Intellectual Property Valuation

January 2008

Franklin Pierce Law Center

Advanced Licensing Institute



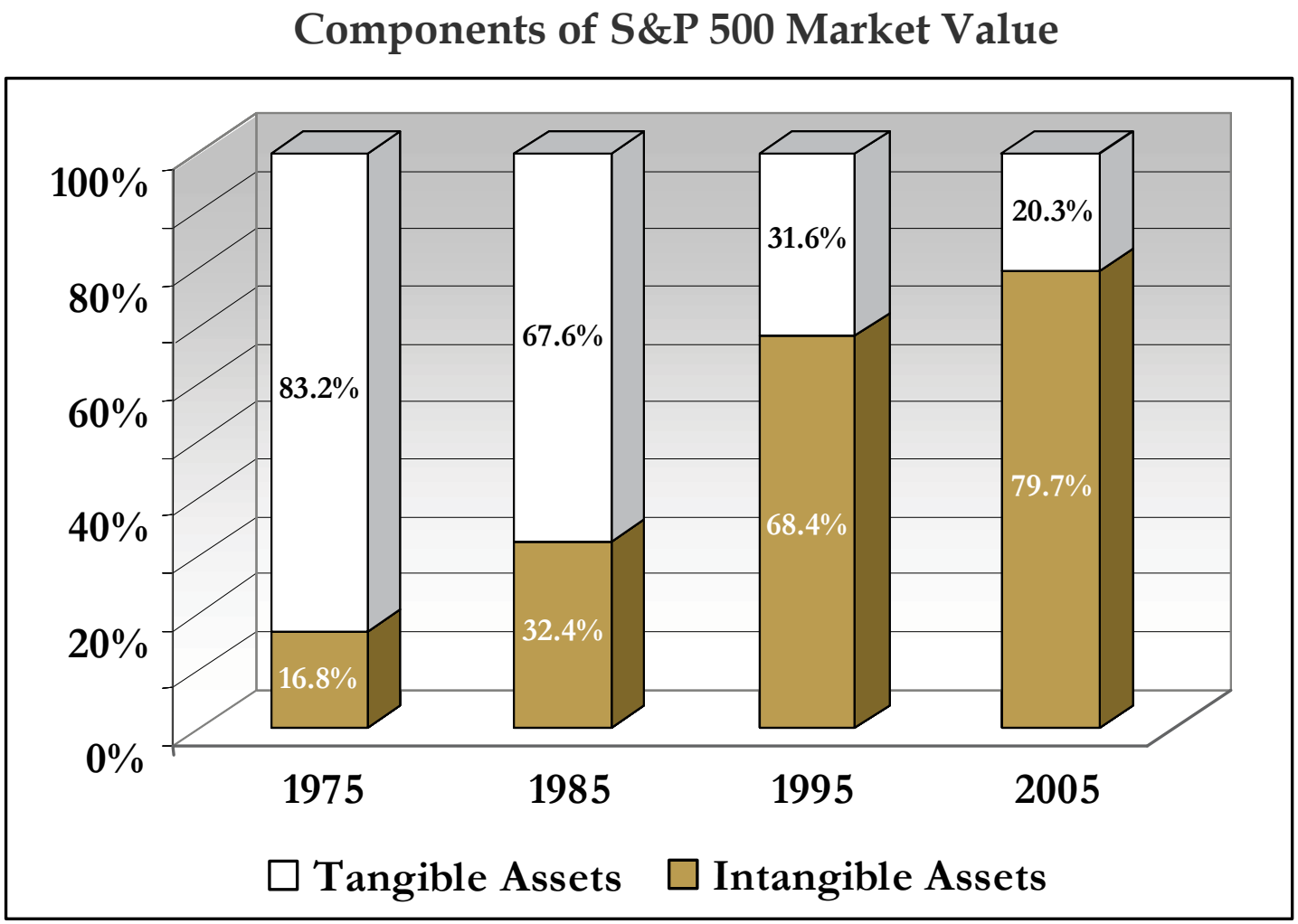
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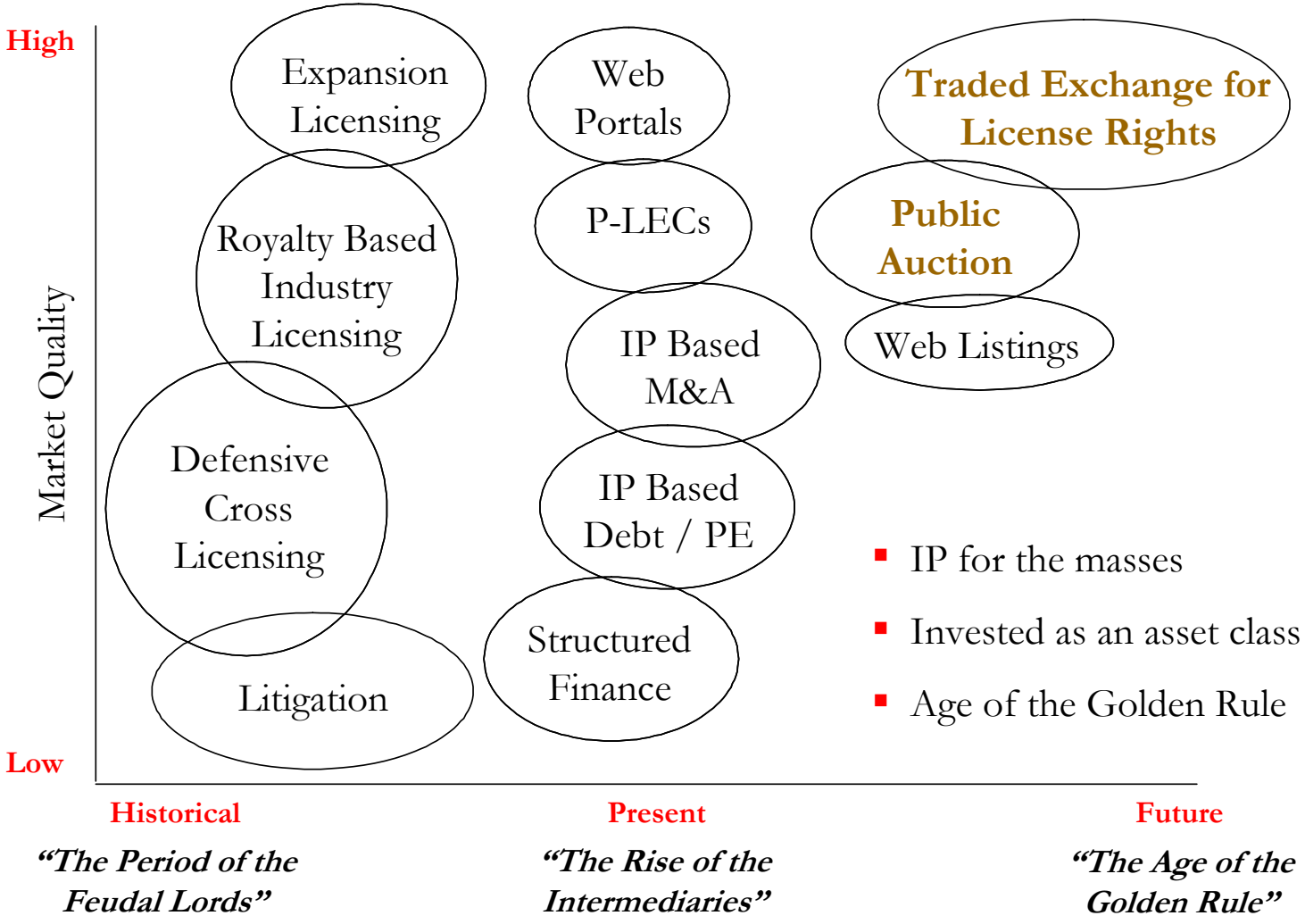
Agenda

1. Introduction
2. IP valuation theory: cost, market, income, other
3. Price v. value
4. Pre-valuation due diligence
5. Deal structure discussion
6. Disclaimer
7. Contact information

Introduction: Growing importance of intangibles



Introduction: Intellectual property marketplace evolution

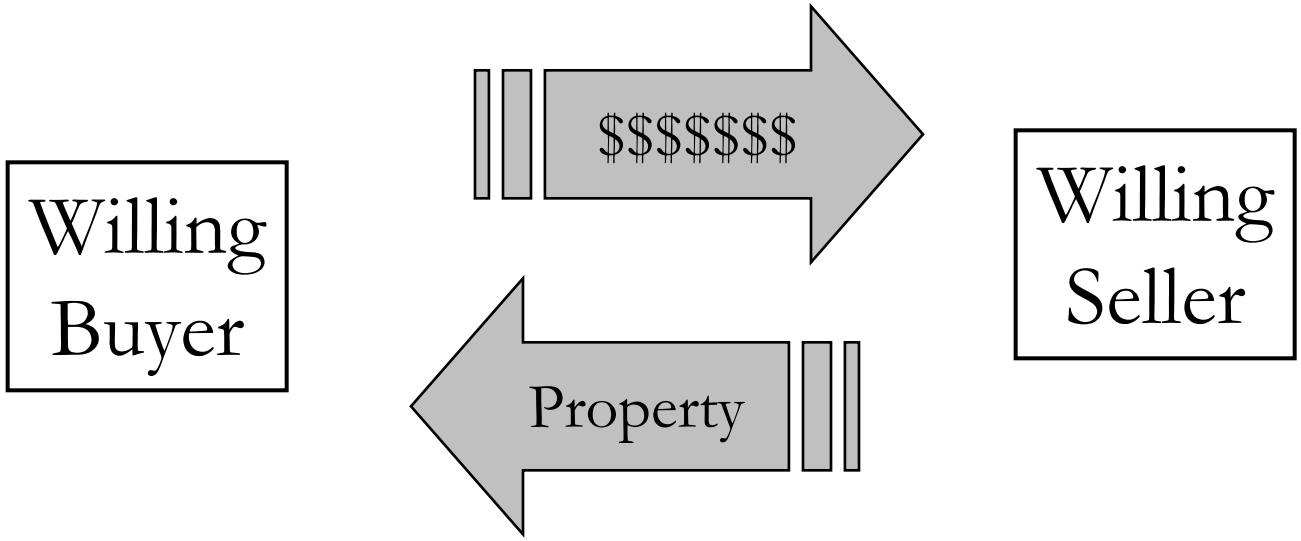


Introduction: IP marketplace evolution – the live auction

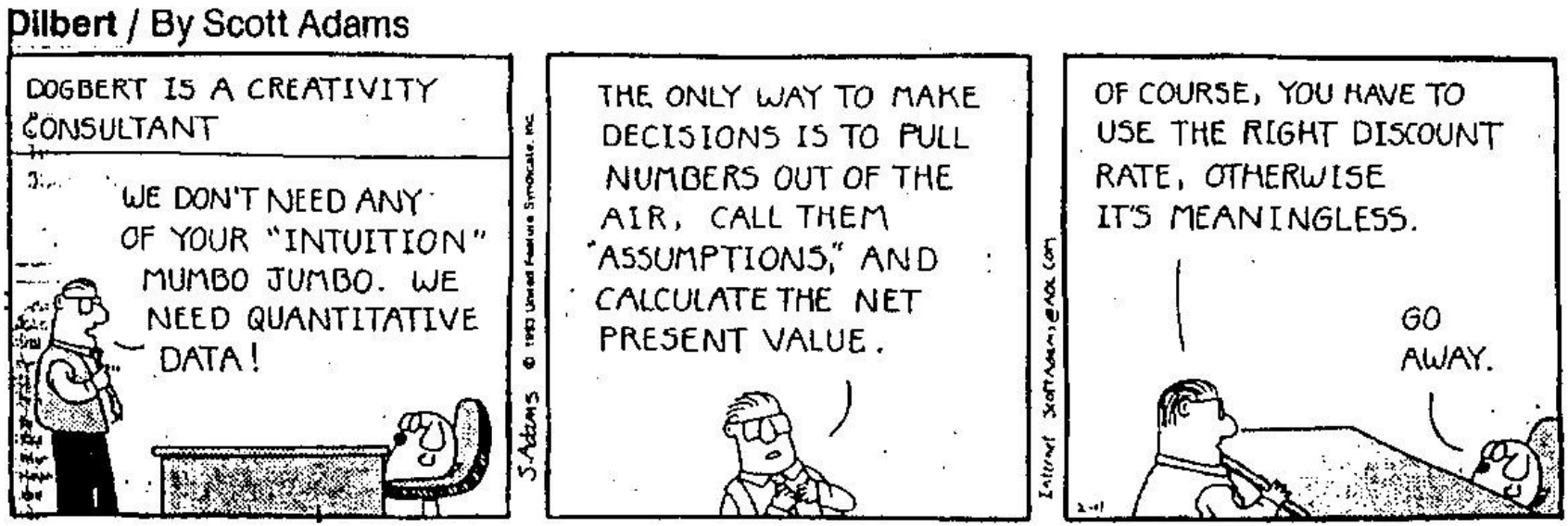


Introduction: An IRS definition of Fair Market Value

- Fair Market Value is defined as the price at which property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell, and both having reasonable knowledge of relevant facts (Estate Tax Regs., Sec. 20.2031-1(b); Rev. Rul. 59-60, 1959-1 C.B. 237)



Introduction: Dilbert understands valuation



Introduction: The courts understand damages

	Parties	Award	Date	Source	Court
1	Polaroid v. Eastman Kodak	$873,158,971	Jan-91	17 USPQ2d 1771	D. Massachusetts
2	Michelson v. Medtronic Sofamor Danek	$529,000,000	Oct-04	National Law Journal	W.D. Tennessee
3	Eolas Technologies v. Microsoft	$521,000,000	Aug-03	Wall Street Journal	N.D. Illinois
4	City of Hope Medical v. Genentech	$500,100,000	Jun-02	New York Times	Sup. Ct. California
5	Johnson & Johnson v. Guidant	$425,000,000	Sep-03	National Law Journal	Arbitration Panel
6	Johnson & Johnson v. Medtronic	$270,000,000	Sep-03	National Law Journal	CAFC
7	Haworth v. Steelcase	$211,499,731	Dec-96	43 USPQ2d 1223	W.D. Michigan
8	Hughes Tool v. Smith International	$204,810,349	Mar-86	229 USPQ 81	C.D. California
9	Procter & Gamble v. Paragon Trade	$178,400,000	Jan-98	Press Release	D. Delaware
10	Exxon Chemical v. Mobil Oil	$171,000,000	Aug-98	Wall Street Journal	S.D. Texas
11	Guidant v. Medtronic AVE	$166,681,773	May-02	Judgment	Arbitration Panel
12	Viskase v. American National Can	$164,900,000	Jul-99	Press Release	N.D. Illinois
13	Masimo v. Nellcor	$164,000,000	Aug-04	CBS MarketWatch	C.D. California
14	Hughes Aircraft v. United States	$154,000,000	Jun-94	Wall Street Journal	Federal Claims
15	Intergraph v. Intel	$150,000,000	Oct-02	Wall Street Journal	E.D. Texas
16	3M v. Johnson & Johnson	$129,000,000	Dec-92	Dow Jones Newswire	CAFC
17	Fonar v. General Electric	$128,705,766	Feb-97	Final Judgment	CAFC
18	Mobil Oil v. Amoco Chemical	$120,000,000	Aug-98	Press Release	D. Delaware
19	Stac Electronics v. Microsoft	$120,000,000	Feb-94	National Law Journal	C.D. California
20	Internet Magic v. Netfax	$114,000,000	Feb-02	National Law Journal	Sup. Ct. California

Seattle, WA: (Feb-23-07) Microsoft Corp. was charged by Alcatel-Lucent SA for violating two patents related to digital music. A federal judge of the U.S. district court in San Diego ordered Microsoft Corp. to pay $1.52 billion in damages to Alcatel-Lucent SA, ending the patent infringement lawsuit.

Source: IP Litigation: Assessing and Managing The Risks, James R. Sobieraj - Brinks, Hofer Intellectual Property Seminar

Introduction: IP damages settlements

	Patties	Settlement	Date	Source
1	Michelson v. Medtronic	$1,350,000,000	Apr-05	Associated Press
2	Sun Microsystems v. Microsoft	$1,250,000,000	Feb-04	Press Release
3	Texas Instruments v. Hyundai	$1,000,000,000	May-99	Wall Street Journal
4	Texas Instruments v. Samsung	$1,000,000,000	Nov-96	Wall Street Journal
5	Medinol v. Boston Scientific	$750,000,000	Sep-05	Associated Press
6	NTP v. Research in Motion	$612,500,000	Mar-06	Wall Street Journal
7	Northrop Grumman v. Honeywell	$440,000,000	Apr-04	Associated Press
8	Intertrust Technologies v. Microsoft	$440,000,000	Dec-01	Press Release
9	Pitney Bowes v. Hewlett-Packard	$400,000,000	Jun-01	Wall Street Journal
10	Yahoo v. Google	$328,000,000	Aug-04	National Law Journal
11	EMC v. Hewlett-Packard	$325,000,000	May-05	Associated Press
12	Intergraph v. Intel	$300,000,000	Apr-02	Wall Street Journal
13	Medtronic v. Siemens	$300,000,000	Sep-92	Wall Street Journal
14	MicroUnity v. Intel	$300,000,000	Oct-05	Business Wire
15	University of Minnesota v. Glaxo	$300,000,000	Oct-99	Press Release
16	Intermedics v. Cardiac Pacemakers	$250,000,000	Sep-98	National Law Journal
17	Intergraph v. Intel	$225,000,000	Mar-04	Associated Press
18	Gemstar v. General Instruments	$200,000,000	Nov-00	National Law Journal
19	University of California v. Genentech	$200,000,000	Nov-99	Press Release
20	Gemstar v. EchoStar Communications	$190,000,000	Mar-04	Satellite Week
21	Boston Scientific v. Medtronic	$175,000,000	Sep-02	Press Release
22	Taiwan Semiconductor v. SMI	$175,000,000	Feb-05	National Law Journal
23	Intergraph v. Intel	$150,000,000	Oct-02	Business Wire
24	Genentech v. Eli Lilly	$145,000,000	Jan-95	Wall Street Journal
25	Intergraph v. Hewlett-Packard	$141,000,000	Jan-05	National Law Journal

Introduction: Some statistics and information

- Global licensing revenue is greater than $150 billion and is growing at 25% to 35% per year
- IBM collected more than $1.5 billion in royalties last year (and donated 500 patents for open source)
- Microsoft paid more than $1.4 billion in royalties last year (and is looking to cross license with the 30-40 top technology companies)
- Intellectual Ventures raised more than $1 billion to execute its strategy of acquiring patents for license/assertion

Introduction: Commerce One auction

- Commerce One sells patent portfolio out of bankruptcy for $15.5 million in December 2004 to JGR Acquisition, Inc.
- Patent portfolio consisted of 39 patents/applications and was sold via an auction
- JGR Acquisition, Inc. is later identified as Novell, Inc.; purchase is made for defensive purposes
- The runner-up was Intellectual Ventures which bid $14.9 million

Introduction: Acacia's stock price vs. significant news events



	Date	News Event	Stock Price Movement
A	3/3/2006	RIM Settlement.	Up
B	4/6/2006	Ocean Tomo Patent Auction.	Up
C	5/15/2006	eBay vs. MercExchange Supreme court decision.	Down
D	6/15/2006	z4 Technologies, Inc. v. Microsoft; z4 denied a permanent injunction post-eBay.	Up
E	6/22/2006	Lab. Corp. of Am. v. Metabolite dismissed by Supreme Court due to a procedural reason.	Down

Valuation: IP creates value through a variety of mechanisms

Exclusivity Value:
- Price premium
- Reduced manufacturing cost
- Increased market share
- Enhanced customer satisfaction
- Blocking value

Option Value:
- Current technology and protection may provide an avenue for future investments

Defensive Value/ Freedom to Operate:
- Creates an IP arsenal to discourage lawsuits
- Provides ability to compete, but little advantage

Trading Value:
- Value in trade for entering into cross-licenses, for licensing-out, or for sale

Valuation: Cost Approach

Cost Approach

- Theory: Value is determined by the cost to replace or the cost to re-create the IP
- Costs Include: R&D, materials, equip., marketing, advertising, delayed market entry
- Value of Patent = Fair market value of total investment to replace or re-create
  - A prudent licensee/buyer will not pay more for the IP than the amount for which the IP could be re-created
  - By licensing IP from others, the licensee avoids development costs and minimizes risk

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- How do you replace or re-create a unique asset?
- Need to consider lost time-to-market due to re-creation
- These are sunk costs – are they relevant?
- Original costs to develop IP may be different than costs to replace or re-create IP
- Often used to value embryonic technology or technology easy to design around (e.g. software)

Valuation: Market Approach

Market Approach

- Theory: Value is based on the transactions of other purchasers & sellers in the marketplace
- Value of Patent = Arm's length price paid in equally desirable & comparable transactions
  - Licensee/Buyer is not willing to pay more than others have paid for similar IP
- Comparables: type of IP, industry, market size, terms, and profitability

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- Based on the principle of substitution: assesses what the market will or should bear
- Comparables must be actual asset transactions
- Larger samples of comparable transactions can help smooth differences between firms
- Difficult to identify comparable because the patent market is illiquid
- Often used to determine licensing royalty rates for similar technology

Example Market Approach

Buyer	Seller	Date of Transaction	Transaction Value	Assets
BlueFire	ARK Energy	Mar-01-06	$16 million	Certain rights, assets, work-product, IP and other know-how on 19 project opportunities
Xethanol	Xylose Technologies	Aug-15-05	$1.95 million (+ 0.5% royalty)	License agreement relating to technology which converts xylose into ethanol and xylitol, and $450,000 cash
Xethanol	Superior Separation Technologies	Jan-11-05	$0.81 million (+ 0.25% royalty)	License agreement relating to a method of biomass feedstock separation
Xethanol	Ethanol Extraction Technologies	Sep-30-04	$0.55 million (+ 1% royalty)	Extractive fermentation technology license agreement
Xethanol	Advanced Bioethanol Technologies	Jun-29-04	$0.30 million (+ 0.25% royalty)	License agreement relating to technology which converts waste biomass mixtures to ethanol
Green Star Products Inc.	Millennium Fuels	Jun-10-03	6 million shares of GSPI stock (undetermined value) and $4 million net profit royalty	40% of two ethanol plants and 2 issued patents and 1 pending patent

Market Approach: Analyzing comparables

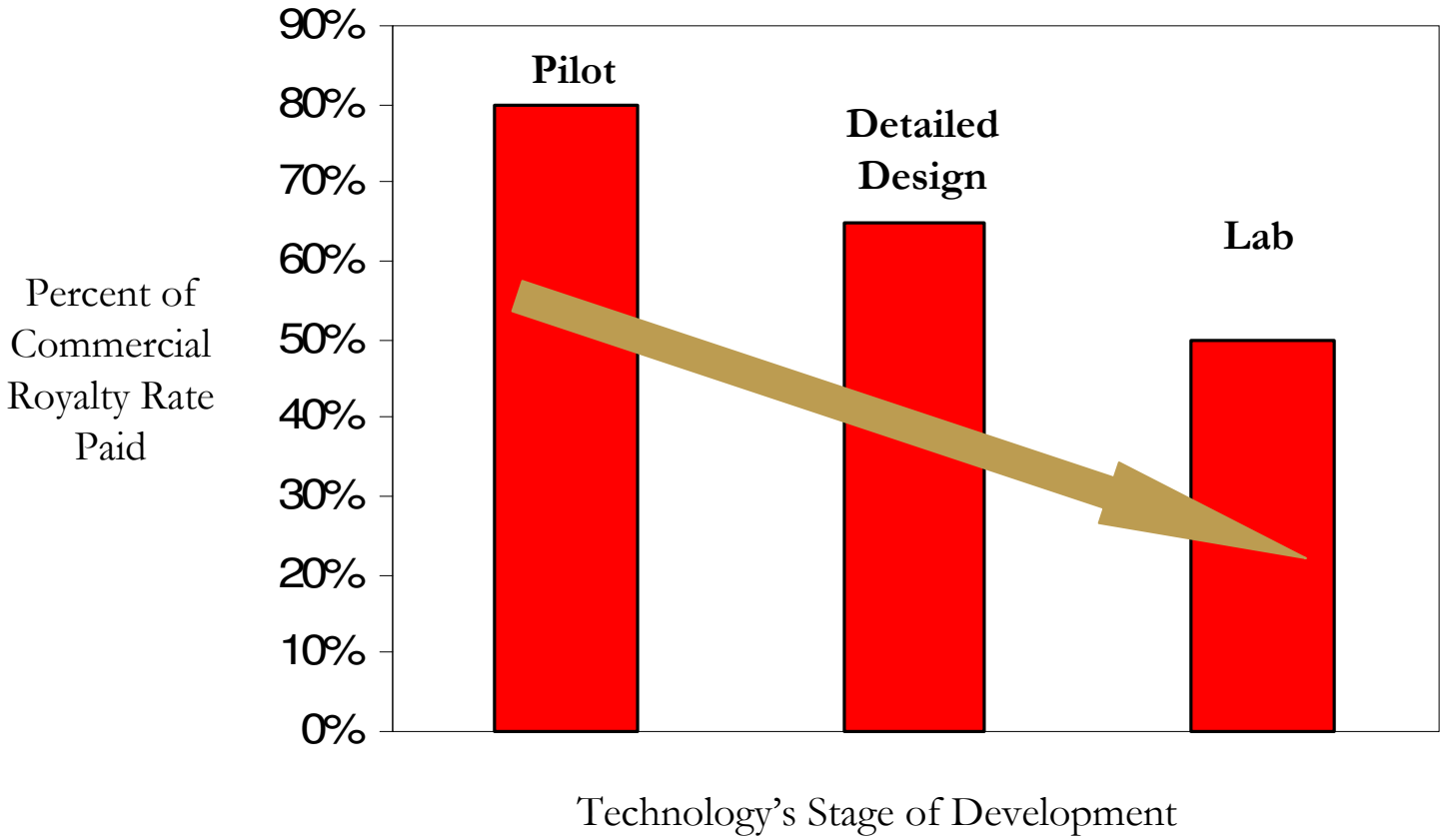
- Specific rights conveyed in transaction
- Arm's-length transaction
- Special financing terms available
- Economic conditions at time of transaction
- Inclusion of non-IP assets in the transaction
- Functional characteristics of the guideline IP
- Technological characteristics of the guideline IP (stage of development)
- Economic characteristics of the guideline IP
- Legal characteristics of the guideline IP
- Other factors

Market Approach: Sources of comparable transactions

- SEC
- Recombinant Capital (Recap.com)
- Royaltysource.com
- Windhover Information (Windover.com)
- Court records
- Licensing Economics Review (LER)
- Licensing Executives Society publications (les Nouvelles)
- Industry presentations
- Licensing experts

Market Approach: Analyzing comparables

Discount Increases for Early Stage IP



Source: A Survey of Licensed Royalty Rates, les Nouvelle, June 1997, Stephen A. Degnan and Corwin Horton

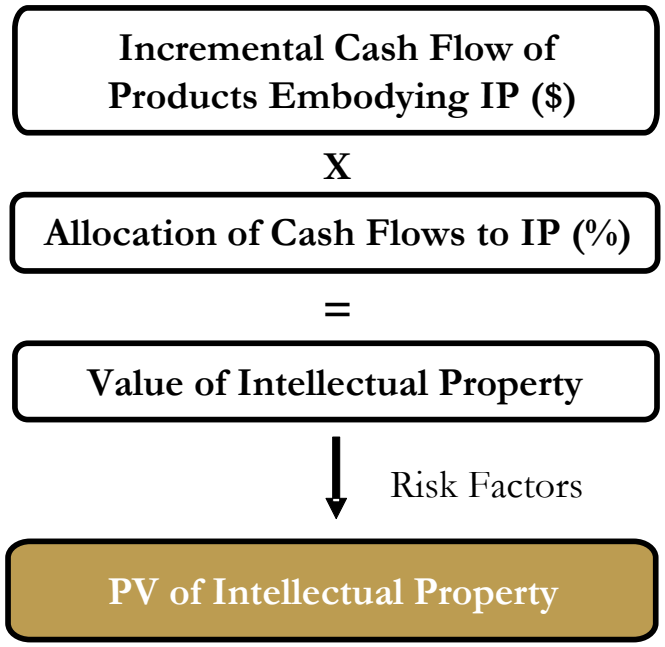
Valuation: Income Approach

Income Approach

- Theory: Value is determined by the economic benefit expected from use of the IP
- Value of Patent = Present Value of the expected future income stream
- Three key parameters:
  - Amount of the income stream
  - Duration of the income stream
  - Risk associated with the realization of the income

- How much can be earned from commercialization of the IP, and what is that value in today's dollars?
- Most commonly used valuation approach
- Generally two types of analysis performed for the Income Approach: Excess Earnings and Relief from Royalty

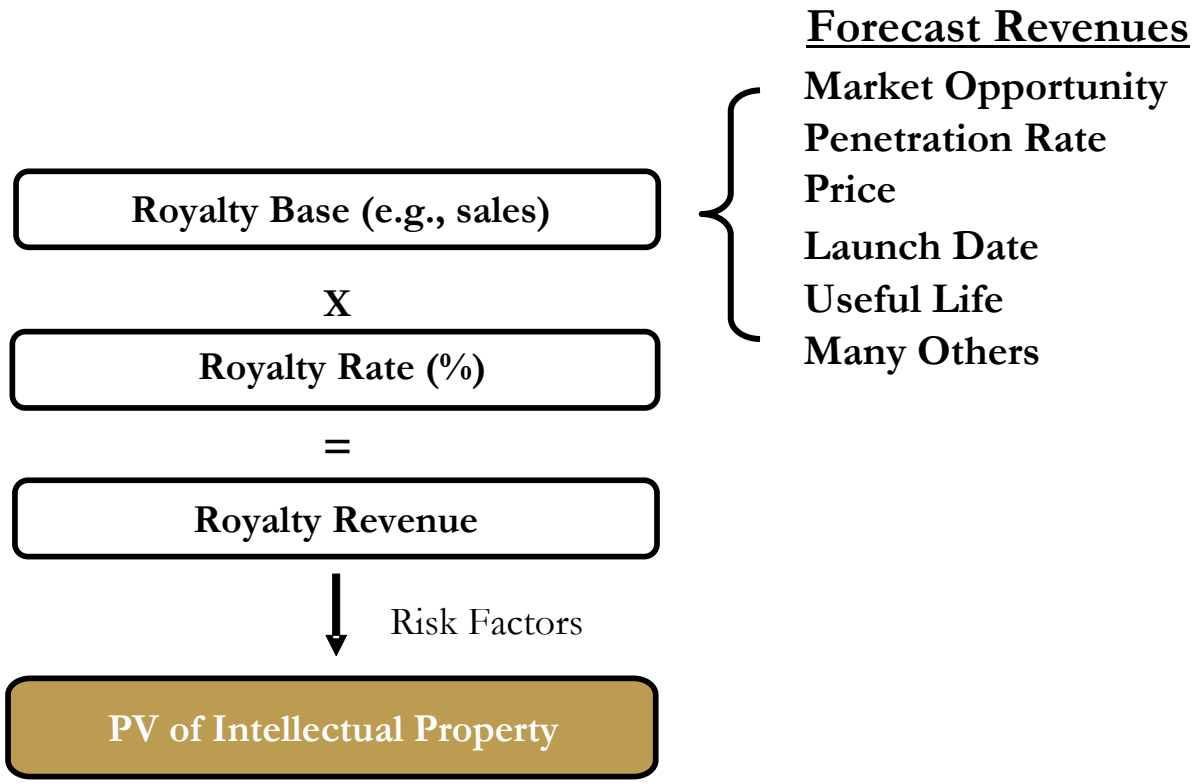
Example Income Approach – Excess Earnings



With IP		Without IP	
Revenue	$1,000	Revenue	$500
COGS	100	COGS	100
SG&A	300	SG&A	300
Taxes	240	Taxes	40
Cash Flow	360	Cash Flow	60

- Discount Rate
- Probabilities of Success
- Discounts to Cash Flows
- Others

Example Income Approach – Relief from Royalty



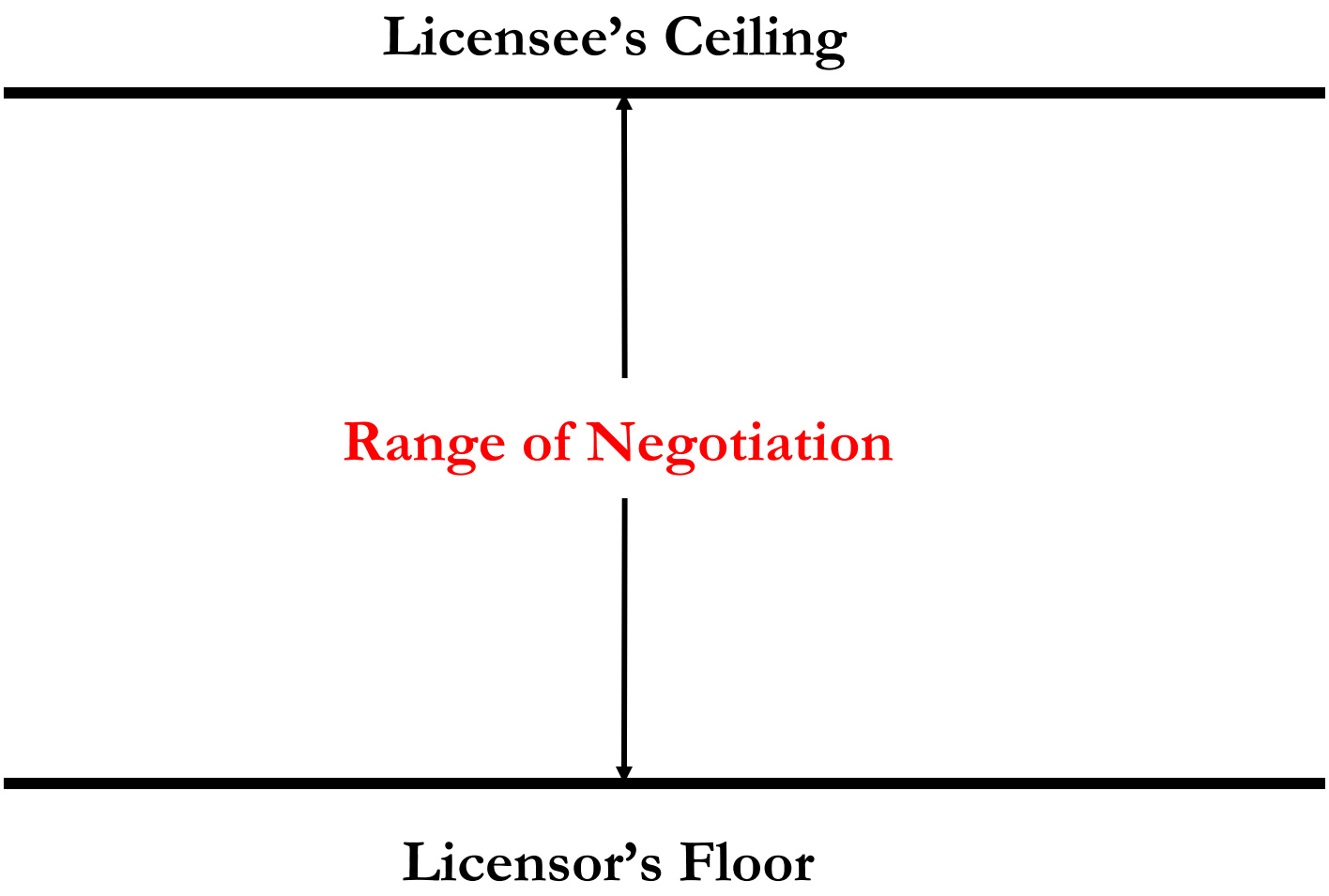
Royalty rates – market comparables

Licensor	Licensee	Assets	Eff. Date	Royalty Base	Royalty Rates Low	High	Mid-Point
Arkenol, Inc.	Bluefire Ethanol Fuels, Inc.	Method of producing ethanol using strong acid hydrolysis of cellulosic and hemicellulosic materials	1-Mar-06	Gross Sales	3%	3%	3%
Bio Conversion Technologies	Green Energy Corp.	Technology for the conversion of biomass to synthesis gas (syngas)	Oct-03	Gross Revenues	2.75%	2.75%	2.75%
DDS Technologies USA, Inc.	Xethanol Corp.	Micrometric separator for classification of solid particulate materials for production of ethanol feedstock and byproducts	Oct-05	Revenues	1.25%	4%	2.63%
				Mean	**2.3%**	**3.3%**	**2.8%**
				Median	**2.8%**	**3.0%**	**2.8%**

Common methods for valuing frequently encountered IP

	Income Approaches				
Asset	**Excess Profit**	**Cost Savings**	**Royalty Savings**	**Market Approach**	**Cost Approach**
Brands	✓		✓	✓	
Customers Lists				✓	✓
Software	✓	✓		✓	✓
Patents	✓	✓	✓		✓
Know-how	✓	✓	✓	✓	✓
Franchises				✓	✓

Price v. value



Price v. value

"Price is what you pay. Value is what you get."

-- Warren Buffett



IP pre-valuation due diligence: Legal considerations

- Ownership analysis
- Maintenance records
- Completeness analysis
- Prior-art research
- Infringement/litigation analysis
- Encumbrance analysis (cross-licenses)
- Employee/consultant records
- Freedom-to-operate issues
- Other



Determine existence, ownership and control

IP pre-valuation due diligence: Business considerations

- Next best alternative
- Cost to design around
- Benefits of design around
- Comparable transactions
- Gross revenues
- Gross/incremental profit
- Pre-tax profit
- Cost savings
- Incremental revenues
- Complementary assets
- Accounting for risk
- Other



Determine economic, strategic and potential infringement value

Deal structure discussion

Form of Compensation	Licensor Considerations	Licensee Considerations
Lump Sum Payment *A single cash payment made simultaneously with executing the license and represents the only payment that the licensee will make.*	* Often reasonable for small licenses * Has a strong desire/need for near-term cash * Limited faith in licensee performance * Limited resources to account for or audit licensee's records	* Does not want to disclose sales-relat information to the licensor * Believes licensor underestimates opportunity * Less concerned w/ downside risk * Availability of cash / licensor need c
Up-Front Payment *Cash payment(s) made concurrently or within a specified number of days of executing the license agreement.* * *Non-creditable* * *Advance or creditable* * *Technical assistance fee*	* May (or may not) be creditable against future royalties * Has a strong desire/need for near-term cash * May account for past infringement	* Desires fixed cost versus per unit variable cost (lump sum) * Availability of cash * Less concerned w/ downside risk
Milestone Payments *Specified payments due upon the crossing of certain milestone events.* * *Re>D* * *Clinical testing* * *Regulatory approvals* * *Patent issuance / approvals*	* Desire to continue research * Comfortable w/ risk of achieving milestones	* Value hinges on achievement of milestone(s) * Desire to incentivize licensor to achieve milestone

Source: Technology Transfer Seminar, Intellectual Property Valuation - Michael Lasinski, InteCap, 2004

Deal structure discussion

Form of Compensation	Licensor Considerations	Licensee Considerations
Annual Fixed Payments *Annual cash payments due on each anniversary of the license for as long as the license is in effect.*	* When use of a process, method or machinery for which no definite use measurement is appropriate * Desire for consistent annual cash flow * Feels downside potential exists	* Desire for consistent (non-variable) payment * Feels upside potential exists * Does not want to provide licensor with relevant business information (i.e., per unit or percentage royalties)
Guaranteed Min./Max. Annual Payments *Annual cash payments due on each anniversary of the license for as long as the license is in effect. These payments have specified minimum and maximum amounts.*	* Need to incentivize licensee to implement technology * Upside potential due to forces beyond scope of license * Often critical in exclusive arrangements	* Long term sales forecast is relatively predictable and sufficient to cover minimums * Does not want licensor to benefit too much from upside * Less concerned w/ downside risk
Running Royalty *Payments which are due upon the use of the license. Typically, licensee pays on a periodic basis (e.g., monthly, quarterly).* ** Net sales* ** Per unit* ** Per use* ** Multi-tiered* ** Kicker / deflator* ** Cumulative maximum*	* Feels participating in commercial success of licensee is an appropriate way to maximize technology value * Reasonably confident in licensee's ability to perform * Sufficient resources to account for or audit licensee's records	* Desires licensor to be tied to commercial risks * Sales forecast is uncertain or limited upside exists * Limited ability to pay for license ahead of sales

Deal structure discussion

Form of Compensation	Licensor Considerations	Licensee Considerations
Equity Stake *Licensor agrees to take equity-based compensation (in the licensee's company) in exchange for the rights to the license. May also involve the licensee acquiring equity in the licensor (plus the technology license) in exchange for cash.* * *Common equity* * *Preferred equity* * *Options* * *Convertible debt*	* Very comfortable w/ risk * Limited need for cash from licensing * Faith in licensee's business / potential acquisition candidate * Believes value of license is directly related to the value of the licensee (e.g., start-up company)	* Considers licensor a potential acquisition candidate * Limited ability to pay cash * Availability of equity * Desire to own a portion of the licensee as well as have access to technology
Supply / Purchase Contracts *Licensee agrees to buy / sell goods at terms that are commercially favorable to licensor or licensee.* * *Product* * *R&D* * *Manufacturing rights*	* Desire to secure long-term source for products utilizing technology * Limited need for cash from licensing * Faith in licensee performance	* Requires secure purchase contract prior to commercializing technology * Potential exists to utilize technology for sale to other customers (besides licensor)
Patent Pick *Licensee agrees to allow the licensor to "pick" in the future a limited number of its patents or trademarks for use on a royalty-free basis or for preset royalty amounts.*	* Believes licensee may underestimate value of its portfolio * Believes licensee likely to develop technology in key areas	* Need to understand value of its patent portfolio * Licensee & licensor are not competitors (e.g., different geographies, markets, customers, etc.)

Deal structure discussion

Form of Compensation	Licensor Considerations	Licensee Considerations
Grant Backs / Grant Forwards *The licensee/licensor grants the licensor/ licensee rights to use improvements on a royalty-free basis or for preset royalty amounts.*	* Need future IP for licensing efforts * Feels that licensee likely to develop technology that will be useful / required	* Feels that licensor likely to develop technology that will be useful / required
Sublicensing (Revenue) Rights *A provision whereby the licensor shares any revenues that the licensee receives from sublicensing to third parties.*	* Feels licensee better able to license technology * Feels licensee better able to license technology	* Need for sublicensing rights for (second) source of supply * Desire to license partners of current licensees

(1) **Note:** The above list is not intended to be all encompassing, but is presented for illustrative purposes only. A significant number of other consideration are relevant in structuring benefit flows.

Disclaimer

The concepts and theories covered by this presentation are for discussion purposes only and are not intended to be all-inclusive on the topic of intellectual property or valuation. Many of the concepts are illustrative only and do not necessarily represent the approaches that the author would recommend in any particular case.

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