Pricing Intellectual Property Licenses

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AGENDA

1. **Typical license payment structures**
2. Pricing a license
   a. Identifying the benefit
   b. Allocating the benefit
3. Industry royalty rates
4. More detailed guidance on royalties

How are royalty rates typically determined?

One of the biggest valuation concerns that I hear when talking to IP managers is simple:

What is the correct royalty rate to charge when licensing technology?

License payment structures

Before attempting to price a particular license, it is usually necessary to determine the payment structure for the license.

Payments can be:

1. Lump sum fees; or
2. Royalties:
   - ✓ Running royalties
   - ✓ Independent royalties

Lump Sum Fees

Lump sum fees

Lump sum fees are the standard pricing practice for most products or services. A lump sum fee simply means the buyer pays a specific, fixed price when buying something.

Lump sum fees can be:

1. Complete; or
2. Partial

Lump sum fees

In the patent context, lump sum fees go by a number of different names:

1. Fixed fees
2. Upfront fees
3. Down payments
4. License issue fees

Partial lump sum fees

- For patent licenses:
  - Partial lump sum payments are common.
  - Complete lump sum payments are not.

- Studies have shown that more than 50% of patent licenses include partial lump sum fees.

Economic benefits of lump sum fees

1. Reduces licensor's risk in the transaction

2. Discourages licensee from **shelving** the transaction

Shelving = Licensee does not intend to use the intellectual property rights. Instead, the licensee acquires the rights to block or eliminate competitors by preventing others from using the technology.

The licensee's goal is to ***put the license on the shelf*** and never use it.

Upfront fees in the U.S. university context

Economic theory does not appear to play a major role in establishing the upfront fee for university licensing deals.*

* Based on conversations with U.S. technology transfer office managers.

Negotiating upfront fees in U.S. university context

Some informal guidance:

- Upfront fees very common for university patent licenses.
- If ***only one potential licensee*** and the patented technology is not ground breaking, the upfront fee tends to be in the ***$10,000 to $15,000 range***.
- If ***multiple potential licensees*** bidding, the upfront fee can be substantially larger.

Negotiating upfront fees in U.S. university context

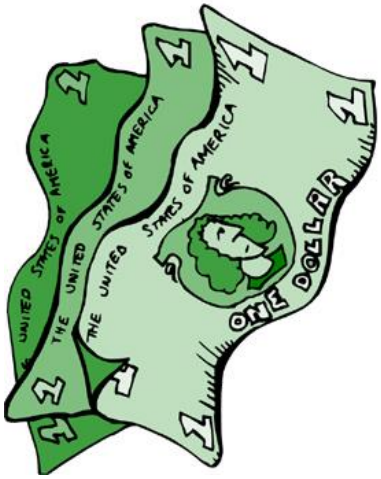
Some informal guidance (cont.):

- Most U.S. universities require licensee to furnish disclosures about licensee's development work on the technology. Licensees sometimes wish to avoid this additional disclosure and will pay a higher upfront fee to reduce the disclosure.

Negotiating upfront fees in U.S. university context

Some informal guidance (cont.):

- Upfront fee can be ***cash*** and/or ***equity***.



or

If the licensee pays with stock, the stock needs to be valued. We will discuss stock valuation later today.

Justifying cash upfront fees

If you are negotiating a cash upfront fee and need to justify the amount you want, here are a few suggestions:

- Reimburses university for patent costs
  - Previously incurred patent costs
  - Future patent costs (including maintenance fees)
- Reflects any know-how transfer (based on a consulting-fee rate for researcher)
- Reflects development costs:
  - Previously incurred by university; or
  - To be incurred by university

Justifying cash upfront fees

If the payments reflect future services by university (e.g., future development costs), it could be structured in the form of milestone payments.

Milestone

Royalties

Royalties

Royalties are future payments to compensate the licensor for transferring the patent rights.

Types of royalties:

1. Running royalties
2. Independent royalties

Running royalties

Running royalties =
Royalties are calculated as a percentage of the net sales or profits that are actually generated from using the patented technology.

Running sales and profit royalties

Running sale royalties = Calculated as a percentage of the **net sales** …

Running profit royalties = Calculated as a percentage of the **profits** (e.g., operating profits) …

Running sales and profit royalties

Generally speaking, licensing professionals prefer using running **sales** royalties.

Reason = Profits involve more subjective calculations than net sales.

Independent royalties

Independent royalties = Royalty payments are independent of sales or profit results.

Examples:

1. Minimum royalties
2. Milestone payments
3. R&D-funding royalties

Rationale for different royalties

Type	Rationale
Running sales royalties	Provides parties with an intuitively sensible way to deal with patent rights with highly uncertain values. Allows the value of the patent rights to become known through actual performance. Sales royalties tend to be more popular than profit royalties because of the greater complexity involved with calculating profits.
Running profit royalties	Provides parties with an intuitively sensible way to deal with patent rights with highly uncertain values. Allows the value of the patent rights to become known through actual performance. Profit royalties are less popular than sales royalties.
Minimum royalties	Reduces the risk for the rights holder that transferee's sales or profit projections are too optimistic. Also helps to prevent transferees from "shelving" the patent rights (i.e., transferee does not intend to use the patent rights, but instead acquires them to block rivals).
Milestone payments	For higher-risk, early-stage patents, milestone payments can be used to reduce the amount of a partial upfront fee. As information that reduces the risk becomes available, the transferee makes payments that would otherwise have been part of the up-front fee.
R&D-funding royalties	Provides the transferee with confidence that the rights holder will do continuing R&D work.

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   b. **Allocating the benefit**
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Pricing a license

Once the parties understand the pricing options, how should they price a given patent license?

Flippant answer:

- Licensor should try to get the highest price possible
- Licensee should try to get the lowest price possible

Pricing a license

More useful answer should focus on:

- What is the value of the license to the licensor?
- What is the value of the license to the licensee?

The value (and therefore the price) of the license stems from the net future economic benefits that flow from the license to each party.

Pricing zone

The price of any good (or service) should be based on its value to both the buyer and seller.

Pricing zone

Example:

- Buyer wants to buy a computer from Seller.
- Buyer values computer at $750.
- Seller values computer at $650.

Question: What is the appropriate price for selling the computer?

Pricing zone

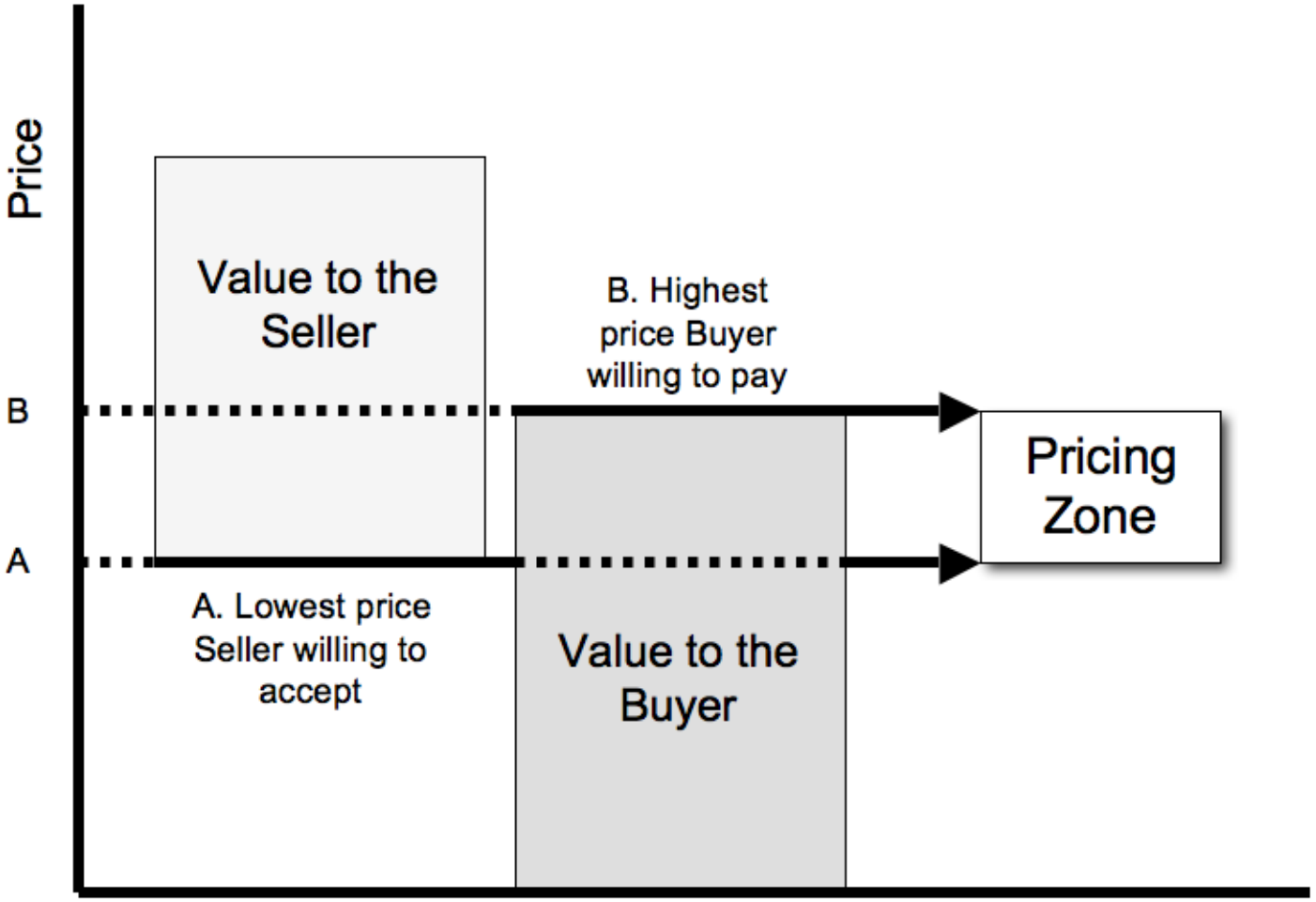
Example:

- Buyer wants to buy a computer from Seller.
- Buyer values computer at $750.
- Seller values computer at $650.

Question: Any price between $650 and $750 is appropriate. **Any** price in the **pricing zone** is proper.

Pricing zone = Any price (a) at or below Buyer's value for the good/service and (b) at or above Seller's value.

Pricing zone



Pricing zone

Applied to patent licenses

The total price for the license (including lump sum fees and royalties) should be:

1. Greater than the value of the patent rights to the licensor, **and**
2. Less than the value of the patent rights to the licensee.

Pricing zone

Pricing a patent license SHOULD involve:

1. Identifying the value of the patent rights to the licensor and the licensee (i.e., marking the boundaries of the pricing zone), **and**
2. Apportioning the net benefits between the licensor and licensee.

Pricing zone

Example:

- Licensor has a patent for a Device and is considering forming an exclusive license with Licensee
- **Licensor** could conduct a discounted future economic benefits (DFEB) analysis to determine net present value of keeping the patent rights (or licensing the rights to a different third party). Let's say this analysis generates a value of $100,000
- **Licensee** could conduct a DFEB analysis to determine the net present value of obtaining the patent rights. Let's say this analysis generates a value of $1 million

Price zone = Any price between $100,000 and $1 million

Such a cumbersome valuation process is unrealistic. It is too slow and complicated for the world of patent licenses.

We need a ***satisficing*** solution.

What benefit comes from licensing?

From the perspective of the University licensor

Since a university (or government research institute) is unlikely to commercially practice the invention, the benefit from the patent will be:

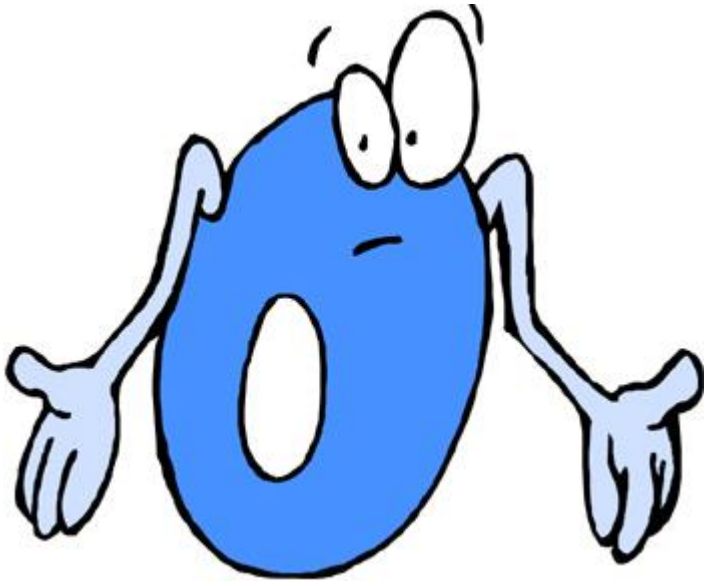
- Licensing revenues
- Other intangible factors, such as:
  - ✓ Transferring the knowledge to the public
  - ✓ Supporting local economic development

In most cases, there is only 1 or 2 potential licensees. Once the intangible factors are addressed (unacceptable licensees are eliminated), the benefit analysis for the university is:

- Don't license, and receive $0 (or worse, lose money because of the maintenance fees); or
- License to the licensee willing to pay the highest royalty

From the perspective of the University licensor

Simplified, the value of the license to the university is anything greater than ***zero***.



From the perspective of the licensee

The licensee benefits from the higher margins it can generate by using the license.

What does that mean?

Income statement (or profit & loss statement)

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	$2,000,000	$3,000,000	$3,800,000	$4,300,000	$4,800,000
Cost of sales	$800,000	$1,200,000	$1,520,000	$1,720,000	$1,920,000
Gross profit	$1,200,000	$1,800,000	$2,280,000	$2,580,000	$2,880,000
SG&A expenses:					
Selling expenses	$360,000	$540,000	$684,000	$774,000	$864,000
R&D expenses	$100,000	$150,000	$190,000	$215,000	$240,000
G&A expenses	$240,000	$360,000	$456,000	$516,000	$576,000
Operating profits	$500,000	$750,000	$950,000	$1,075,000	$1,200,000
Other income (expenses)					
Net interest income (expense)	$100,000	$200,000	($200,000)	($250,000)	$150,000
Depreciation and amortization	($200,000)	($225,000)	($250,000)	($200,000)	($220,000)
Extraordinary income (loss)	—	—	$300,000	($100,000)	—
Pre-tax income	$400,000	$725,000	$800,000	$525,000	$1,130,000
Income taxes	$80,000	$145,000	$160,000	$105,000	$226,000
Net income	$320,000	$580,000	$640,000	$420,000	$904,000

Operating profits

- **Revenues =** money earned for selling a good or service
- **Cost of sales (or production costs) =** cost to produce good or service
- **SG&A expenses (or operating costs) =** company's day-to-day operating expenses

Operating profits = are calculated by subtracting cost of sales and SG&A expenses from revenues.

Revenues	$12,000,000
Cost of sales	($5,000,000)
Gross profit	$7,000,000
SG&A expenses	($4,000,000)
Operating profits	$3,000,000

Operating profits

- Operating profits are the company's profits before interest expenses, depreciation, income taxes, and other exceptional items (see full income statement at end of this handout).
- Operating profits are frequently used when conducting a valuation analysis, because they capture the core economic task of producing and selling the good or service.
- The expenses that come after operating profits are often unique to the individual company, and tell us less about the value generated by the valued asset.

Operating margins

Operating margin is calculated as:

$$Operating\ Margin = \frac{Operating\ Profits}{Revenues}$$

Operating margin shows how profitable a product or service is before taking into account a company's more exceptional expenses, such as depreciation and amortization, or its particular tax rate.

If:

Revenues	$8,000,000
Cost of sales	($2,500,000)
Gross profit	$5,500,000
SG&A expenses	($3,500,000)
Operating profits	$2,000,000

Operating margin = $2 million/$8 million, or 25%

The higher the operating margin, the more profitable the activity.

Patent licenses and operating margins

A patent license reduces competition for a commercial activity, which allows the rights holder to charge a premium price. Being able to charge a higher price allows the rights holder to generate a ***better operating margin***.

The improved operating margin is the licensee's benefit from the license.

Patent licenses and operating margins

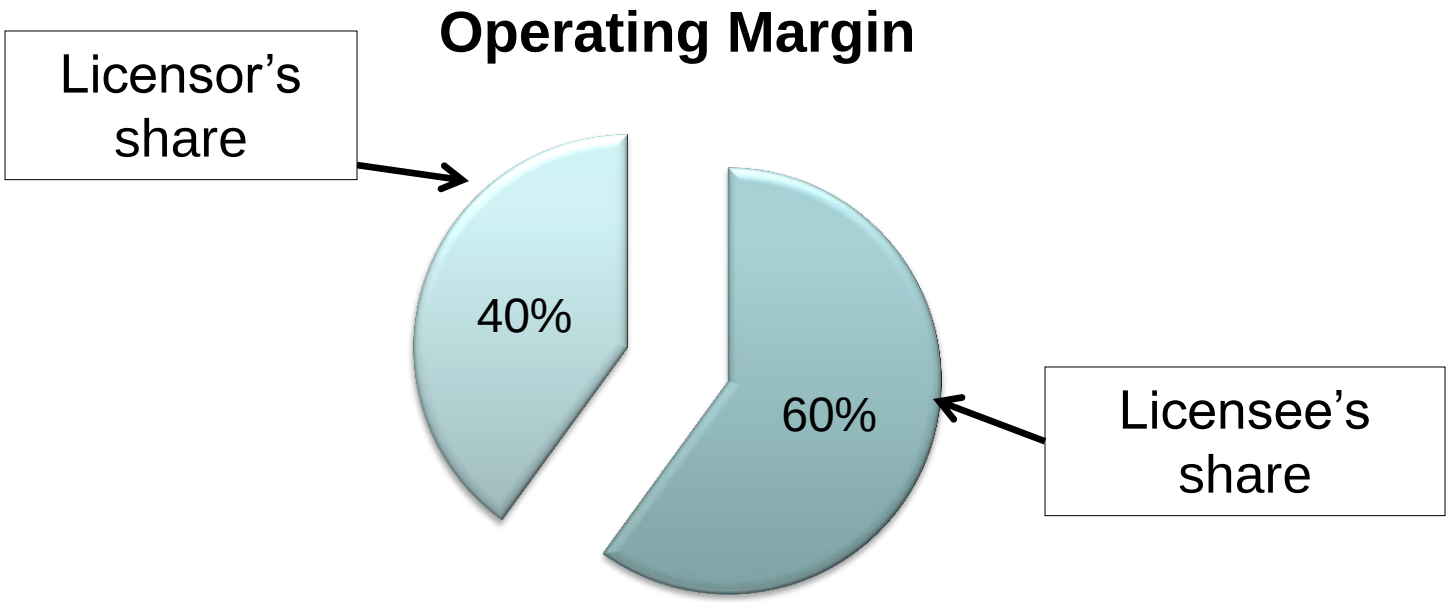
Example:

- Licensee is considering licensing a patent for the Device.
- Licensee typically generates a 20% operating margin from its activities.
- Licensing the patent will allow licensee to generate a 35% operating margin for sales of the Device.
- Benefit = additional 15% of operating margin for sales of the Device

Allocating the benefit between the parties

Royalty rate

Royalty rate = allocation of operating margin improvement between licensee and licensor



Guidance on allocating the benefit

Licensee likely to receive a larger portion of the benefit. Robert Goldschieder explains:

> *The licensor and licensee should share in the profitability of products embodying the patented technology. The a priori assumption is that the licensee should retain a majority (e.g., 75%) of the profits because it has undertaken substantial development, operational, and commercialization risks, contributed other technology/intellectual property, and/or brought to bear its own development, operational, and commercialization contributions.**

* Robert Goldschieder, John Jarosz, and Carla Mulhern. In *Intellectual Property: Valuation, Exploitation, and Infringement Damages,* eds. Gordon V. Smith and Russell L. Parr (2005), 412.

Running sales royalty

A running sales royalty allocates the operating margin benefit.

Example:

- Licensee typically generates a 20% operating margin from its activities.
- Licensing the patent will allow licensee to generate a 35% operating margin for sales of the Device.

If:

Revenues	$10,000,000
Cost of sales	($2,500,000)
Gross profit	$7,500,000
SG&A expenses	($4,000,000)
Operating profits	$3,500,000

Operating margin = 35% ($3.5 million/$10 million)

Running sales royalty

Let's add a 5% running sales royalty. What happens?

If:

Revenues	$10,000,000
5% running sales royalty	($500,000)
Cost of sales	($2,500,000)
Gross profit	$7,000,000
SG&A expenses	($4,000,000)
Operating profits	$3,000,000

Operating margin = 30% ($3 million/$10 million)

Licensor receives one-third of licensee's additional 15% of operating margin.

- Licensor receives 5%
- Licensee receives 10%

Calculating running sales royalty—easiest example

- Patent is for a single-patent product (the Device).
- Licensee's estimated operating margin for the Device = 36%
- Licensee's typical operating margin = 12%
- Licensee's benefit = additional 24% of operating margin
- ***Pricing zone*** = running sales royalty of 0% to 24%

Let’s run some examples

Easiest example:

- Patent is for a single-patent product (the Device).
- Licensee’s estimated operating margin for the Device = 36%
- Licensee’s typical operating margin = 12%
- Licensee’s benefit = additional 24% of operating margin
- ***Pricing zone*** = running sales royalty of 0% to 24%
- Possible running sales royalty = 8%

Let's run some examples

Another easy example:

- Patent is for a single-patent product (the Device).
- Licensee would NOT be completely barred from the market without the license. Licensee could use an alternative technology and generate the same revenues, but a worse operating margin:
  - Licensee's estimated operating margin with license = 36%
  - Licensee's estimated operating margin without license = 20%
- Licensee's benefit = additional 16% of operating margin
- ***Pricing zone*** = running sales royalty of 0% to 16%
- Possible running sales royalty = 5⅓%

Let's run some examples

Harder example:

- Patent is for a complex, multi-patent product. The patented technology offers an incremental economic improvement to the overall multi-patent product.
- Licensee would NOT be completely barred from the market without the license. Licensee could use an alternative technology and generate the same revenues, but a worse operating margin:
  - Licensee's estimated operating margin with license = 24%
  - Licensee's estimated operating margin without license = 20%
- Incremental benefit from license is an additional 4% of operating margin
- Possible running sales royalty = 1⅓%

Guidance on allocating the benefit

For each of the examples, so far, the parties are able to agree on the operating margin impact.

Is that very realistic?

Let's run some examples—more realistic example

Assumptions:

- Patent is for a single-patent product.
- Licensee would be completely barred from the market without the license.
- Licensee's typical operating margin is 10%.
- Parties estimate Licensee's operating margin from the patented technology could range from 0% (i.e., the project could fail) to 50% if the project is a success
- Licensee will have to invest development costs whether the project is a success or failure (i.e., licensee bares significant financial risk in the case of failure)
- The potential for failure is greater than the potential for success.

Let’s run some examples—more realistic example

Possible Compromise Solution:

- Estimate operating margin to be 16.5% (to account for the failure risk)
  - ✓ 50% operating margin x 33% chance the project will be successful = adjusted operating margin of 16.5%
- Benefit is an additional 6.5% of operating margin (16.5% minus 10%)
- Possible running sales royalty would be 2.16%

Let’s do an exercise . . .

(Exercise 4)

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3. **Industry royalty rates**
4. More detailed guidance on royalties

Industry royalty rates

Aggregate industry royalty rates are sometimes used as a market-based approach to price a patent license.

	Running Sales Royalty Rate (late 1980s–2000)			Industry Profit Rates (1990–2000)
Industry	**Minimum**	**Maximum**	**Median**	**Weighted Average Operating Margin**
Electronics	0.5%	15.0%	4.0%	8.8%
Pharma and biotech	0.1%	40.0%	5.1%	16.4%

Source: Russell Parr, *Royalty Rates for Licensing Intellectual Property* (2007), 47.

Industry royalty rates

In reality, aggregate industry royalty rates provide almost no guidance on how to price an individual patent license.

Industry royalty rates

A comparable transaction method values an asset by looking at the range of prices paid in past or current transactions for similar assets. There are two main requirements:

1. The market transactions used as guidance must be comparable to the license being priced.
2. The market-derived prices must come from a relatively efficient market.

It is unlikely either requirement is met in the case of aggregate industry royalty rates.

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4. **More detailed guidance on royalties**

Licensee has biggest effect on value

Assuming a running royalty-based license, the licensee's ability to generate future, positive results is the biggest value driver.

Licensee has biggest effect on value

- Need to understand licensee's business plan for the license.
- Need to understand the sales projections to fully appreciate the royalty rate.
- Amount and timing of sales will both impact the license's value.
- Need to understand licensee's risk profile.

Licensee has biggest effect on value

Assume three potential licensees. They all produce exactly the same projections for the patented device.

		Forward Years							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**Total**
Units sold		1,000	10,000	20,000	35,000	30,000	20,000	5,000	
Price per unit		$1,000	$800	$800	$750	$700	$600	$500	
Total sales		$1,000,000	$8,000,000	$16,000,000	$26,250,000	$21,000,000	$12,000,000	$2,500,000	
5% royalty		$50,000	$400,000	$800,000	$1,312,500	$1,050,000	$600,000	$125,000	$4,337,500
Licensee A (low risk)									
NPV @	30%	$38,462	$236,686	$364,133	$459,543	$282,796	$124,306	$19,921	**$1,525,846**
Licensee B (medium risk)									
NPV @	45%	$34,483	$190,250	$262,413	$296,912	$163,813	$64,557	$9,275	**$1,021,703**
Licensee C (high risk)									
NPV @	60%	$31,250	$156,250	$195,313	$200,272	$100,136	$35,763	$4,657	**$723,639**

Licensee has biggest effect on value

Assume two potential licensees. They produce different projections, propose different royalties, and have different risk profiles.

		Forward Years 1	2	3	4	5	6	7	Total
Licensee A (medium risk)									
Units sold		1,000	10,000	20,000	35,000	30,000	20,000	5,000	121,000
Price per unit		$1,000	$800	$800	$750	$700	$600	$500	
Total sales		$1,000,000	$8,000,000	$16,000,000	$26,250,000	$21,000,000	$12,000,000	$2,500,000	
5% royalty		$50,000	$400,000	$800,000	$1,312,500	$1,050,000	$600,000	$125,000	
NPV @	45%	$34,483	$190,250	$262,413	$296,912	$163,813	$64,557	$9,275	**$1,021,703**
Licensee B (high risk)									
Units sold		1,000	5,000	10,000	25,000	30,000	25,000	10,000	106,000
Price per unit		$1,000	$800	$800	$750	$700	$600	$500	
Total sales		$1,000,000	$4,000,000	$8,000,000	$18,750,000	$21,000,000	$15,000,000	$5,000,000	
7% royalty		$70,000	$280,000	$560,000	$1,312,500	$1,470,000	$1,050,000	$350,000	
NPV @	60%	$43,750	$109,375	$136,719	$200,272	$140,190	$62,585	$13,039	**$705,929**

Tailoring the license

On a related note, resist granting more rights than the licensee needs.

Consider using field of use, geographic, and other limitations to narrow the license to the licensee's business plan.

http://mylifewithanorexia.com/2013/04/02/she-is-restricting/

Tailoring the license

If licensee insists on receiving broader licensing rights, you should require licensee to pay for them.

These broader rights have an ***option value***.

Tailoring the license

Example: University obtained a patent on magnetic resonance technology (the “Patented Technology”). It was developed to assist oil companies to find underground oil reserves. Licensee (an oil company) obtains exclusive license for the Patented Technology.

Five years later, ***a lucrative medical application for the Patented Technology is discovered***. Who should receive the benefits from this new medical application? The University, the Licensee, both?

Convoyed sales

Convoyed sales generally refers to unpatented products that are sold in connection with the patented product. The patented product drives the sales of the unpatented products.

Convoyed sales

Example: Patent covers a beverage dispenser that stores beverage syrup and water separately and mixes them just before dispensing. The dispenser features a transparent bowl creating an attractive impression that induces sales.

The ***unpatented syrup could be convoyed sales***. *See Juicy Whip, Inc. v. Orange Bank, Inc. et al.,* 382 F.3d 1367 (Fed.Cir. 2004).

http://www.ebay.com/itm/GMCW-D25-4-BEVERAGE-DRINK-DISPENSER-WITH-TWIN-5-GALLON-BOWLS-/381226239777

Convoyed sales

Should consider asking for royalties on convoyed sales.

Royalty payment caps

Royalty caps should generally be avoided.*

REMEMBER . . .

* Christopher R. Noble (MIT Technology Licensing Office), *Technology Valuation Course,* New Orleans (Feb. 22, 2015).

Small number of patents account for most of the income

In the United States, licensing income is highly concentrated.

- Top 20 U.S. universities account for 70% of patent activity.*
- The five most successful patents from each of these universities account for 70 – 90% of their licensing income.*

* John Bessant and Joe Tidd, *Innovation and Entrepreneurship, 3rd Ed.,* 366 (Wiley, 2015)

Royalty payment caps

It can be very difficult to determine which patent licenses will be the successful ones. A royalty cap can rob you of the upside from the small number truly valuable patents.

What about sublicensing?

Whether to permit sublicensing (or how to structure sublicensing) goes beyond the scope of my presentations.

But, I do want to leave you with a few pricing thoughts on sublicensing.

If you permit sublicensing

1. **Patent agent model:** If the licensee is serving as a patent agent, you will need to pay a ***patent agency commission***.

These commissions can vary widely.

If you permit sublicensing

2. **Take-to-market model:*** If licensee was expected to take the invention to market, a ***royalty pass-through*** on sublicensee sales is common.

   This is accomplished by ***including sublicensee sales in the definition of "Net Sales"*** in the license.

* Christopher R. Noble (MIT Technology Licensing Office), *Technology Valuation Course,* New Orleans (Feb. 22, 2015).

What about mandatory sublicensing?

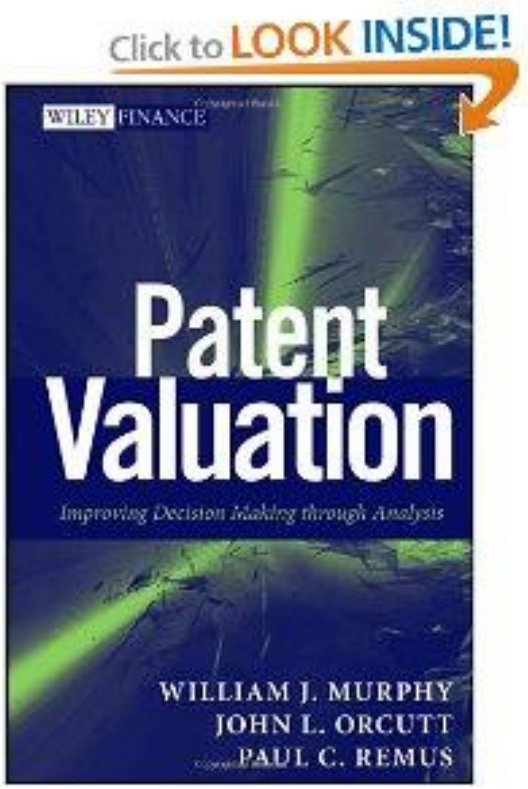
3. **Licensee fails to adequately commercialize all fields:*** To protect against this problem, may want to include one or more of the following protections in the license agreement:
    - Mandatory sublicensing if milestone not hit
    - Convert exclusive license to nonexclusive license

* *See* Christopher R. Noble (MIT Technology Licensing Office), *Technology Valuation Course,* New Orleans (Feb. 22, 2015).

Let’s do an exercise . . .

(Exercise 5)

John Orcutt is the author of . . .



Available at: http://www.amazon.com/Patent-Valuation-Improving-Decision-Analysis/dp/1118027345

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