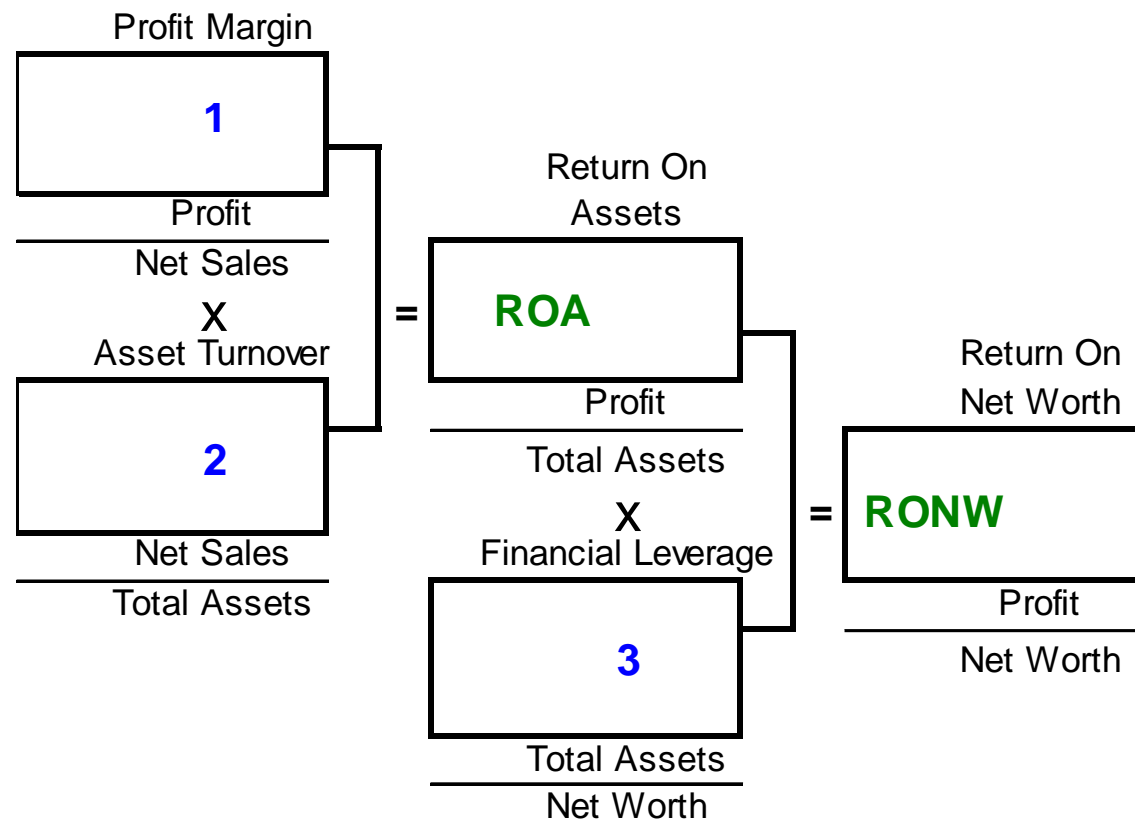
Source: 2007 NTMA Operating Costs Report

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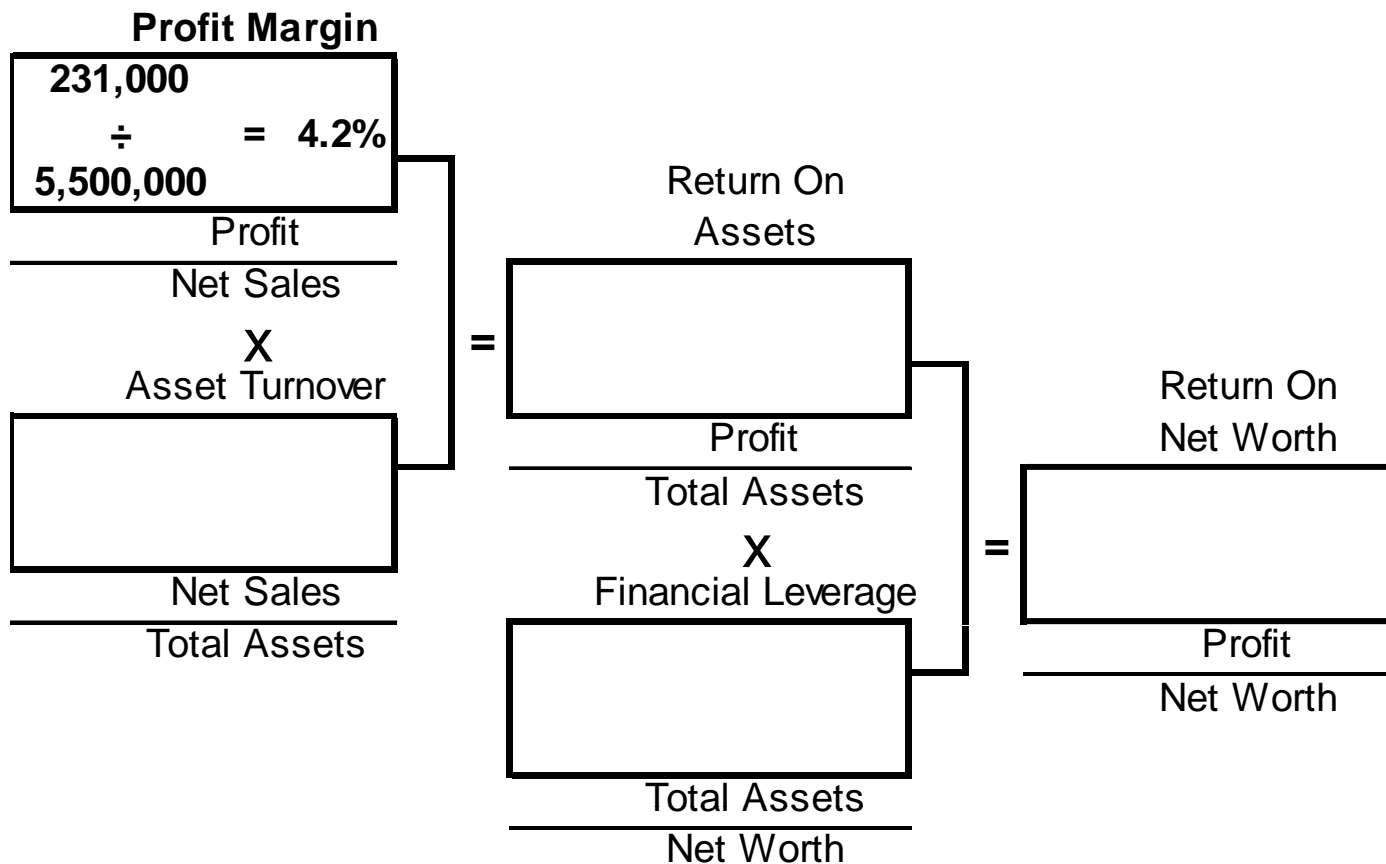


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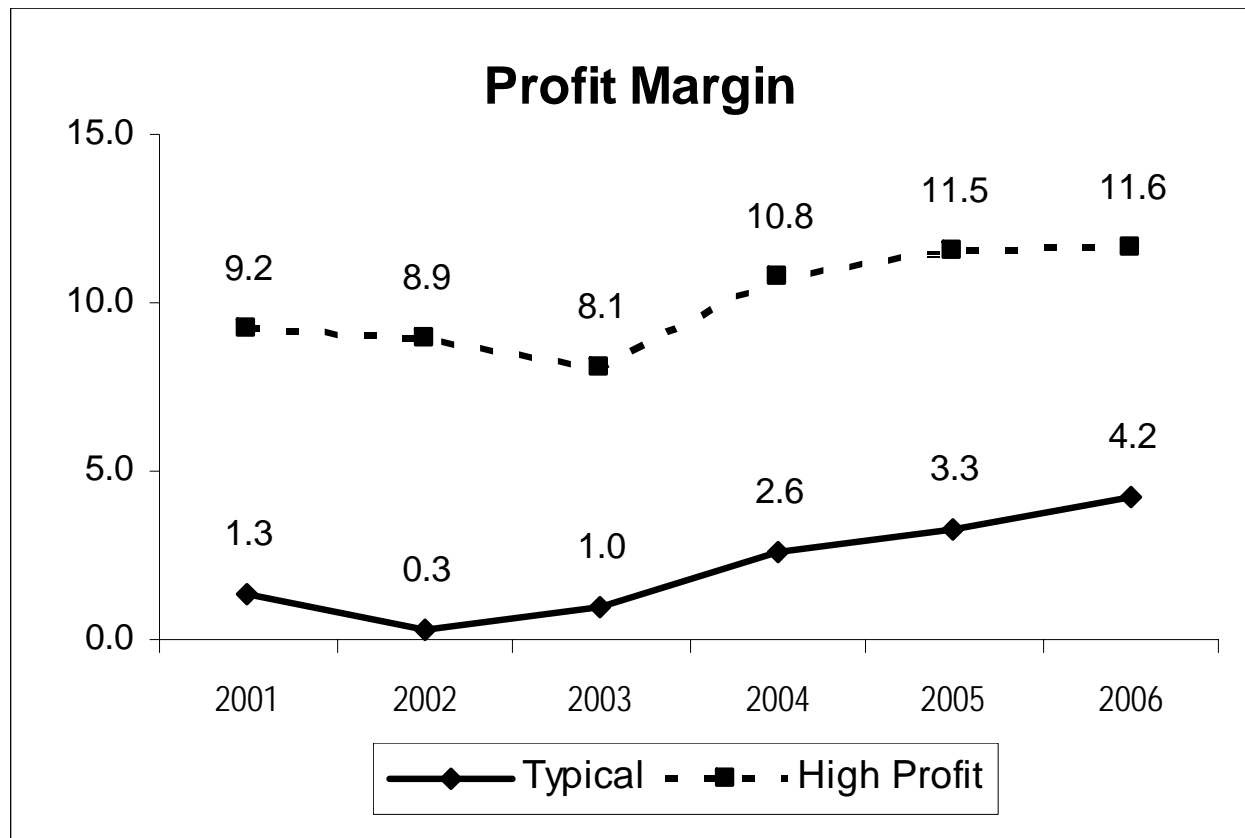
The Strategic Profit Model: A Valuable Management Tool



Profit Margin



Profit Margin Trend



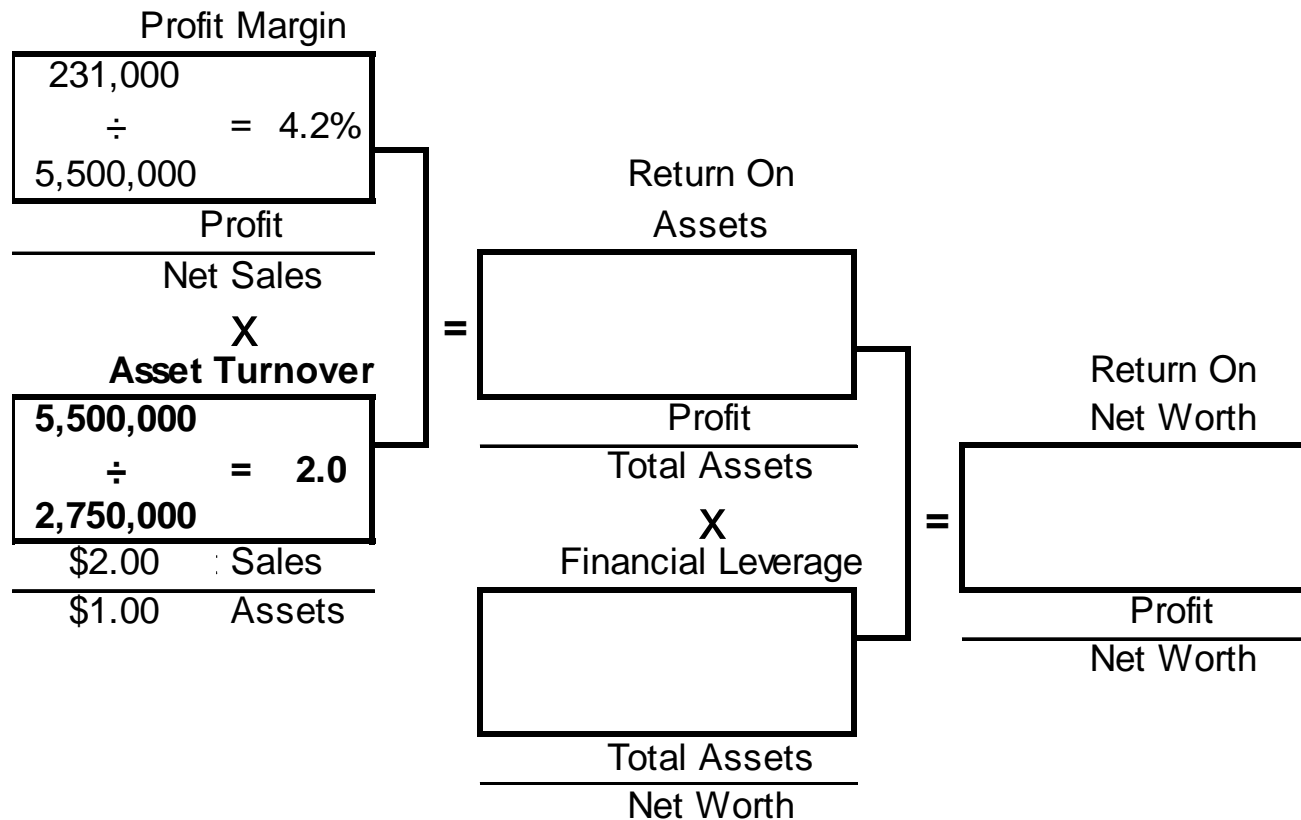
Source: 2007 NTMA Operating Costs Report

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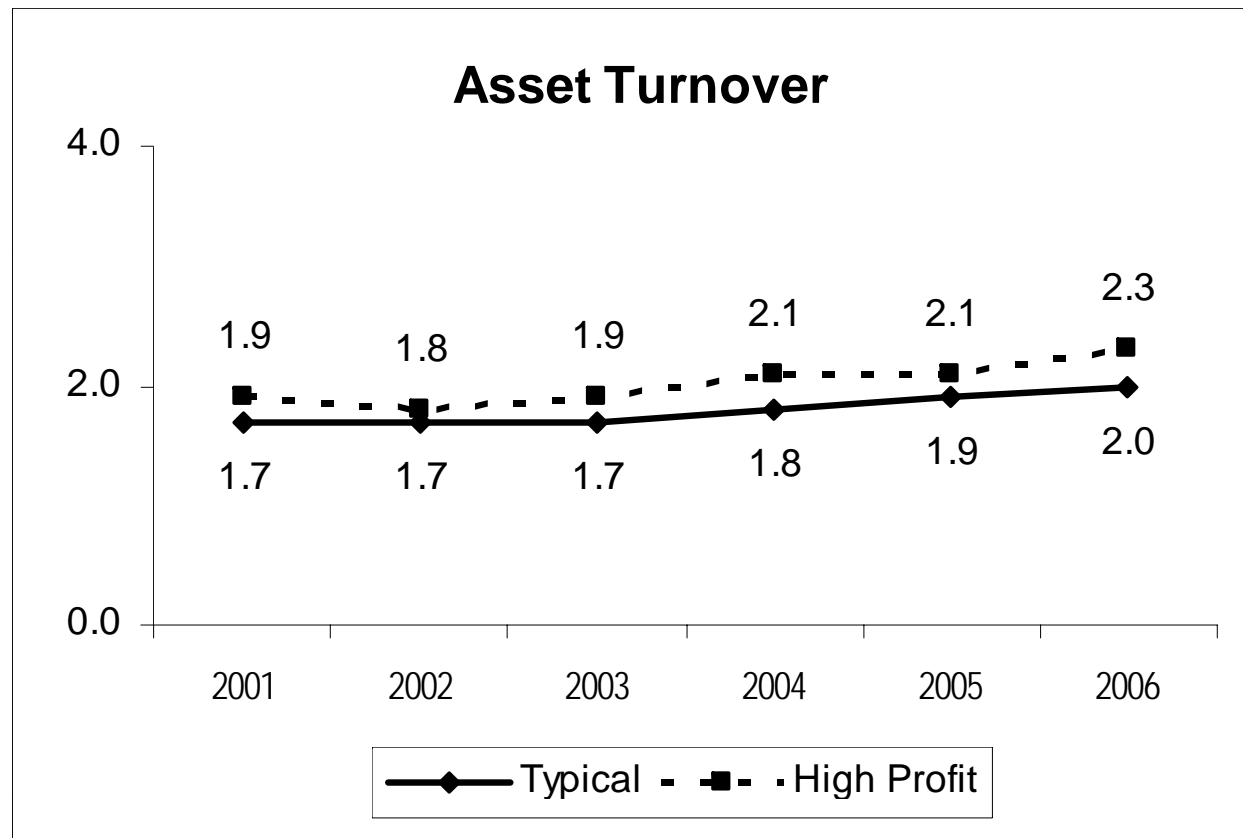


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Asset Turnover



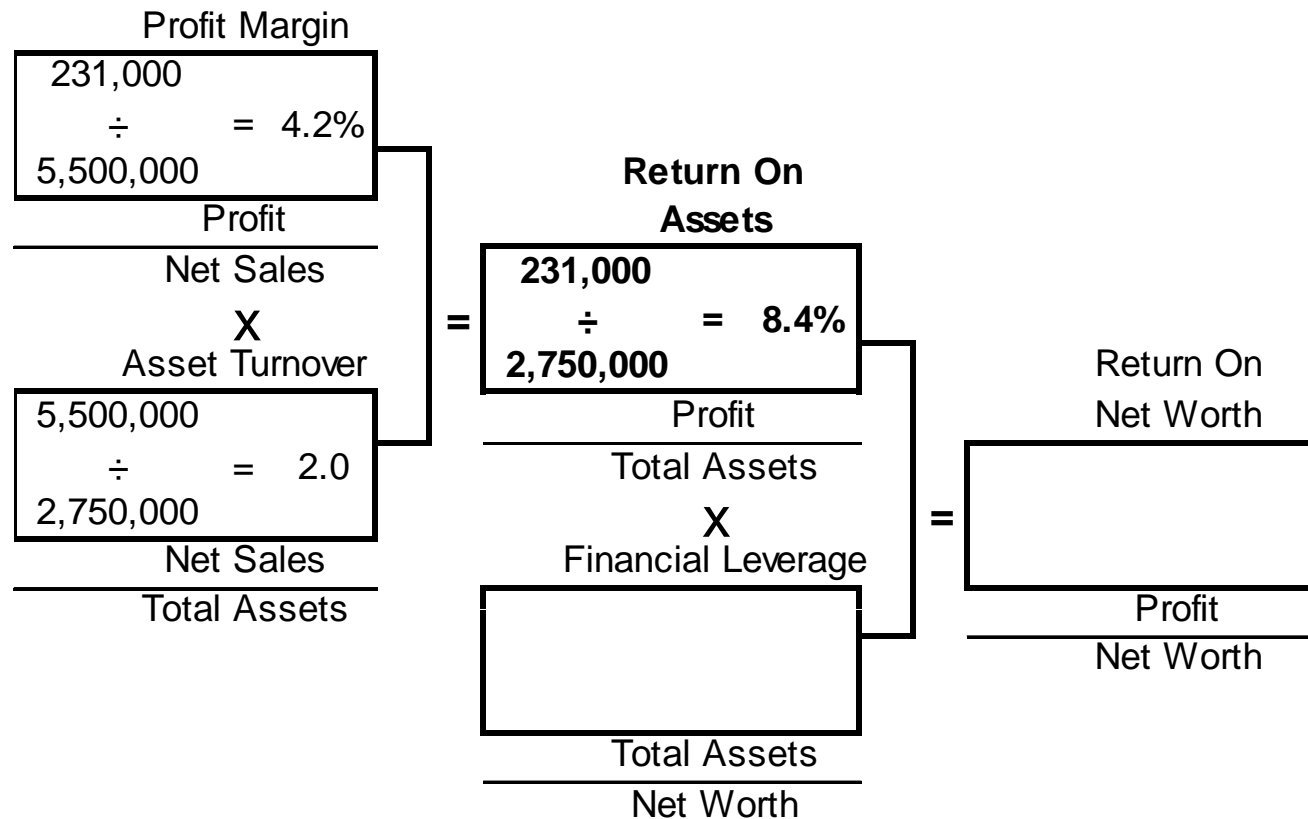
Asset Turnover Trend



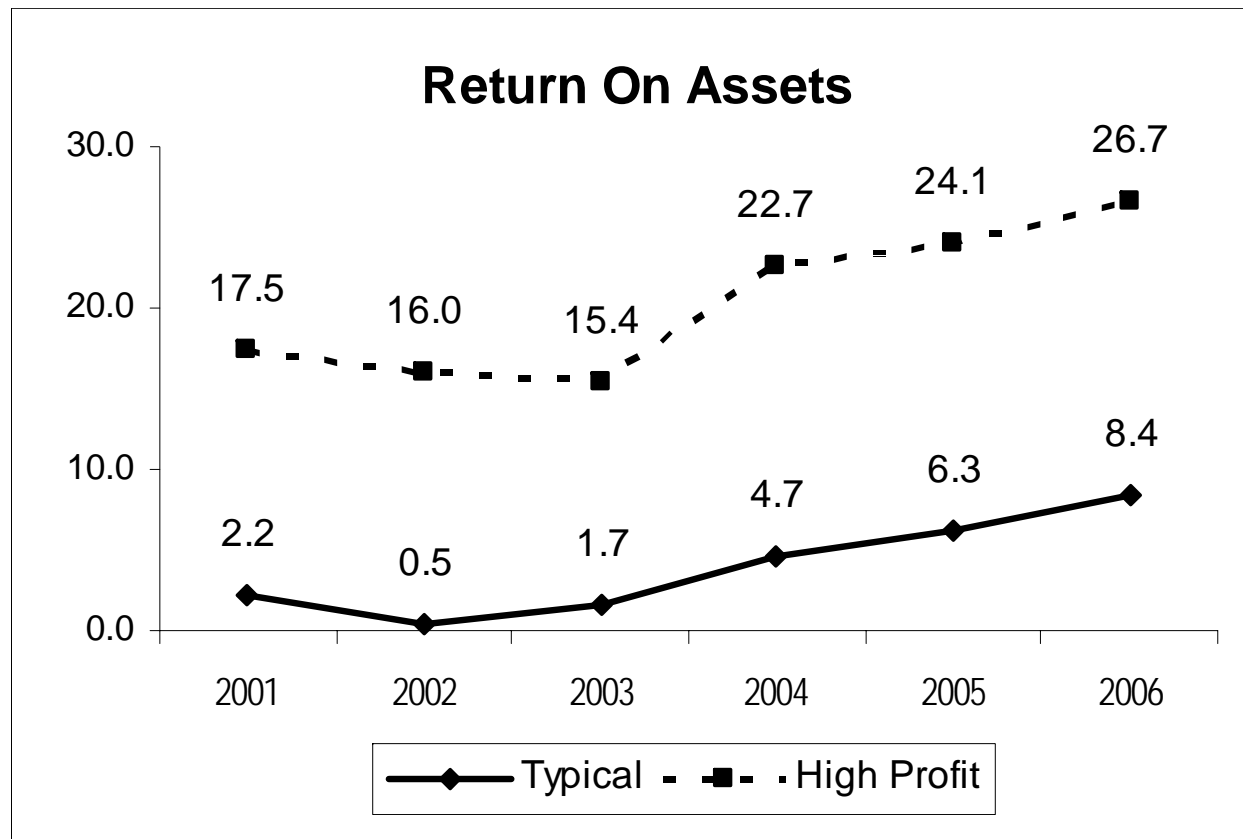
Source: 2007 NTMA Operating Costs Report



Return On Assets



ROA Trend



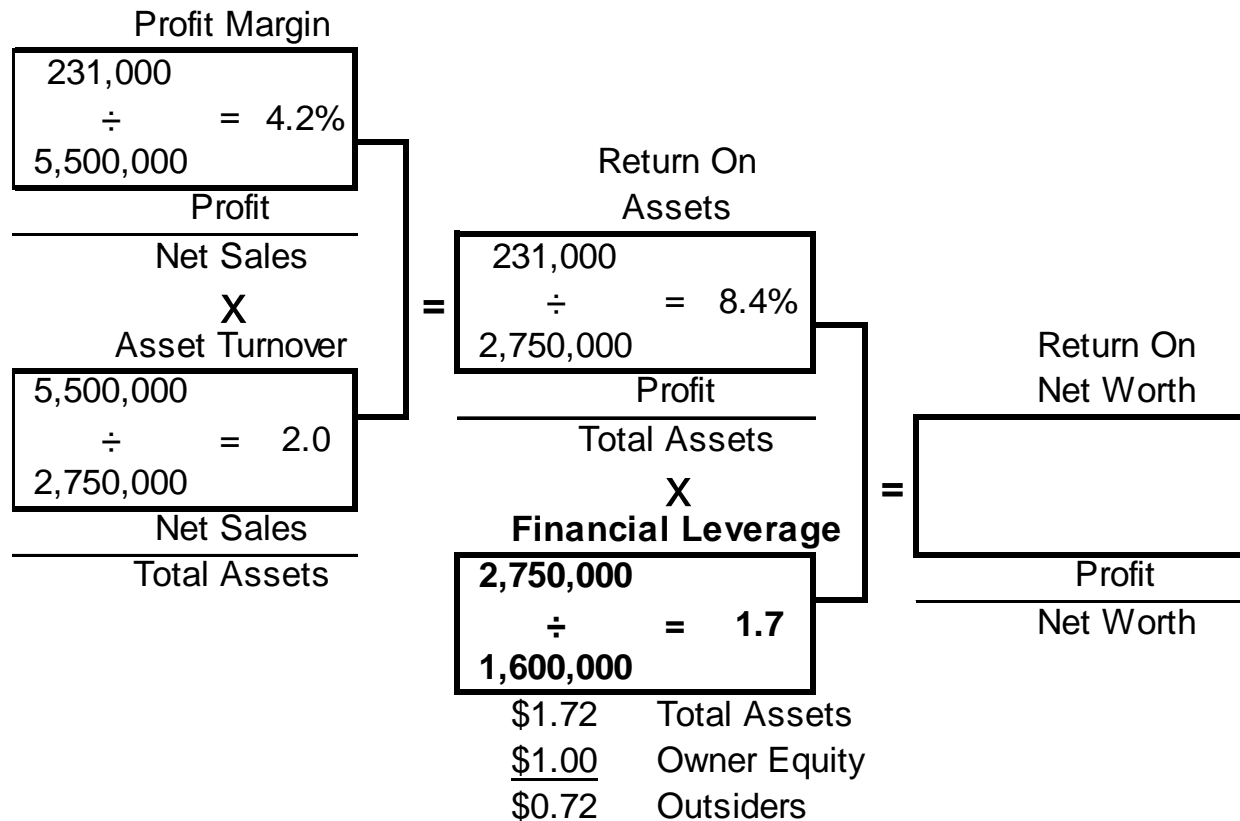
Source: 2007 NTMA Operating Costs Report

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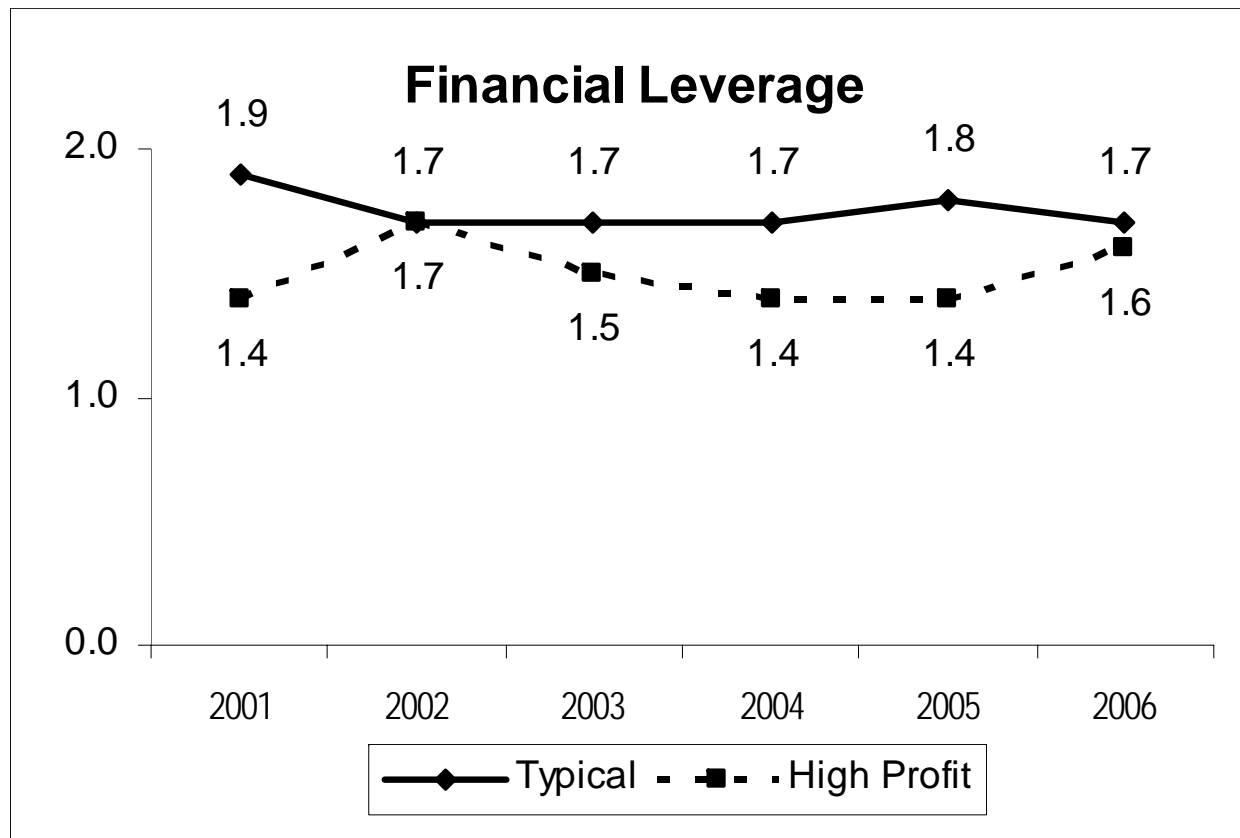


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Financial Leverage



Leverage Trend



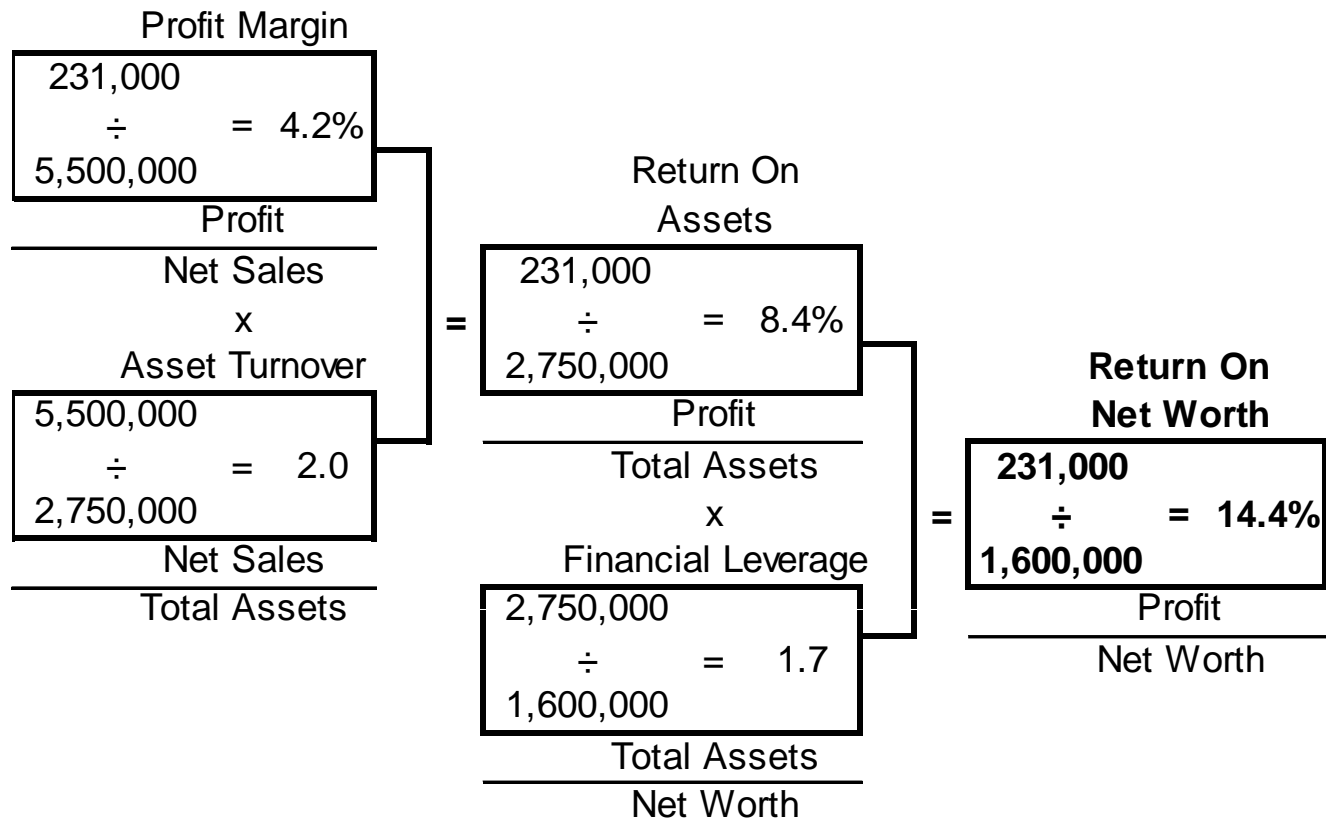
Source: 2007 NTMA Operating Costs Report

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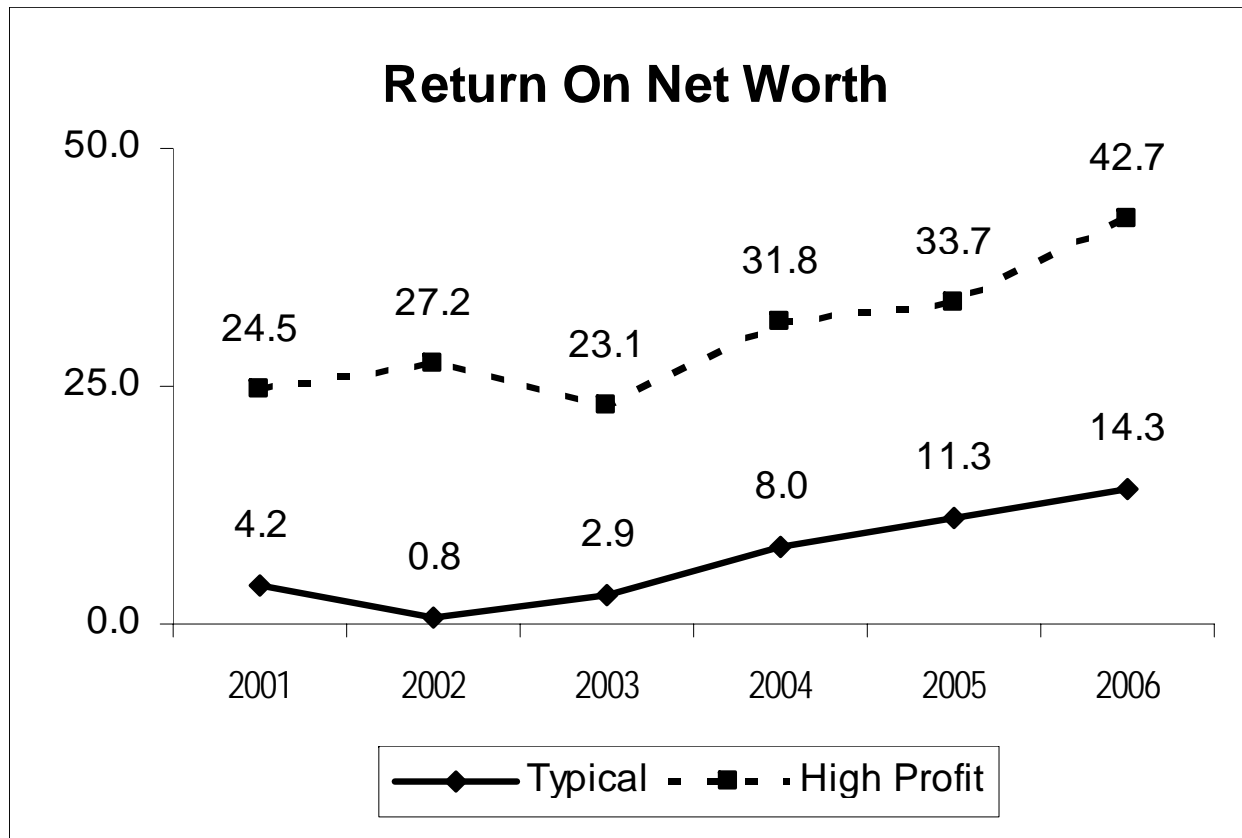


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Return On Net Worth



RONW Trend



Source: 2007 NTMA Operating Costs Report



Economic Value Added

Net Operating Profit After Taxes

—Total Capital Employed x Cost of Capital

= Economic Value Added

EVA reflects the amount of shareholder wealth created or destroyed over time.

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NOPAT

Profit Before Taxes		\$231,000
Interest	+	71,500
Taxes	-	<u>-69,300</u>
Net Operating Profit After Taxes		\$233,200



Total Capital Employed

Liabilities & Net Worth

Accounts Payable	\$275,000	10.0%
Notes Payable	110,000	4.0
Other Current	<u>165,000</u>	<u>6.0</u>
Current Liabilities	550,000	20.0
Long Term Liabilities	<u>600,000</u>	<u>21.8</u>
Total Liabilities	1,150,000	41.8
Net Worth or Equity	<u>1,600,000</u>	<u>58.2</u>
Total Liab. & NW	\$2,750,000	100.0%
Total Capital Employed	\$2,310,000	



EVA

Net Operating Profit After Taxes	\$233,200
<u>— Total Capital x Cost of Capital</u>	<u>231,000</u>
Economic Value Added	\$2,200



Economic Value Added

Net Operating Profit After Taxes (NOPAT)	=	Profit Before Taxes	+	Interest	-	Taxes
	=	\$231,000	+	\$71,500	-	\$69,300
	=	\$233,200				
Total Capital Employed	=	Notes Payable	+	Long Term Liab.	+	Net Worth
	=	\$110,000	+	\$600,000	+	\$1,600,000
	=	\$2,310,000				
Economic Value Added	=	NOPAT - (Total Capital Employed x Cost of Capital)				
	=	\$233,200	-	\$2,310,000	x	10.0%
EVA	=	\$2,200				



Factors For Success

Income Statement Factors	<u>Typical</u>	<u>High Profit</u>
Sales Growth	5.9%	14.6%
Gross Margin	21.7%	25.9%
S,G&A Expenses	16.7%	14.1%
Sales Per Employee	\$132,766	\$152,229
Balance Sheet Factors		
Average Collection Period	47.9	43.5
Inventory Turnover	8.4	7.7
Strategic Profit Model		
Profit Margin	4.2%	11.6%
Asset Turnover	2.0	2.3
Return On Assets	8.4%	26.7%
Financial Leverage	1.7	1.6
Return On Net Worth	14.3%	42.7%

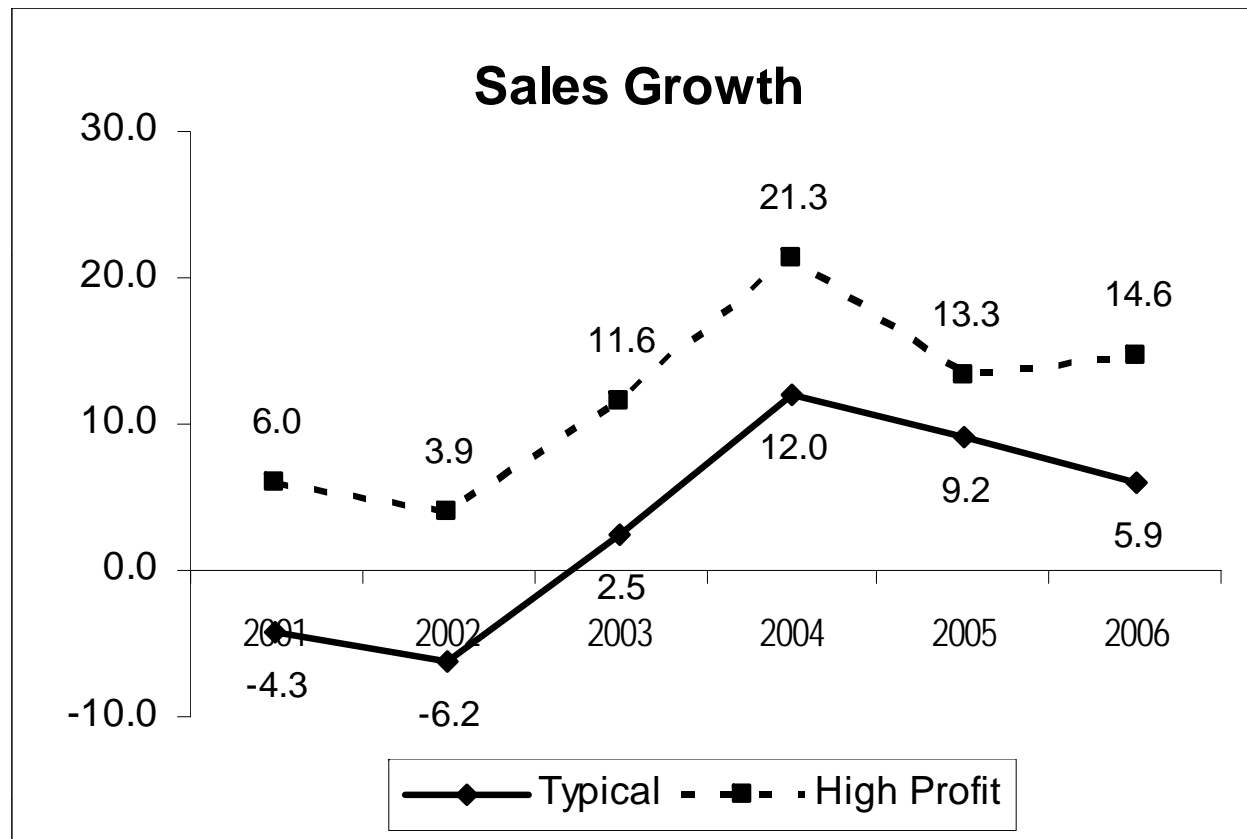
Source: 2007 NTMA Operating Costs Report

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Sales Growth



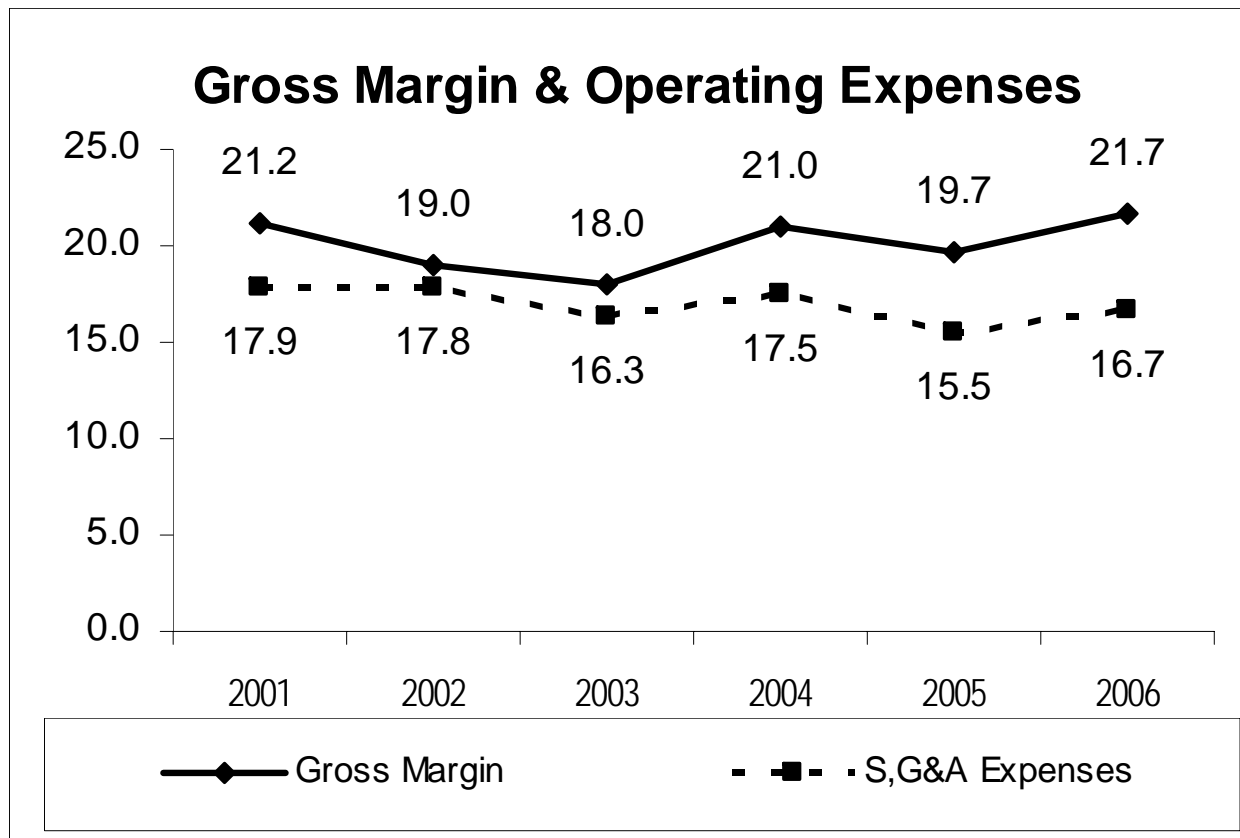
Source: 2007 NTMA Operating Costs Report

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Margin & S,G&A Trends



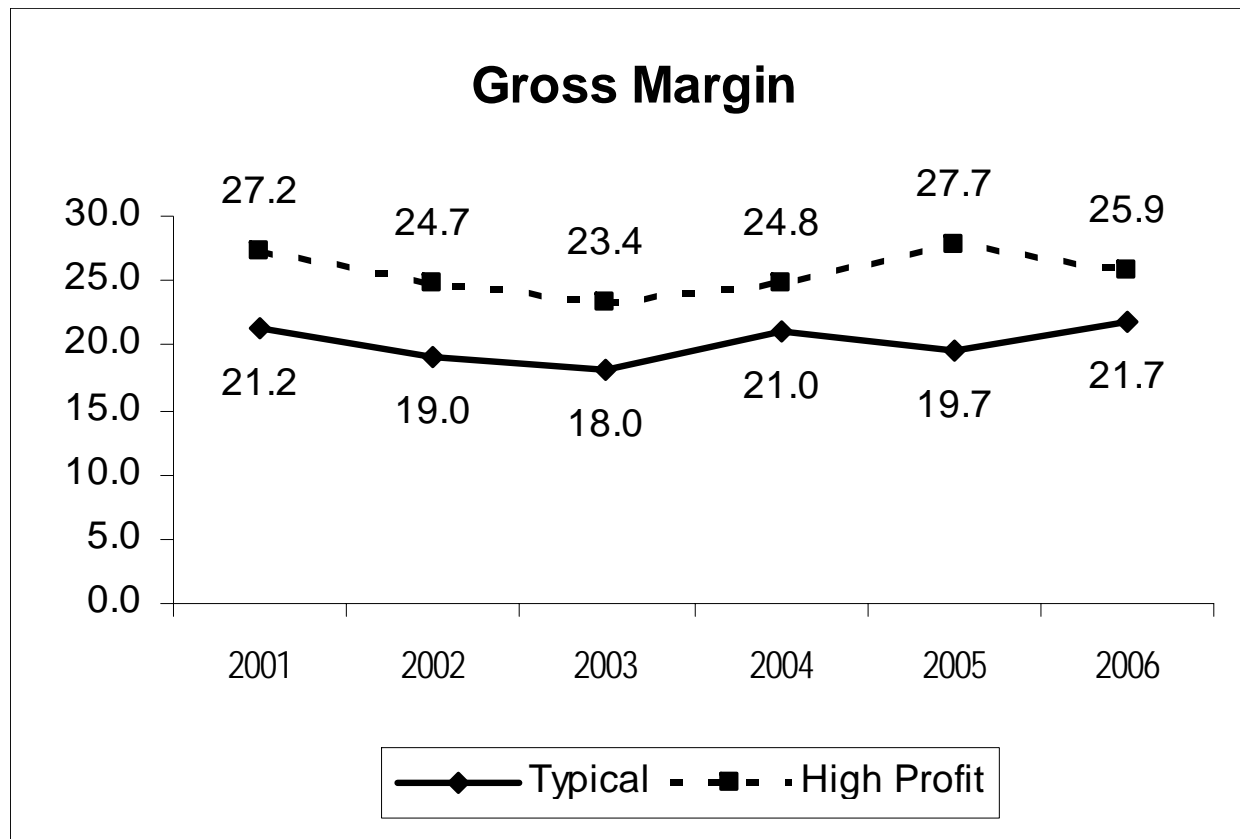
Source: 2007 NTMA Operating Costs Report

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Gross Margin Trends



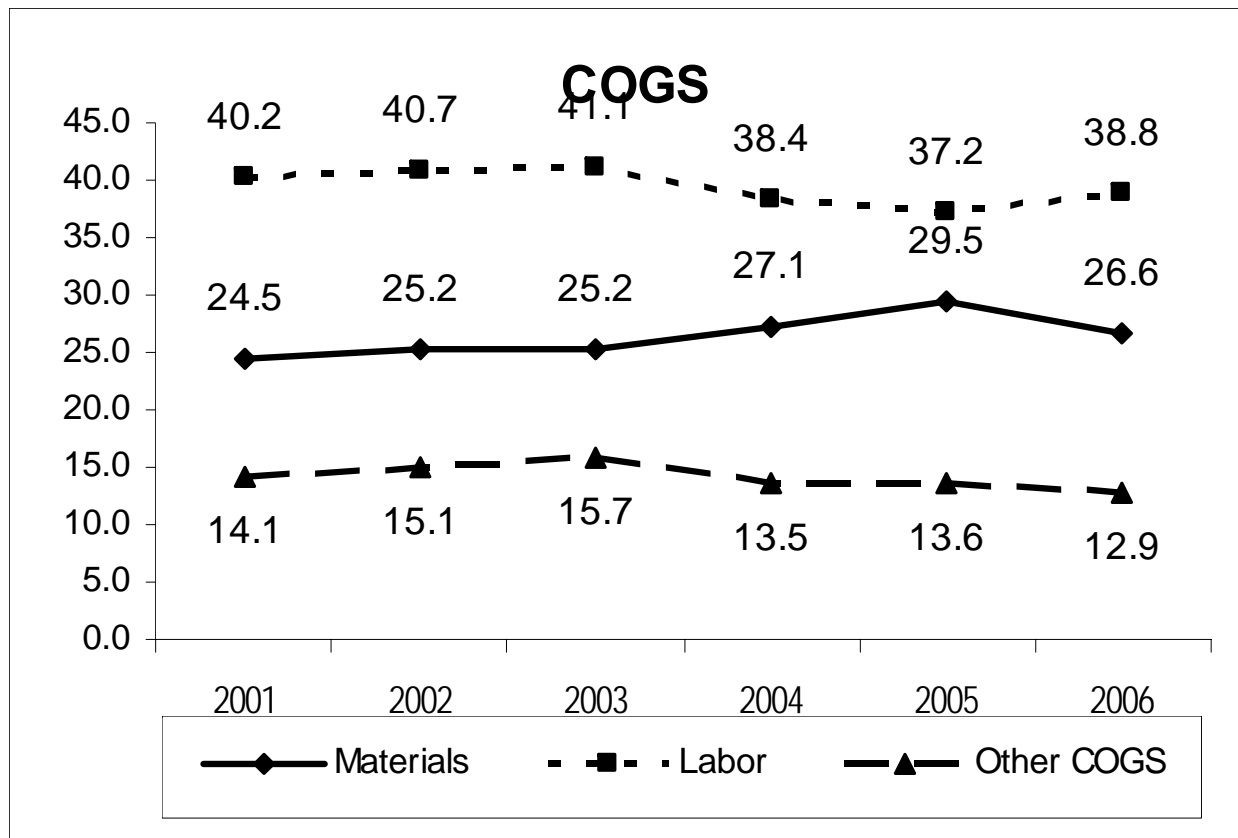
Source: 2007 NTMA Operating Costs Report

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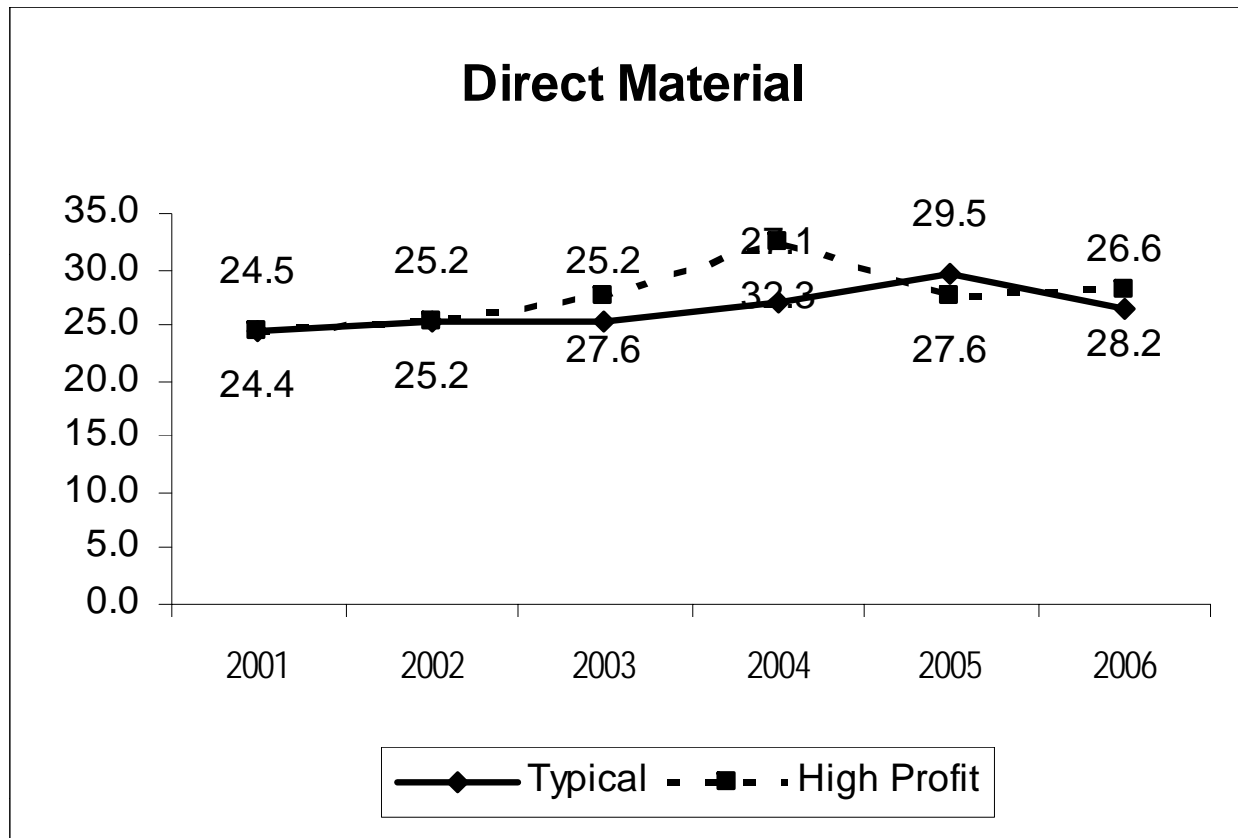
COGS Trends



Source: 2007 NTMA Operating Costs Report



Direct Material Costs



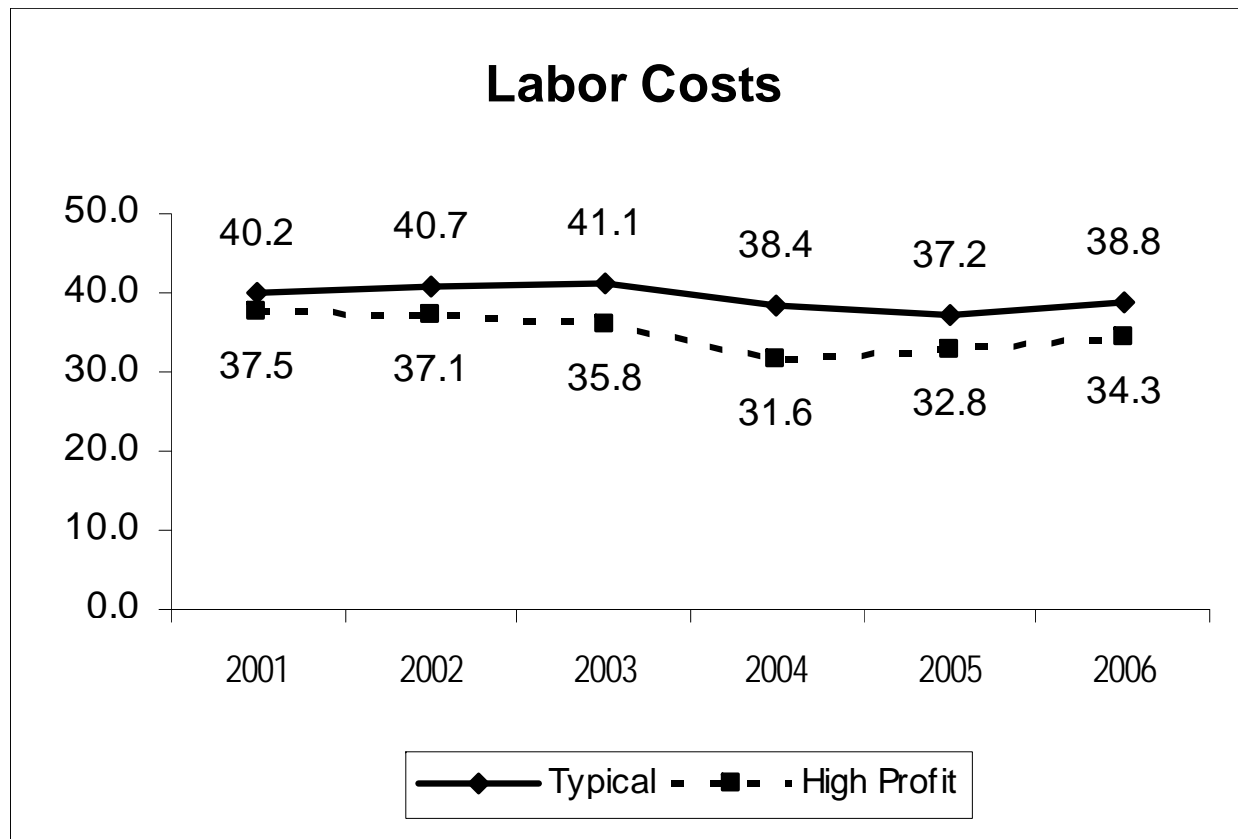
Source: 2007 NTMA Operating Costs Report

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Labor Costs



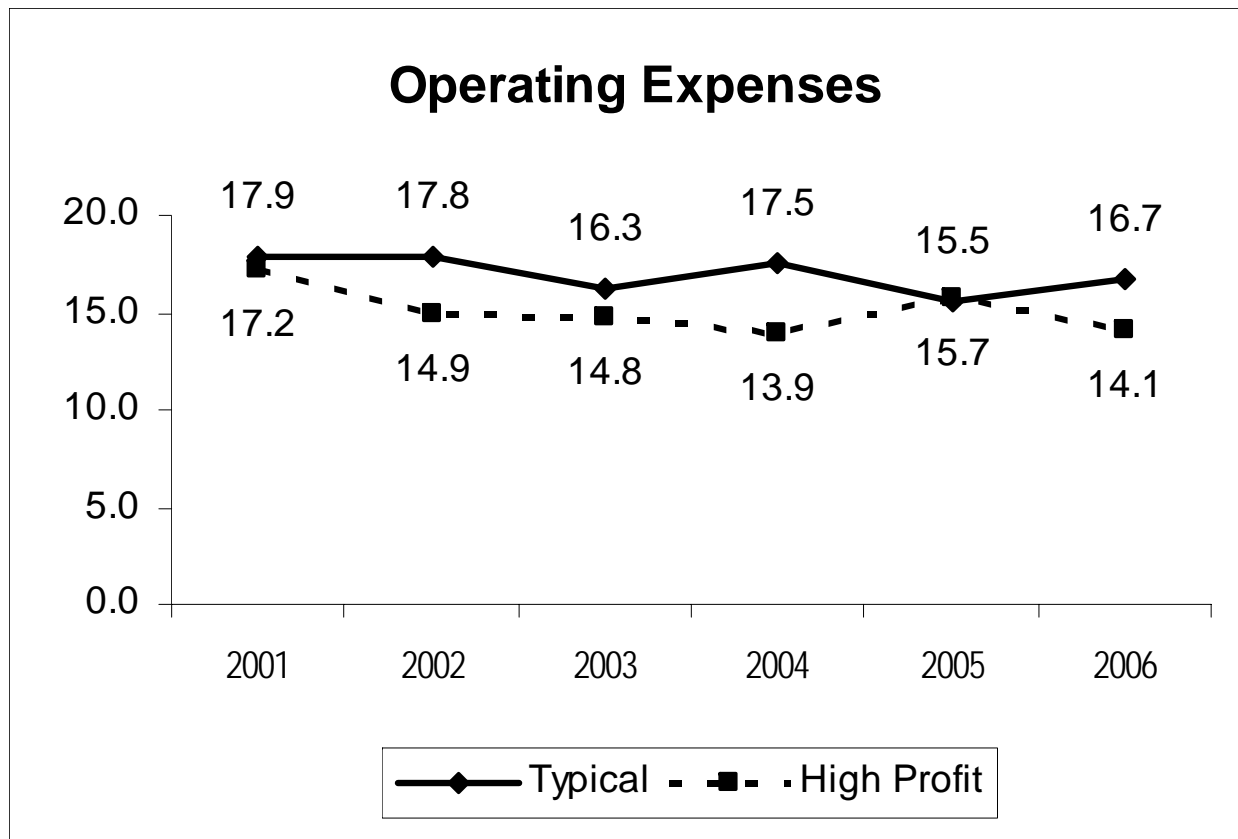
Source: 2007 NTMA Operating Costs Report

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S,G&A Trends



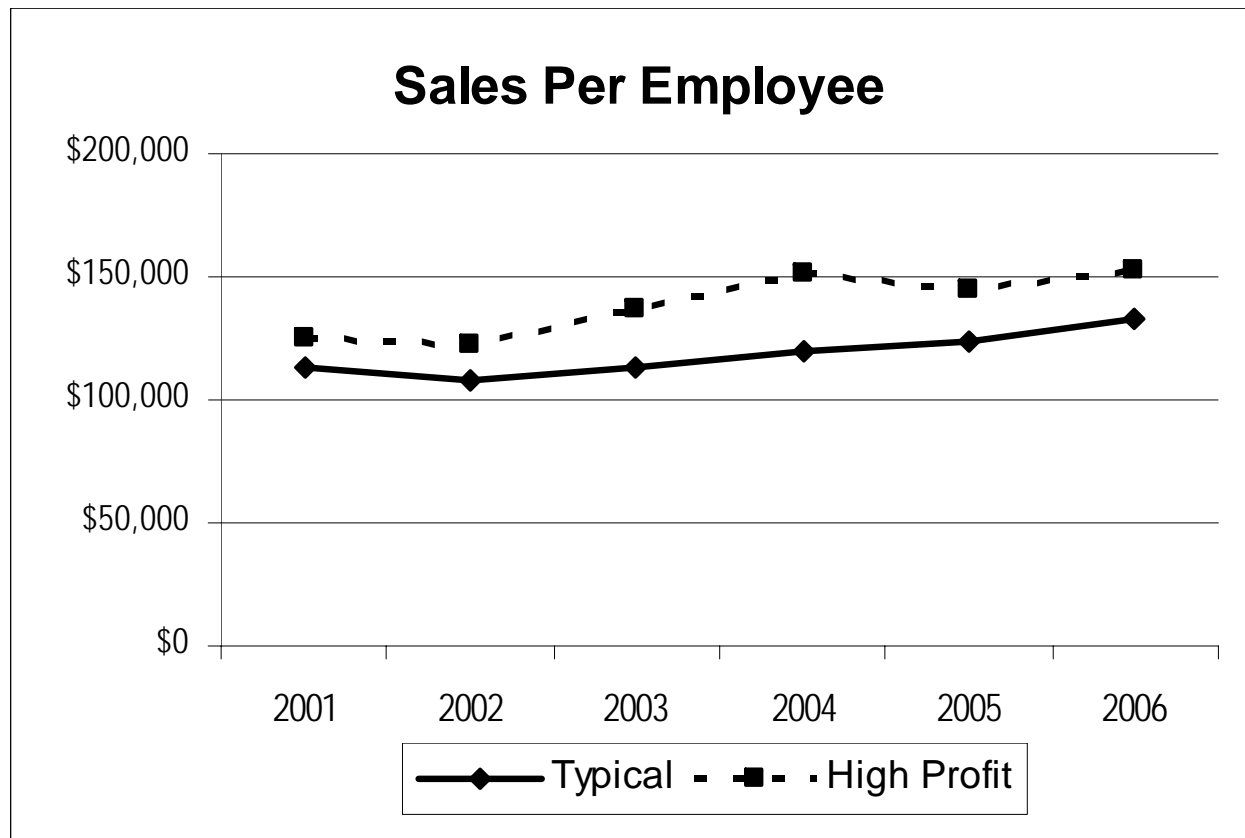
Source: 2007 NTMA Operating Costs Report

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Sales Per Employee Trend



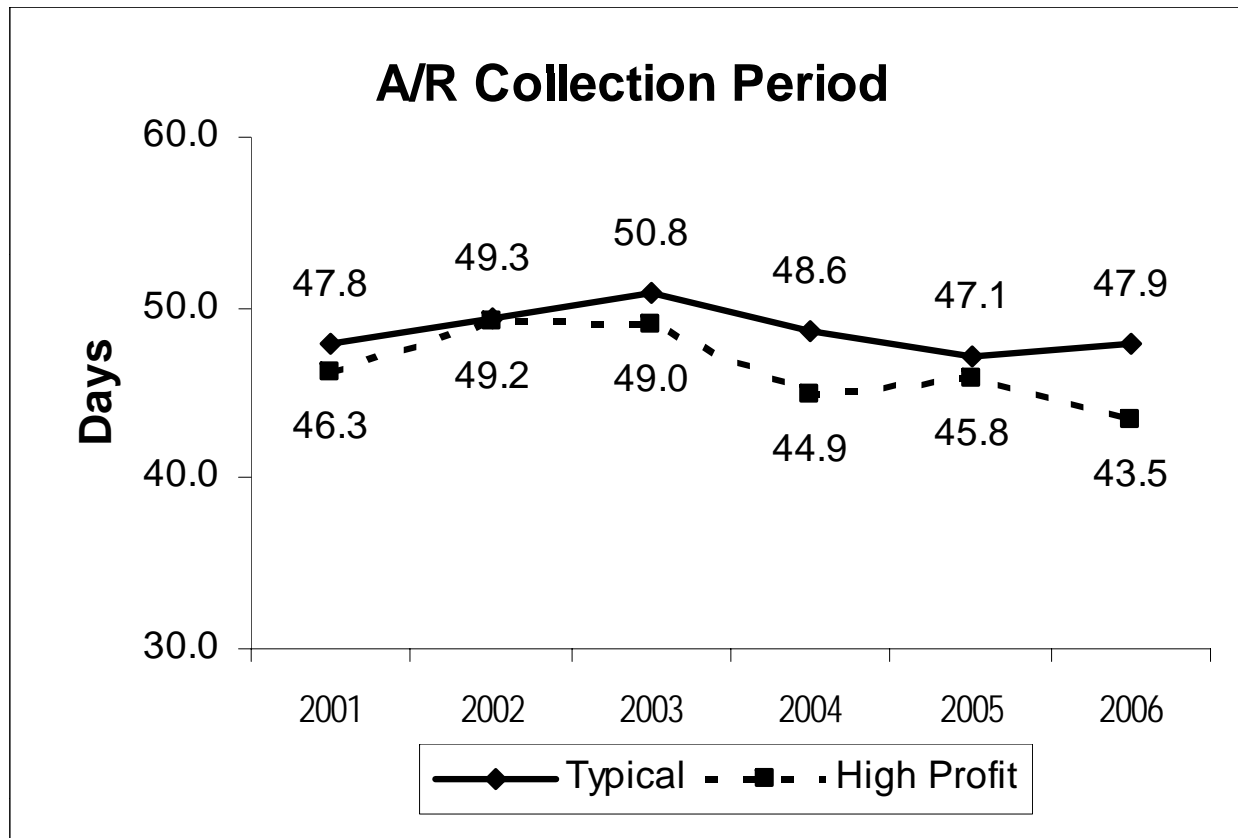
Source: 2007 NTMA Operating Costs Report

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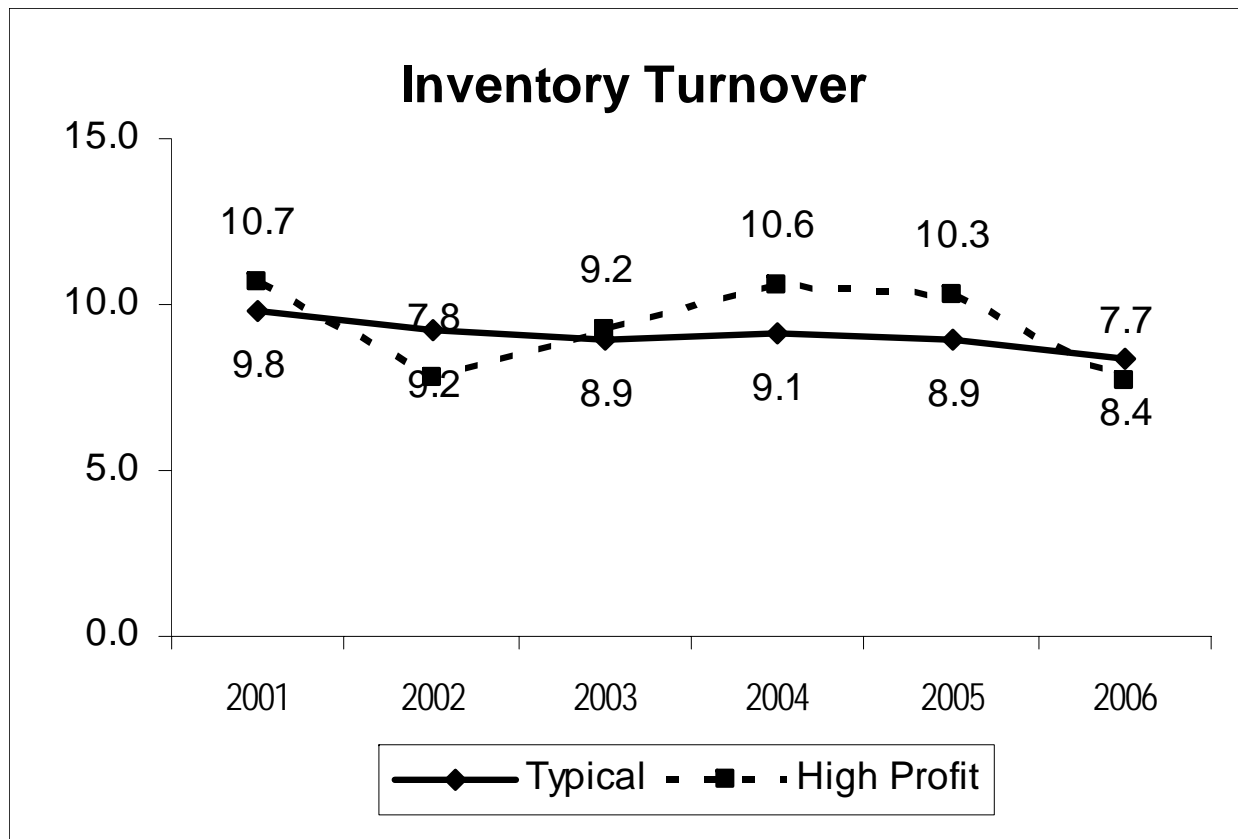
A/R Collection Trend



Source: 2007 NTMA Operating Costs Report



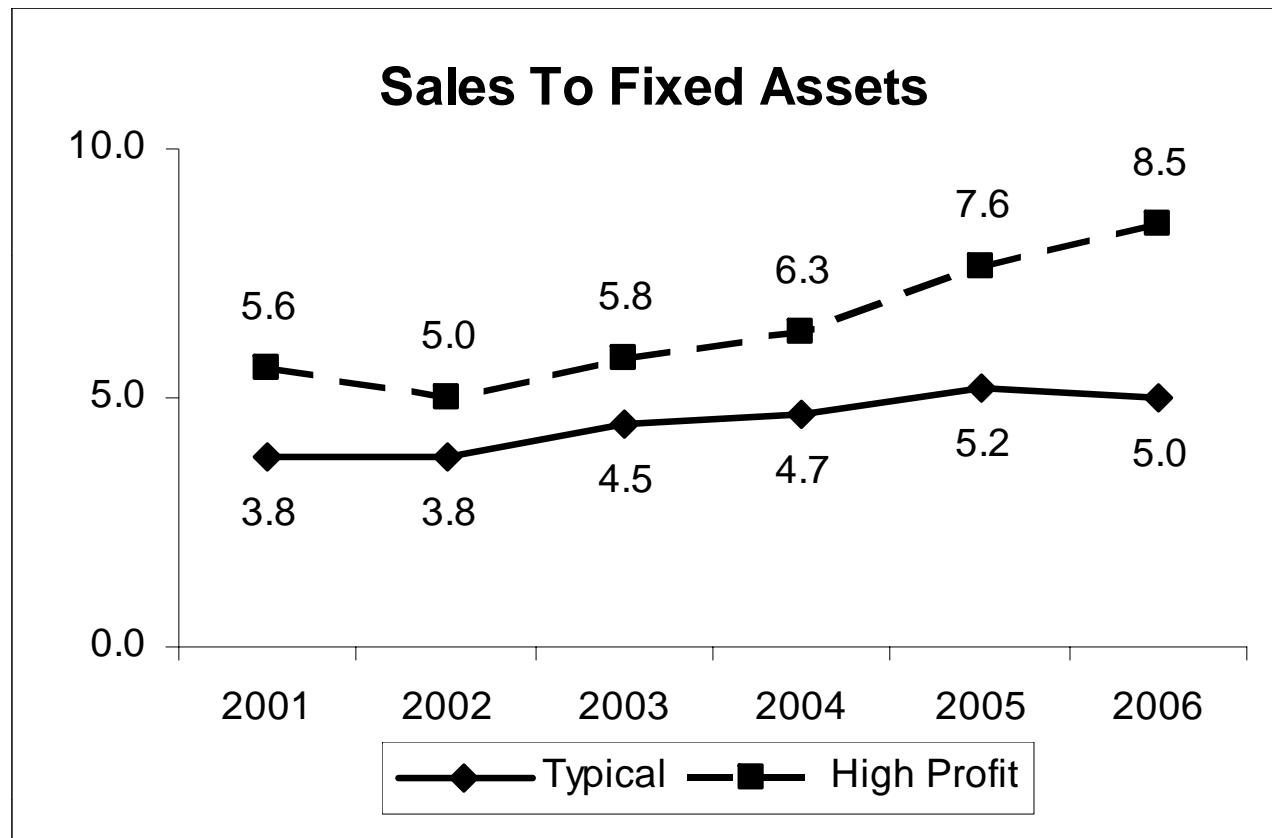
Inventory Turn Trend



Source: 2007 NTMA Operating Costs Report



Sales to Fixed Assets Trend



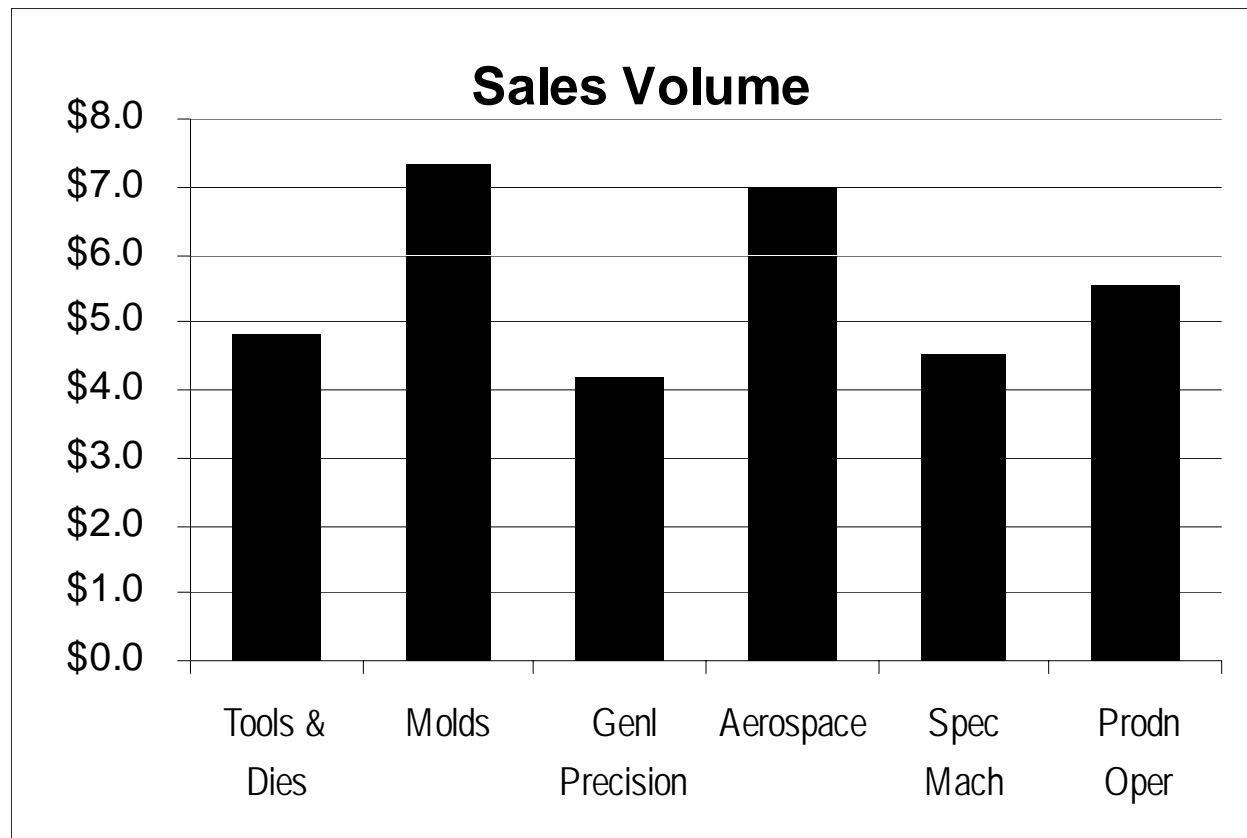
Source: 2007 NTMA Operating Costs Report

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Line of Business

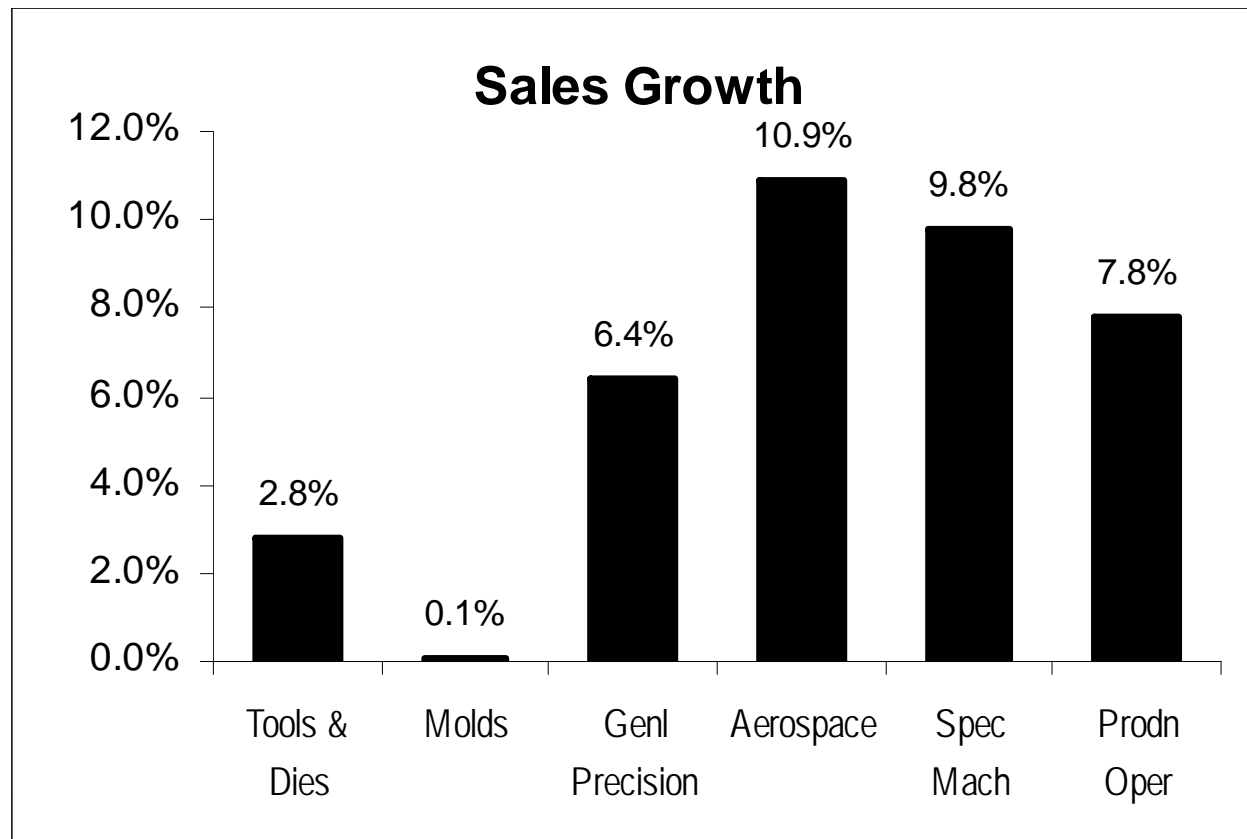


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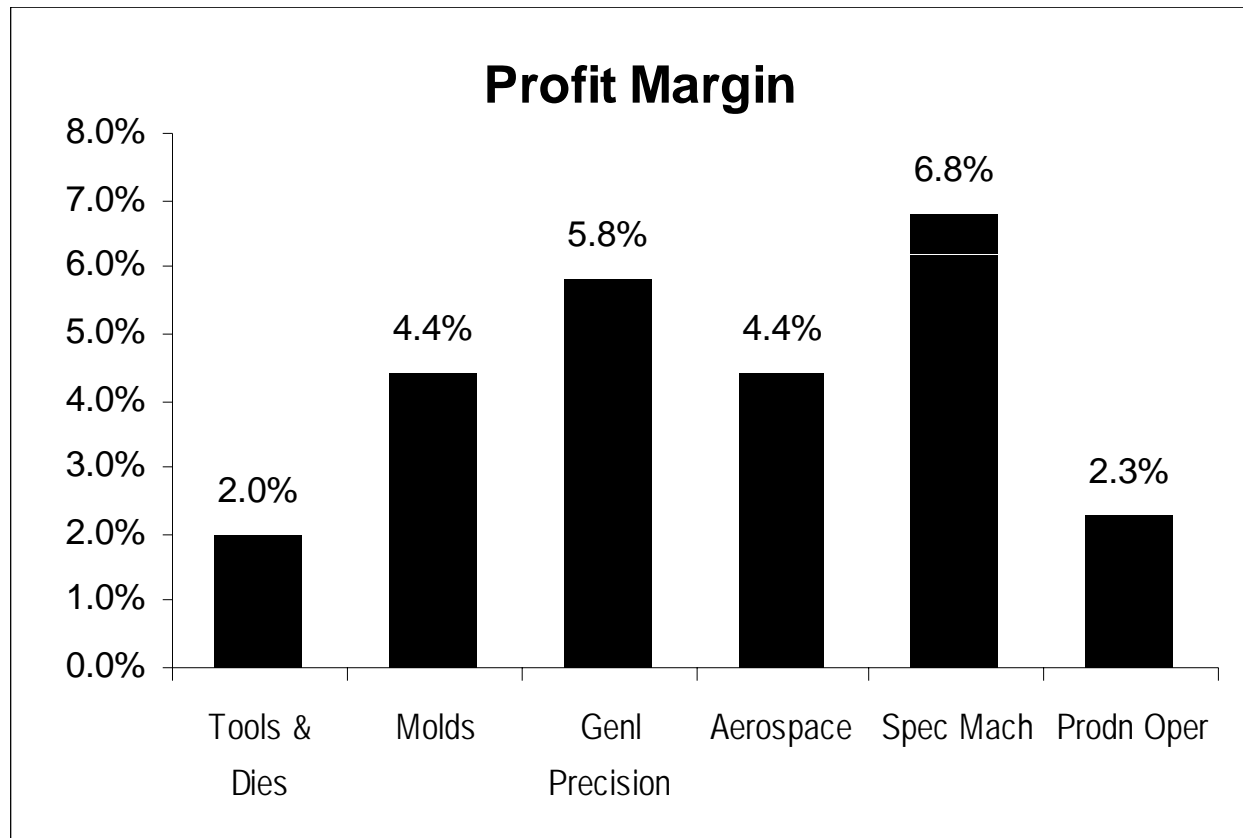


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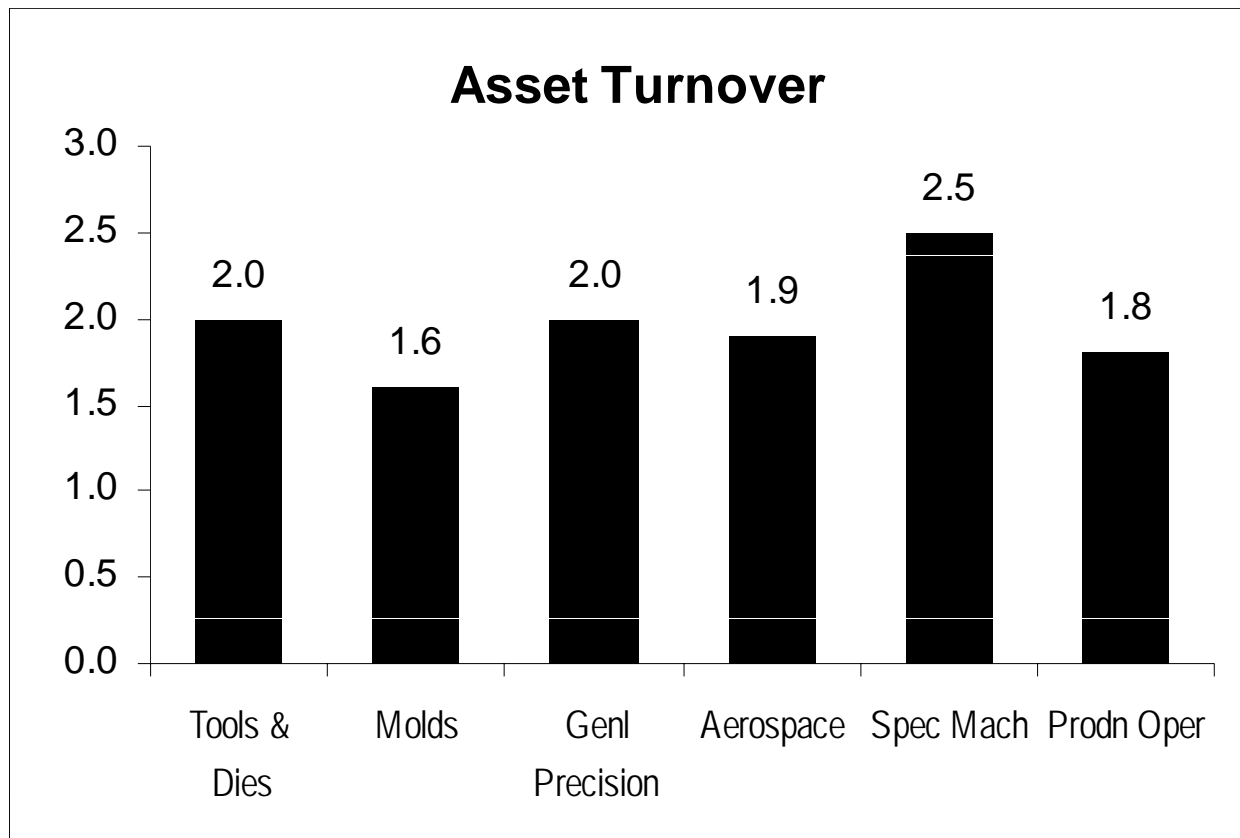
Growth by LOB



Profit Margin by LOB



Asset Turnover by LOB

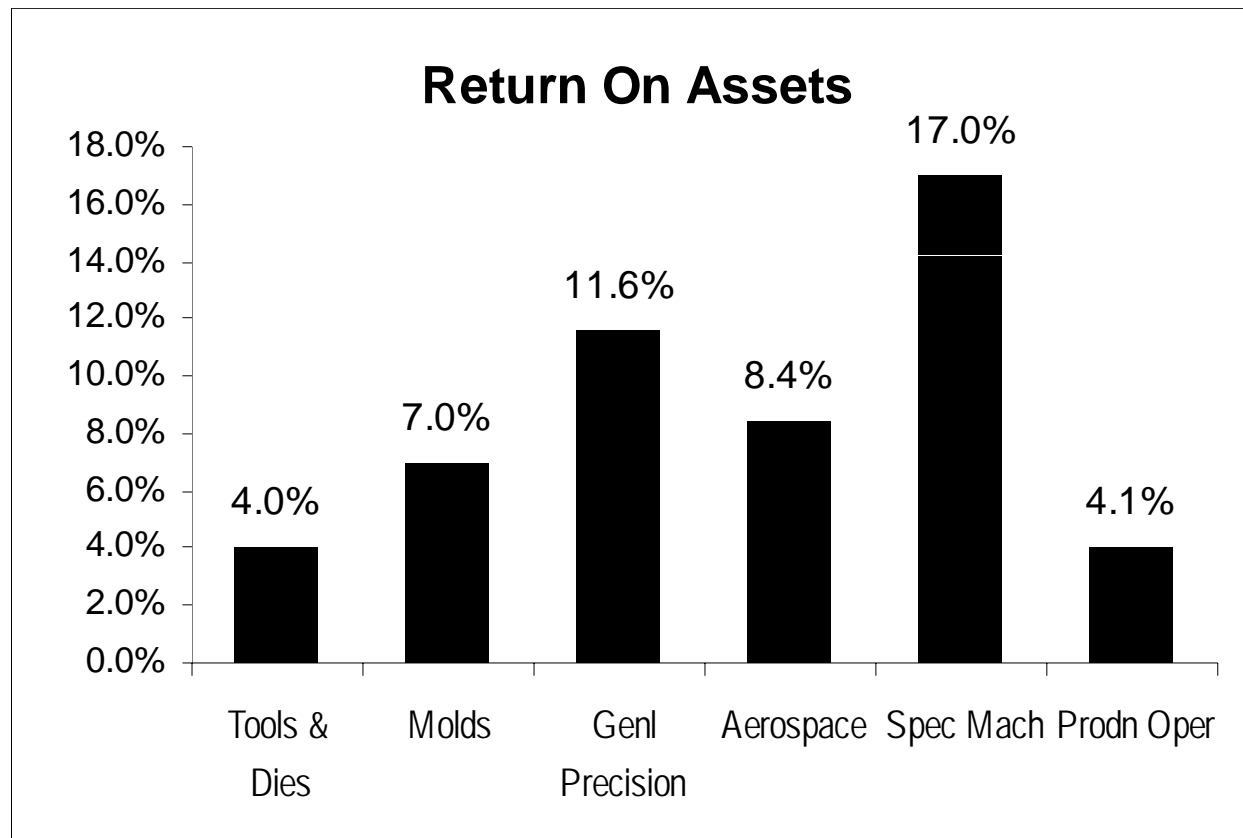


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ROA by LOB

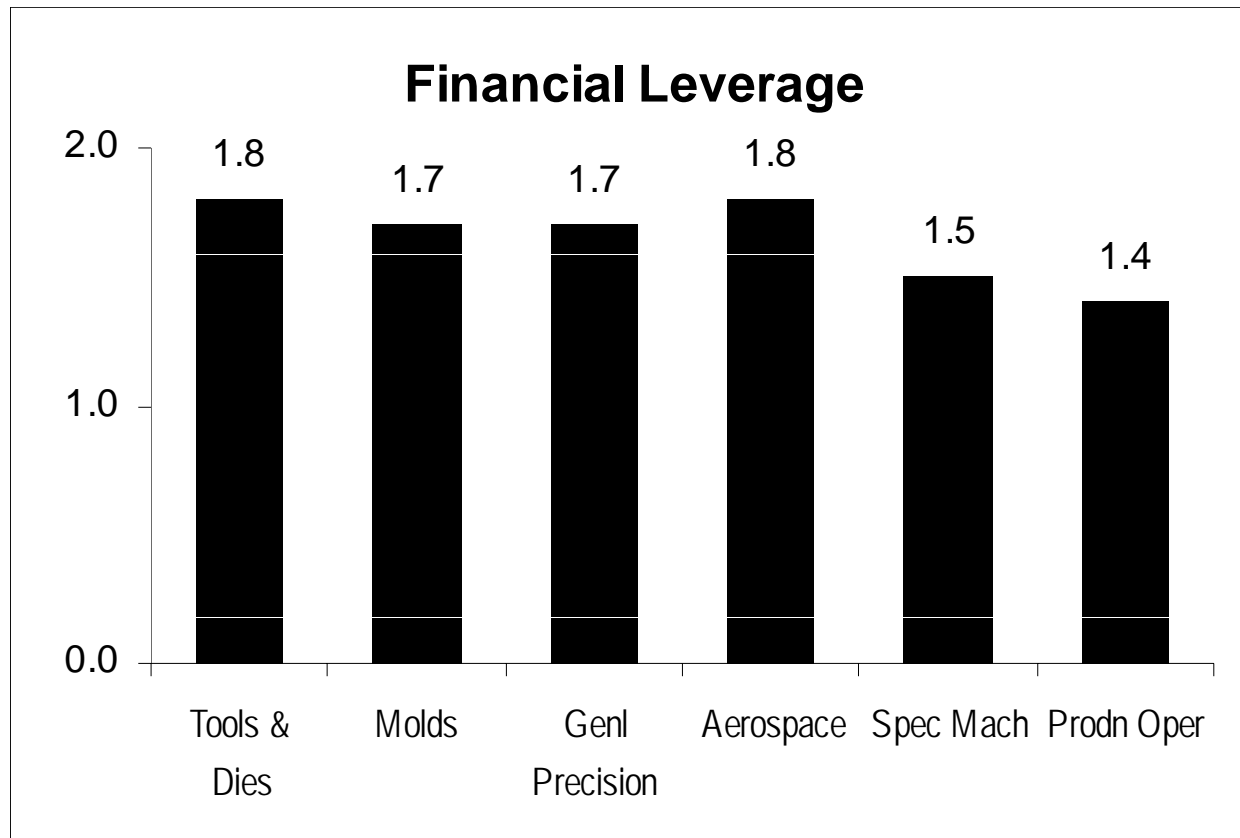


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Leverage by LOB

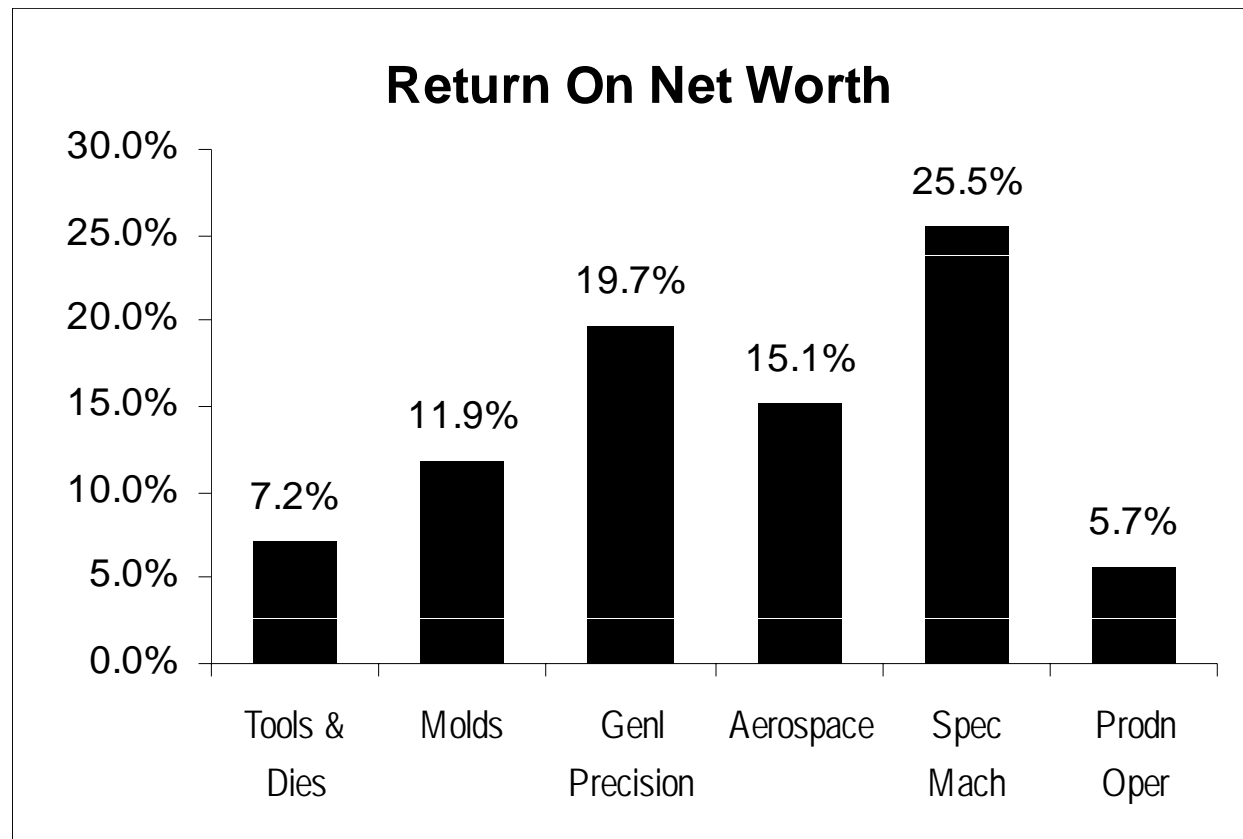


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RONW by LOB

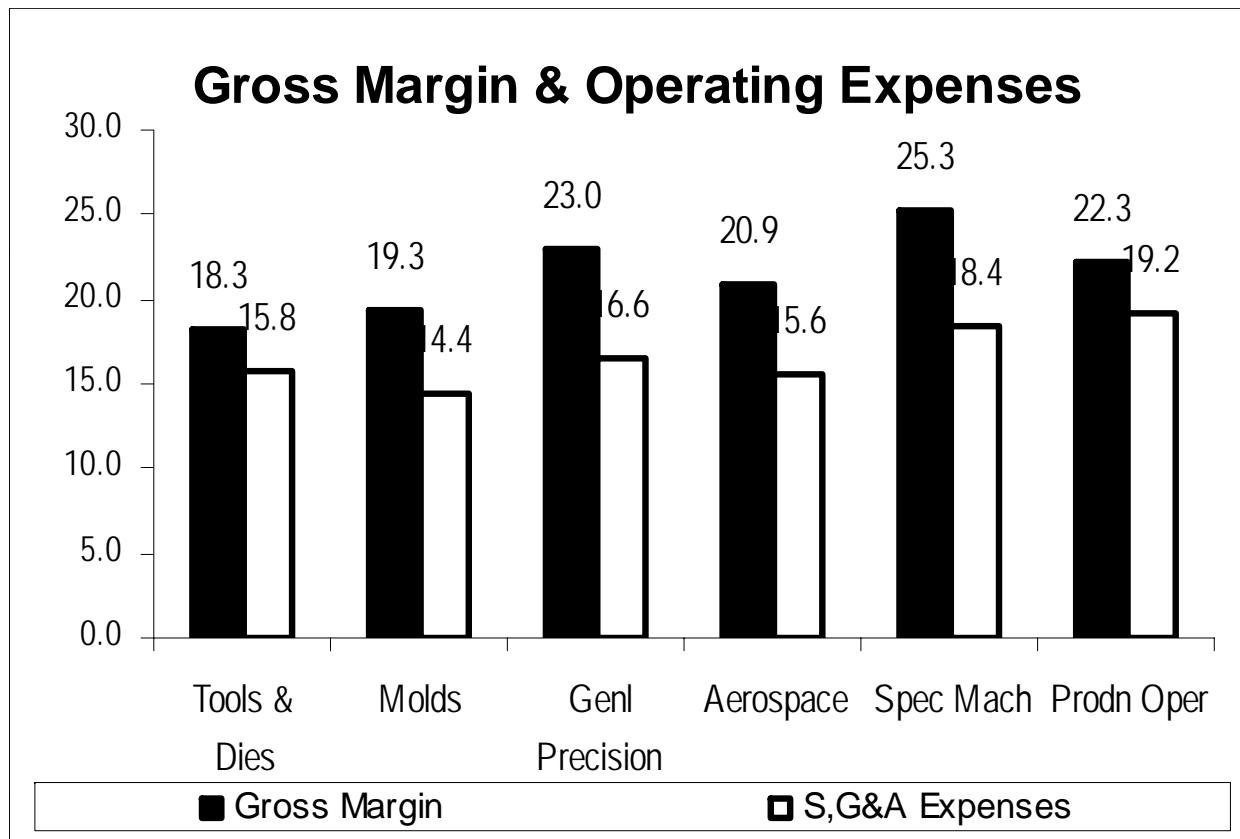


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Margin & Expenses by LOB

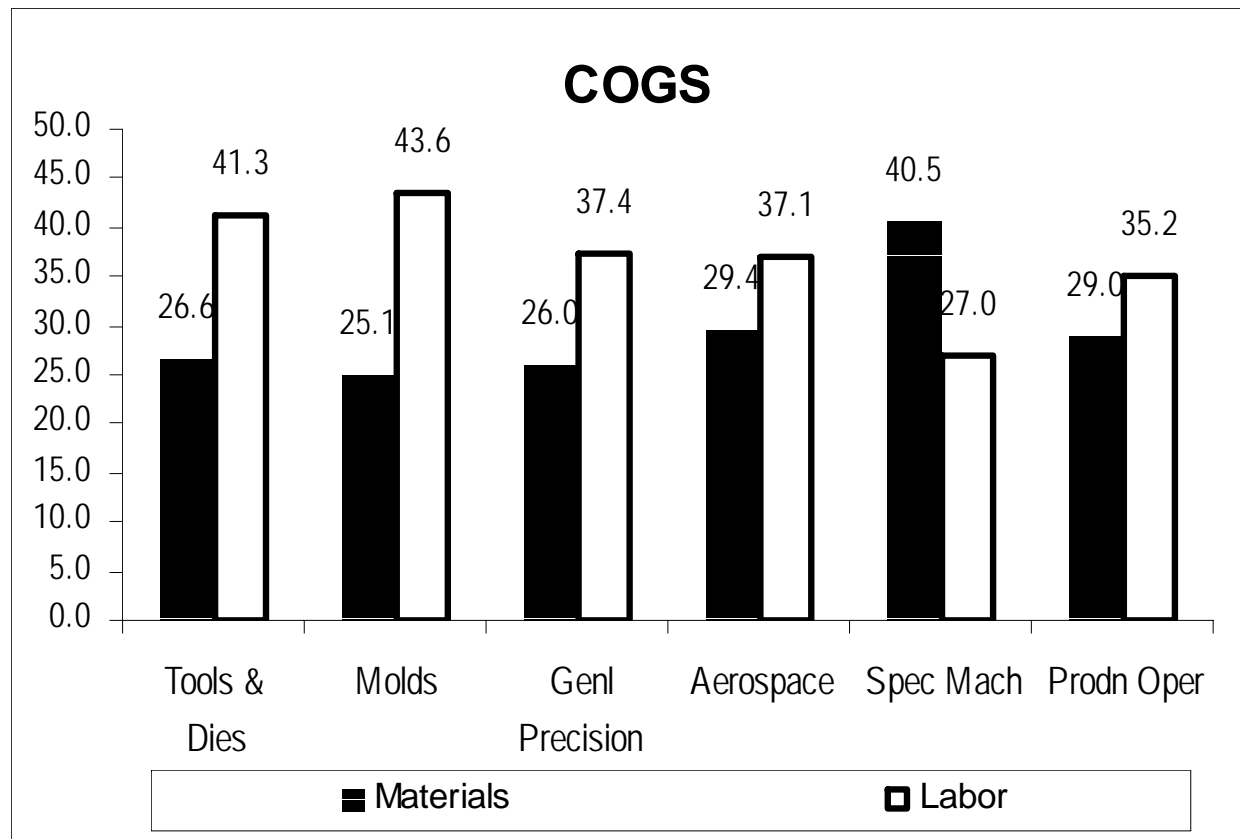


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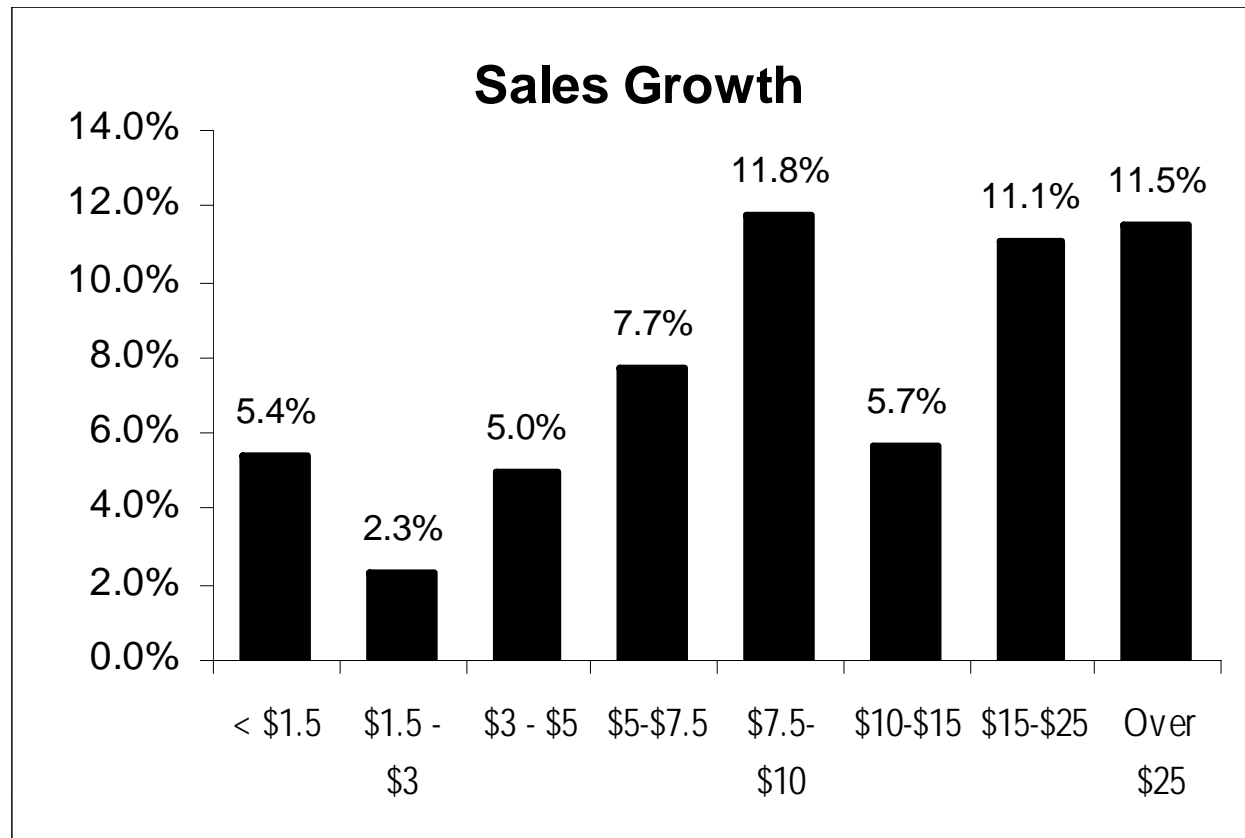


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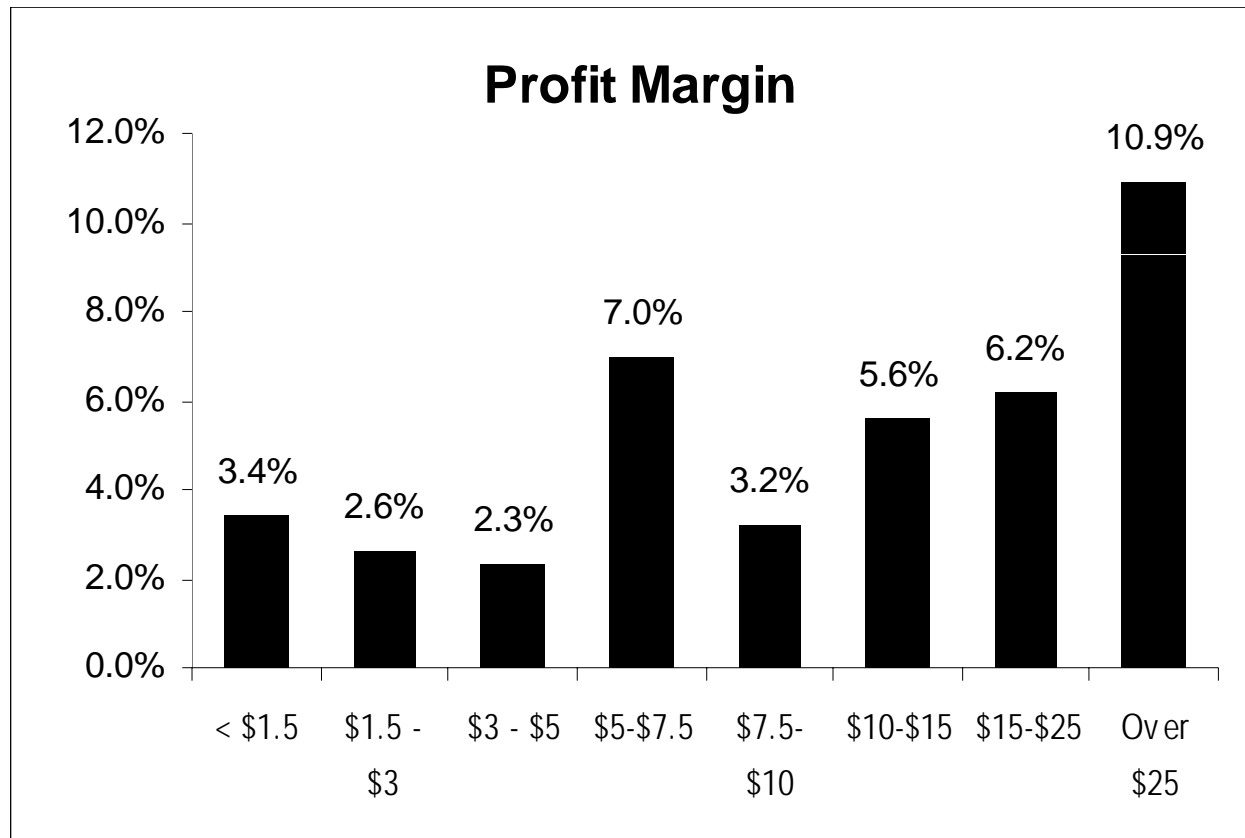
Materials & Labor



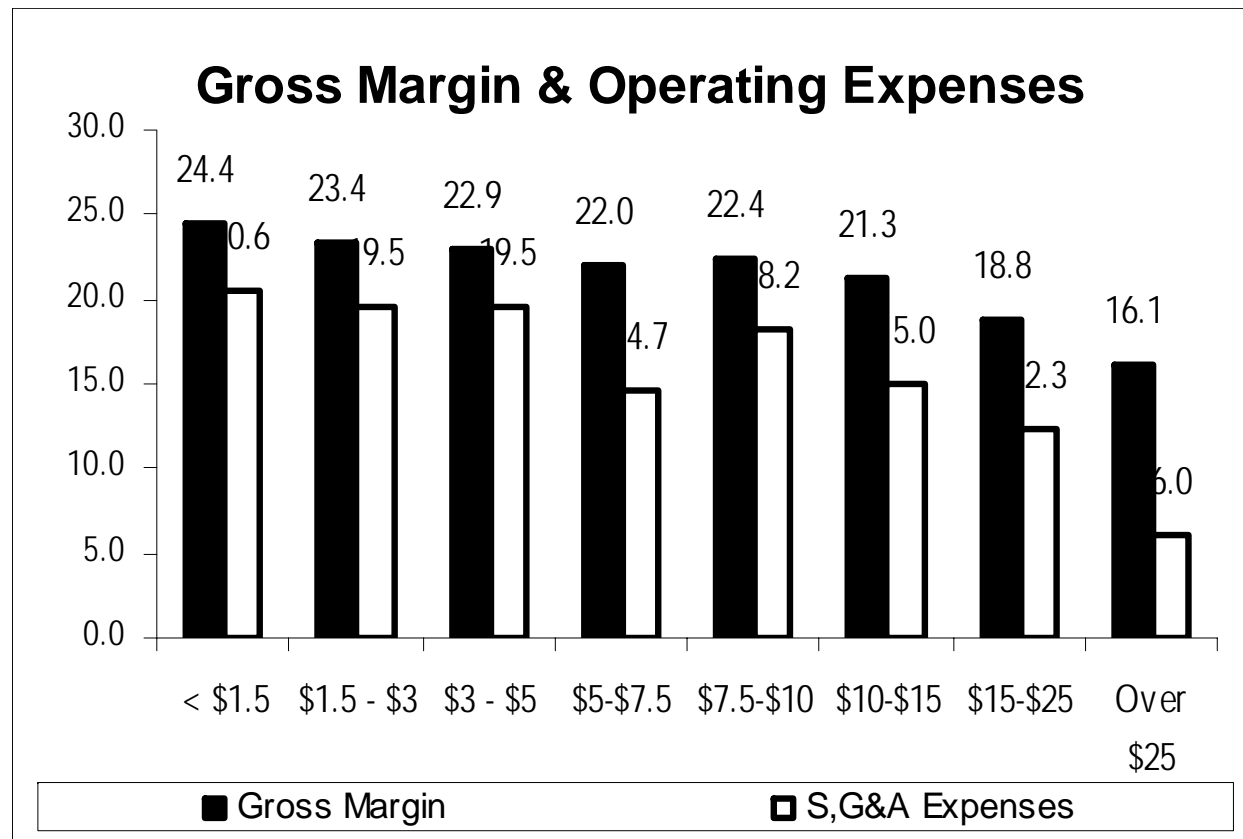
Growth by Size



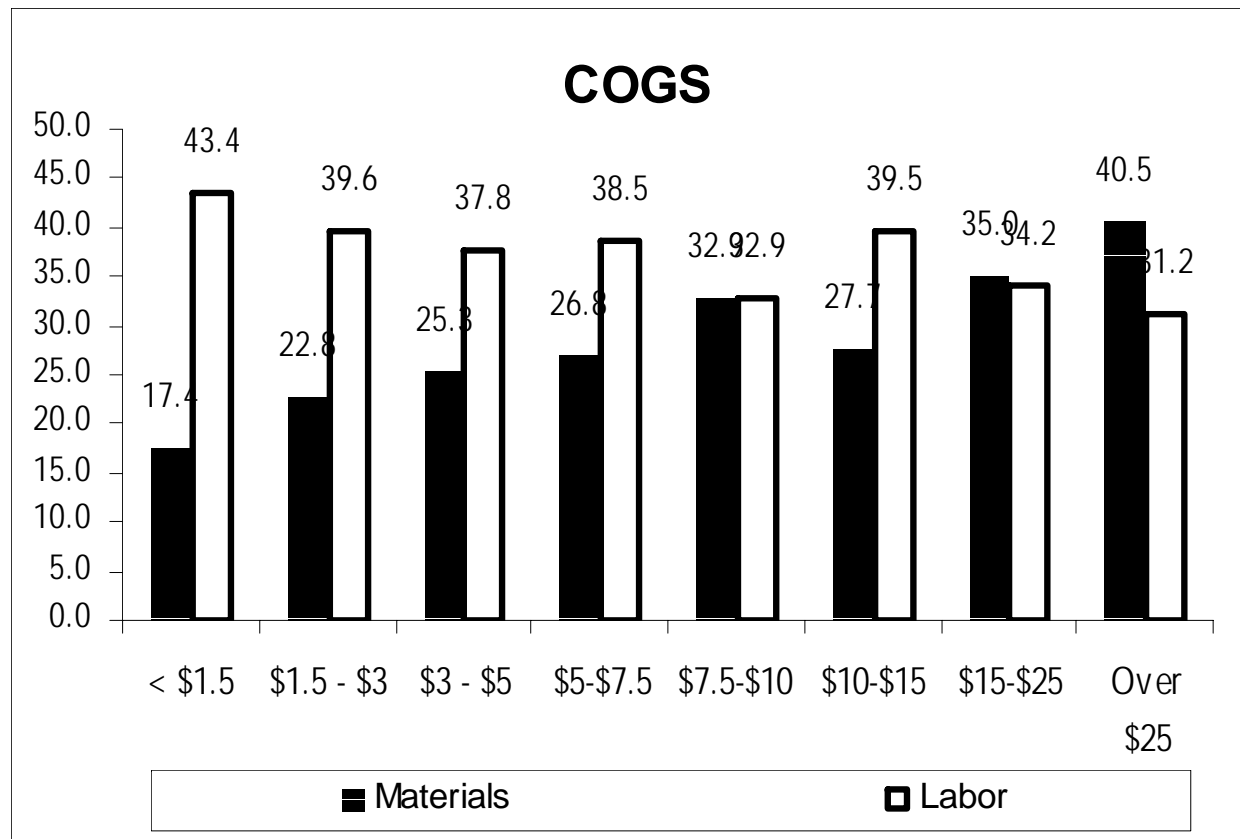
Profit by Size



Margin & Expenses



Materials & Labor



Setting Priorities: Relative Impact of a 1% Improvement

<u>Area Of Improvement</u>	<u>Profit Increase</u>
Raise Prices	22.9%
Lower Material Costs	6.3%
Improve Labor Productivity	
Sales Growth	12.7%
Reduce Direct Labor	5.5%
Unit Sales	7.2%
Reduce Genl. & Admin.	3.3%
Accounts Receivable	0.2%
Inventory	0.2%



That Can't Be Right

	<u>Current</u>	<u>Pricing</u>	<u>Unit Sales</u>
Sales	5,500,000	5,555,000	5,555,000
<u>Cost Of Goods Sold</u>			
Direct Materials	1,463,000	1,463,000	1,477,630
Direct Labor	1,265,000	1,265,000	1,277,650
Indirect Labor	462,000	462,000	462,000
Plant Depreciation	209,000	209,000	209,000
Other Factory Costs	<u>907,500</u>	<u>907,500</u>	<u>916,575</u>
Total COGS	4,306,500	4,306,500	4,342,855
Gross Margin	1,193,500	1,248,500	1,212,145
<u>S, G&A Expenses</u>			
Selling Expenses	200,750	202,758	202,758
General & Admin.	<u>761,750</u>	<u>761,750</u>	<u>761,750</u>
Total S, G&A	962,500	964,508	964,508
Profit	231,000	283,993	247,638
Increase		22.9%	7.2%



A Series Of 1% Improvements

	<u>Current</u>	<u>Home Run</u>
Sales	5,500,000	5,610,000
<u>Cost Of Goods Sold</u>		
Direct Materials	1,463,000	1,463,000
Direct Labor	1,265,000	1,265,000
Indirect Labor	462,000	462,000
Plant Depreciation	209,000	209,000
Other Factory Costs	<u>907,500</u>	<u>916,575</u>
Total COGS	4,306,500	4,315,575
Gross Margin	1,193,500	1,294,425
<u>S, G&A Expenses</u>		
Selling Expenses	200,750	204,765
General & Admin.	<u>761,750</u>	<u>761,750</u>
Total S, G&A	962,500	966,515
Change in Interest		<u>0</u>
Profit	231,000	327,910
A/R	722,000	722,000
Inventory	515,000	515,000
Increase in Profit		42.0%



What's Achievable

Improvements Needed to Double Profits

<u>Area Of Improvement</u>	<u>% Change</u>
Raise Prices	4.4%
Lower Material Costs	-15.8%
Improve Labor Productivity	
Sales Growth	7.9%
Reduce Direct Labor	-18.3%
Unit Sales	13.9%
Reduce Genl. & Admin.	-30.3%
Accounts Receivable	-639.9%
Inventory	-448.5%

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Summary and Conclusions

Benchmarking results provide the rationale and evidence for shifting or reducing resources.



Who is this guy?

John R. Mackay – President, Mackay Research Group

John R. Mackay is President of the Mackay Research Group, a research and executive education firm headquartered in Lafayette, Colorado. John has been conducting the OCEC Report and the Wage & Employee Benefits Report for NTMA since 2002.

Prior to forming the Mackay Research Group John was Vice President of the Profit Planning Group. He joined the Profit Planning Group in 1982 to head up its profitability survey activities. Over his 20 year tenure, John helped build PPG's client roster from 1 to 80 associations.

Besides working with NTMA, John conducts financial benchmarking & compensation studies for AMT, AGMA, SMI and other associations in the Metalworking Manufacturing Coalition.

John received his undergraduate degree from The Ohio State University and his MBA from the University of Colorado.

