

# Valuing Intangible Assets

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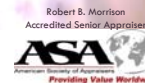


**“In God we trust.  
All others must bring data.”**

-W. Edwards Deming



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## Objectives

- Understand why values of IAs are important
- Learn how to identify IAs
- Introduce more common valuation methods



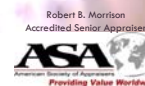
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## Why do we care?

- For many industries, IAs predominate over tangible assets
- Price to book<sup>1</sup>:
  - 1977: 1.2 to 1.0
  - 1980: 1.3 to 1.0
  - 1990: 1.8 to 1.0
  - 2000: 4.2 to 1.0
  - 2005: 2.9 to 1.0 (after FAS 141/ASC 805)

<sup>1</sup>S&P/Barra Indexes



## Why do we care?

- Financial reporting
- Income taxes
- Divorce (personal vs. entity goodwill)
- IA theft/infringement



## Identify IAs

- Facts of a divorce:
  - H is one of 10 owner-doctors
  - There are 10 non-owner doctors
  - There are many revenue-generating non-doctors
  - There are 10 locations throughout Central Florida
  - There is a captive lab and a captive surgery center



## Identify IAs


- Facts of a divorce:
  - Company has been around for 30+ years
  - Unique telephone number


## Identify IAs?

- What are the potential IAs?
  - Customer related
    - Customer relationships
    - Customer lists
    - Referral sources
    - Customer contracts
  - Contract related
    - Favorable vendor agreements
    - Franchises
    - Licenses

## Identify IAs?


- What are the potential IAs?
  - Human capital related
    - Employment/non compete agreements
    - Assembled workforce
    - Trained workforce
  - Technology & data processing related
    - Software
    - Technical drawings and documentation





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## Identify IAs?


- What are the potential IAs?
  - Intellectual property
    - Know-how, processes, trade secrets
    - Trademarks, trade names, trade dress
    - Patents, copyrights
  - Location related
    - Leasehold interest/rights
    - Air, water, or mineral rights





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## Valuation Methods

- Multi-period excess earnings method
- Relief from royalty method
- Replacement cost method
- With and without method
- Profit-split method
- Greenfield

## Valuation Methods

- Customer relationships
  - Multi-period excess earnings method
  - Profit-split method

## Customer Relationships

		TTM +1	TTM +2	TTM +3	TTM +4	TTM +5
Total customer revenues		\$ 3,542	\$ 3,808	\$ 3,998	\$ 4,198	\$ 4,324
Acquired customer revenues		\$ 3,381	\$ 3,516	\$ 3,621	\$ 3,730	\$ 3,842
Retention rate	60.0%	80.0%	48.0%	28.8%	17.3%	10.4%
Revenue from acquired customers % of total revenue		\$ 2,705 76.4%	\$ 1,688 44.3%	\$ 1,043 26.1%	\$ 645 15.4%	\$ 400 9.3%
Gross profit	10.0%	\$ 271	\$ 169	\$ 104	\$ 65	\$ 40
Operating costs	5.0%	(135)	(84)	(52)	(32)	(20)
Depreciation		(50)	(29)	(17)	(10)	(6)
EBIT		\$ 86	\$ 56	\$ 35	\$ 23	\$ 14
Taxes	25.0%	(22)	(14)	(9)	(6)	(4)
NOPAT		\$ 64	\$ 42	\$ 26	\$ 17	\$ 10

## Customer Relationships

		TTM +1	TTM +2	TTM +3	TTM +4	TTM +5
NOPAT		\$ 64	\$ 42	\$ 26	\$ 17	\$ 10
Contributory asset charges:						
Working capital		(10)	(6)	(4)	(2)	(1)
Fixed assets		(13)	(8)	(5)	(3)	(2)
Non-compete		(8)	(4)	-	-	-
Trade name		(10)	(6)	(4)	(2)	(1)
Workforce		(5)	(3)	(2)	(1)	(1)
Excess earnings		\$ 18	\$ 15	\$ 11	\$ 9	\$ 5
Discount factor	20%	0.9129	0.7608	0.6340	0.5283	0.4403
Present value of royalty income	\$ 41	\$ 16	\$ 11	\$ 7	\$ 5	\$ 2
TAB	15					
<b>Fair value of relationships</b>	<b>\$ 66</b>					

## Valuation Methods

- Trademark, trade name, brand
  - Relief from royalty

## Trademark

		TTM +1	TTM +2	TTM +3	TTM +4	TTM +5
Revenues attributed to trademark		\$ 3,542	\$ 3,808	\$ 3,998	\$ 4,198	\$ 4,324
Reasonable royalty	2.0%	\$ 71	\$ 76	\$ 80	\$ 84	\$ 86
Administrative & marketing costs	5.0%	(4)	(4)	(4)	(4)	(4)
Pre-tax royalty income		67	72	76	80	82
Taxes	40%	(27)	(29)	(30)	(32)	(33)
After-tax royalty income		40	43	43	48	49
Discount factor	20%	0.9129	0.7608	0.6340	0.5283	0.4403
Present value of royalty income	\$146	\$ 37	\$ 33	\$ 29	\$ 25	\$ 22
Present value of terminal value	127					
TAB	92					
<b>Fair value of trademark</b>	<b>\$365</b>					



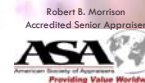
# Valuation Methods

- Non-compete covenant
  - With and without method



# Non-compete Covenant

		TTM +1	TTM +2	TTM +3	TTM +4
Net cash flow with covenant		\$500	\$550	\$575	\$590
- Net cash flow without covenant		500	481	431	442
= Cash flow attributable to covenant		\$ 0	\$ 69	\$144	\$148
Discount factor	20%	0.9129	0.7608	0.6340	0.4403
Present value of cash flow attributable to covenant		\$ 0	\$ 52	\$ 91	\$ 78
PV of cash flows	\$221				
Probability factor	10%				
Desire	100%				
Ability	50%				
Feasibility	20%				
Probability-weighted value	\$ 22				
TAB	8				
<b>Fair value of covenant</b>	<b>\$ 30</b>				



# Valuation Methods

- Software
  - Relief from royalty method
  - Replacement cost method
  - Reproduction cost method

# Software

		TTM -4	TTM -3	TTM -2	TTM -1	TTM	TOTAL
<b>Original Investment</b>							
Skilled labor							
Wages		\$ 50	\$150	\$250	\$ 50	\$ -	\$ 500
Benefits	20%	10	30	50	10	-	100
Support Labor							
Wages		13	38	63	13	1	128
Benefits	15%	2	6	9	2	-	19
Direct expenses		100	50	10	-	-	160
Overhead allocation		18	27	38	8	-	91
Total investment		\$193	\$301	\$420	\$ 83	\$ 1	\$998
<b>Compounded Annual Growth Rates</b>							
Skilled labor		5%	6%	7%	3%	0%	
Support labor		3%	3%	3%	3%	0%	
Direct expenses		5%	5%	5%	5%	0%	
Overhead		1%	1%	1%	1%	0%	

# Software

	TTM -4	TTM -3	TTM -2	TTM -1	TTM	TOTAL
<b>Compounded Annual Growth Rates</b>						
Skilled labor		5%	6%	7%	3%	0%
Support labor		3%	3%	3%	3%	0%
Direct expenses		5%	5%	5%	5%	0%
Overhead		1%	1%	1%	1%	0%
<b>Projected Investment</b>						
Skilled labor						
Wages		\$ 61	\$180	\$285	\$ 52	\$ - \$578
Benefits	25%	15	45	71	13	- 144
Support labor						
Wages		15	41	67	13	1 137
Benefits	17%	3	7	11	2	- 23
Direct expenses		122	58	11	-	- 191
Overhead allocation		19	28	39	8	- 94
Total investment						\$1,167
Less functional obsolescence					50%	(584)
Adjusted value						583
TAB						182
Fair value of software						\$765



# Valuation Methods

- Workforce in place
  - Replacement cost method
  - Reproduction cost method



# Workforce

Level		Executive	Management	Skilled	Clerical
# FTEs		2	5	15	10
Average Annual W-2 Wages per FTE		\$150,000	\$100,000	\$75,000	\$30,000
Payroll tax and benefit load %		25%	20%	17%	15%
# of candidates to interview per position		3	3	3	2
Total hours of interviews per candidate		8	8	6	2
Fully-loaded average annual wage of interviewers		\$200,000	\$150,000	\$120,000	\$120,000
% Recruiter fees		20%	20%	0%	0%
Relocation costs		\$50,000	\$0	\$0	\$0
Direct training costs		\$10,000	\$0	\$5,000	\$0
Learning curve to full productivity (# months)		12	6	3	1
Interview costs	\$32,000	\$ 5,000	\$ 9,000	\$ 16,000	\$ 2,000
Relocation and recruiter costs	180,000	80,000	100,000	0	0
Direct training costs	95,000	20,000	0	75,000	0
Learning curve	517,000	188,000	150,000	165,000	14,000
Total costs	824,000				
Less taxes	(330,000)				
After-tax cost	494,000				
TAB	81,000				
Fair value of workforce	\$575,000				



# A Word About Discount Rates

- Earnings versus cash flow
- Asset/risk hierarchy



## Earnings vs. Cash Flows

- What is the nature of discounts rates derived using CAPM or build-up?
- What is the nature of the benefit stream discounted in MPEEM?
- What is the nature of the benefit stream discounted in Relief from Royalty Method?

## Discount Rate

- Asset/Risk Hierarchy

