Valuation of Intellectual Property

Thomas Vander Veen, Ph.D.

Navigant Economics

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Context for Valuation

Intellectual property typically valued for one of three purposes:

- Licensing transactions or acquisition;
- Regulatory compliance (such as in transfer pricing); and
- Litigation.

Economic principles behind valuation remain essentially the same in each context.

Top Global Food and Beverage Brand Values

as of 2010

Coca-Cola	:	$70.45 billion
PEPSI	:	$14.06 billion
NESCAFÉ	:	$12.75 billion
Budweiser	:	$12.25 billion
Kellogg's	:	$11.04 billion
Heinz	:	$7.53 billion
Nestlé	:	$6.55 billion
DANONE	:	$6.36 billion
Sprite	:	$5.78 billion
JACK DANIEL'S	:	$4.02 billion

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Source: Interbrand, September 15, 2010

The Three Principal Approaches:

- Cost Approach
- Market Approach
- Income Approach

Cost Approach

- Cost Approach values assets based on cost to create and develop assets.
- Premise behind cost approach is no party would be willing to pay more than cost to replace property.

Cost Approach: Example

- Potential buyer is looking to purchase a house.
- Two options:
  - Option 1: Asking price is $500,000.
  - Option 2: Cost of empty land $50,000 + cost to build $350,000.
- What is the maximum buyer would be willing to pay?
- Cost for new house serves as a constraint in pricing of existing fully-built house.

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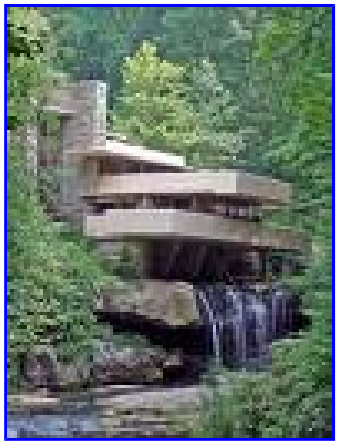
Cost Approach: Example

- Now suppose the house was built by Frank Lloyd Wright.
- Is Cost Approach still useful?



Cost Approach: Issues

- What if there are no design around options?
- Development costs do not reflect economic value of the patented technology.
  - Original cost to build does not reflect current value of Frank Lloyd Wright house.

Market Approach

- Market Approach looks to arms-length price paid for comparable assets to determine fair value for an asset.
- Premise behind Market Approach is that comparable transactions reveal market price for the asset.

Market Approach: Example



- Potential buyer is looking to purchase a house. Asking price: $500,000.
- Look at comparable houses in neighborhood to determine value.
- Need to make adjustments: lot location, lot size, bedrooms, bathrooms, traffic, condition of house. . .

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Market Approach: Issues

- Finding comparable transactions can be tricky.
- Need to make adjustments: differences in technology, opportunity costs facing parties, marketplace dynamics.
- Details of many licensing transactions involving patents are not publicly available.

Income Approach

- Income Approach values assets based on the present value of future income stream generated by asset.
- Key steps:
  - Projection of expected cash outflows;
  - Projection of expected cash inflows;
  - Assessment of the riskiness of the projected cash flows; and,
  - Discounting of projected cash flows to a particular date of valuation.
- Resulting metric is called Net Present Value (NPV).

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Income Approach: Example

Not risk-adjusted

Sales of University Logo Apparel

	2006	2007	2008	2009
Unit Sales	6,710	6,820	6,963	7,095
Price per Unit	$18.20	$18.20	$18.20	$18.20
Sales Revenue	$122,122	$124,124	$126,727	$129,129
Costs per Unit	$9.80	$9.80	$9.80	$9.80
Total Costs	$65,758	$66,836	$68,237	$69,531
Operating Profits (A)	$56,364	$57,288	$58,489	$59,598

Sales of House Brand Apparel

	2006	2007	2008	2009
Unit Sales	6,100	6,200	6,330	6,450
Price per Unit	$14.00	$14.00	$14.00	$14.00
Sales Revenue	$85,400	$86,800	$88,620	$90,300
Costs per Unit	$9.00	$9.00	$9.00	$9.00
Total Costs	$54,900	$55,800	$56,970	$58,050
Operating Profits (B)	$30,500	$31,000	$31,650	$32,250
Incremental Profit Attributable to Trademark (A - B):	$25,864	$26,288	$26,839	$27,348
NPV of Sales:	$116,439	$107,589	$99,859	$92,502
NPV of Incremental Profit:	$24,660	$22,786	$21,149	$19,591
Incremental Profits as Percent of Sales		**21%**		

Note: Discount rate is 10 percent.

Adjusting Cash Flows for Risk

Two methods for adjusting cash flows for risk:

- Certainty Equivalent Approach: Cash flows that are not known with certainty are scaled down, and the riskier the flow, the lower its certainty value.
- Risk-Adjusted Discount Rate Approach: Differential project risk is dealt with by changing the discount rate. The riskier the project's income stream, the higher the discount rate.

Risk Adjustment: Certainty Equivalent Approach

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Sales					$ 205.00	$ 430.00	$ 650.00	$ 795.00	$ 397.50	$ 298.13
Probability of Success					80%	80%	80%	80%	80%	80%
Expected Net Sales					$ 164.00	$ 344.00	$ 520.00	$ 636.00	$ 318.00	$ 238.50
COGS (38% of net sales)					$ 62.32	$ 130.72	$ 197.60	$ 241.68	$ 120.84	$ 90.63
Gross margin	-	-	-	-	$ 101.68	$ 213.28	$ 322.40	$ 394.32	$ 197.16	$ 147.87
Total Direct Expenses	$ 30.00	$ 58.00	$ 44.00	$ 55.70	$ 94.48	$ 97.58	$ 99.60	$ 82.52	$ 76.76	$ 55.77
Operating Profit (loss)	$ (30.00)	$ (58.00)	$ (44.00)	$ (55.70)	$ 7.20	$ 115.70	$ 222.80	$ 311.80	$ 120.40	$ 92.10
Taxes (35%)	$ (10.50)	$ (20.30)	$ (15.40)	$ (19.50)	$ 2.52	$ 40.50	$ 77.98	$ 109.13	$ 42.14	$ 32.24
After-tax Operating Profit	$ (19.50)	$ (37.70)	$ (28.60)	$ (36.21)	$ 4.68	$ 75.21	$ 144.82	$ 202.67	$ 78.26	$ 59.87
Cash Flow Adjustments:										
minus Capital Expenditures	$ 89.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
plus Depreciation (5 years)		$ 6.23	$ 6.23	$ 6.23	$ 6.23	$ 6.23				
minus Change in Working Capital	$ -	$ -	$ -	$ -	$ 33.07	$ 36.30	$ 35.49	$ 23.39	$ (64.13)	$ (16.03)
After-Tax Free Cash Flow	$ (108.50)	$ (31.47)	$ (22.37)	$ (29.98)	$ (22.16)	$ 45.13	$ 109.33	$ 179.28	$ 142.39	$ 75.90
Time Period	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
Discount Rate (12.0%)										
PV Factor	0.9449	0.8437	0.7533	0.6726	0.6005	0.5362	0.4787	0.4274	0.3816	0.3407
Present Value	$ (102.52)	$ (26.55)	$ (16.85)	$ (20.16)	$ (13.31)	$ 24.20	$ 52.34	$ 76.63	$ 54.34	$ 25.86
Net Present Value	$ 53.97									

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Risk-Adjustment: Risk-adjusted Discount Rate Approach

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Sales					$ 205.00	$ 430.00	$ 650.00	$ 795.00	$ 397.50	$ 298.13
Probability of Success					100%	100%	100%	100%	100%	100%
Expected Net Sales					$ 205.00	$ 430.00	$ 650.00	$ 795.00	$ 397.50	$ 298.13
COGS (38% of net sales)					$ 77.90	$ 163.40	$ 247.00	$ 302.10	$ 151.05	$ 113.29
Gross margin	-	-	-	-	$ 127.10	$ 266.60	$ 403.00	$ 492.90	$ 246.45	$ 184.84
Total Direct Expenses	$ 30.00	$ 58.00	$ 44.00	$ 55.70	$ 95.30	$ 99.30	$ 102.20	$ 85.70	$ 78.35	$ 56.96
Operating Profit (loss)	$ (30.00)	$ (58.00)	$ (44.00)	$ (55.70)	$ 31.80	$ 167.30	$ 300.80	$ 407.20	$ 168.10	$ 127.88
Taxes (35%)	$ (10.50)	$ (20.30)	$ (15.40)	$ (19.50)	$ 11.13	$ 58.56	$ 105.28	$ 142.52	$ 58.84	$ 44.76
After-tax Operating Profit	$ (19.50)	$ (37.70)	$ (28.60)	$ (36.21)	$ 20.67	$ 108.75	$ 195.52	$ 264.68	$ 109.27	$ 83.12
Cash Flow Adjustments:										
minus Capital Expenditures	$ 89.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
plus Depreciation (5 years)		$ 6.23	$ 6.23	$ 6.23	$ 6.23	$ 6.23				
minus Change in Working Capital	$ -	$ -	$ -	$ -	$ 41.34	$ 45.38	$ 44.37	$ 29.24	$ (80.16)	$ (20.04)
After-Tax Free Cash Flow	$ (108.50)	$ (31.47)	$ (22.37)	$ (29.98)	$ (14.44)	$ 69.60	$ 151.15	$ 235.44	$ 189.43	$ 103.16
Time Period	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
Discount Rate (25%)										
PV Factor	0.8944	0.7155	0.5724	0.4579	0.3664	0.2931	0.2345	0.1876	0.1501	0.1200
Present Value	$ (97.05)	$ (22.52)	$ (12.81)	$ (13.73)	$ (5.29)	$ 20.40	$ 35.44	$ 44.16	$ 28.43	$ 12.38
Net Present Value	$ (10.58)									

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Questions?