Valuation of Intellectual Property – Accounting & Licensing

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Overview

- IP valuation methods
- IP valuation for accounting purposes
- IP valuation in licensing deals
3 main valuation methods

• Cost-based (generation or replacement)
• Market- / transactions-based
• Net present value methods
Cost-based valuation

• Advantage: may be readily and objectively measurable
• Disadvantage: may not be closely related to economic value of IP to business
Market-/transactions-based valuation

• Advantage: often closely related to economic value of IP to business
• Disadvantage: may not available because of lack of comparable technologies and recent transactions; also presumes that value has been established by some other method beforehand
Net present value methods

- Advantage: captures economic value of IP to business well
- Disadvantage: requires assumptions about future technological and market developments
Uses of IP valuation

• IP dispute settlements
• Mergers and acquisitions
• Raising financial resources/ Investment
• Accounting
• Licensing deals
IP valuation in accounting

• Role of accounting for business management
• Significance of intangible assets
• International standards
• Challenges of valuing intellectual property for accounting purposes
• Desirable future developments
Role of accounting for business management

“You cannot manage what you cannot measure” (Peter F. Drucker)

- Accounting = system of quantitative measurement, public documentation & analysis of a business’ activities & results
  - System: governed by laws, and by standards developed & promulgated by professional associations (nat’l, int’l)
  - Quantitative measurement = assigning monetary values
Role of accounting for business management

- Public documentation: accounts are audited & certified to conform to standards, and can then become the basis for valuing the firm, raising financing, selling the firm, taxation, ...

- Analysis: to understand time trends in the firm’s activities, which activities contribute how much to profits & losses, how sustainable the firm’s operations are, what business risks it faces & how well it is prepared to bear those risks
Role of accounting for business management

- Accounting rules also affect incentives & have an impact on what businesses do!
- Changes in depreciation rules affect the distribution of accounting profits over time. Accelerated depreciation of investment costs shifts profits to the future and therefore shifts corporate income tax liabilities to the future. This may act like a tax incentive for investment.
Significance of intellectual property

- 3 broad classes of assets: current; property, plant & equipment; **intangible**
- Intangible assets = identifiable non-monetary assets without physical substance
- Intangible assets include all types of formal intellectual property rights
- As well as brand recognition, knowhow, proprietary databases, ...
- Intangible assets that are NOT accounted for separately on the balance sheet can be reflected as residual “Goodwill”
Significance of intellectual property

- Innovation has accelerated
- Has become an increasingly important driver of performance of leading businesses
- And of economy-wide growth
- Innovation based largely on knowledge, on intangible assets, including intellectual property
Significance of intellectual property

- large & growing share of intangible assets in company values
Significance of intellectual property

- Increase in global patent grants 1995-2008

*Source: WIPO Statistics Database*
Significance of intellectual property

- Increase in global trademark registrations 1995-2008
Significance of intellectual property

• large & growing share of intangible assets in company values

• acceleration in patent filings & trademarks registrations

➤ increasing significance of accounting for intangible assets
International standards

• International Valuation Standards (IVS), particularly IVS 210 on intangible assets
• International Accounting Standards (IAS), particularly IAS 38 on intangible assets & 36 on impairment
• International Financial Reporting Standards (IFRS), particularly IFRS 3 on business combinations
• IFRS for small & medium-sized businesses
International standards

International Accounting Standard (IAS) 38 on intangible assets

• Intangible assets can be recognized in company accounts if
  – They can be separately identified
  – They are likely to generate future revenues for the company (always assumed true if asset has been bought)
  – Their cost can be measured reliably
International standards

International Accounting Standard (IAS) 38 on intangible assets

- Intangible assets to be **valued at cost**
  - Either purchase price (when bought in the market)
  - Or cost directly attributable to the asset’s creation (when created in-house)

- **BUT**: market value in one case (cf below)
International standards

International Accounting Standard (IAS) 38 on intangible assets

• NOT to be recognized
  – Internally generated goodwill
  – Any intangible assets generated through research alone
  – Expenditure on research = immediate expense
  – Internally generated brands
International Standards

- So research is an operating expense which reduces income & hence equity immediately by the full amount

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>Costs of goods sold</td>
</tr>
<tr>
<td>Other revenues</td>
<td>Raw materials</td>
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<tr>
<td></td>
<td>Intermediate inputs</td>
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<td>Wages &amp; salaries in production</td>
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<td>Operating expenses</td>
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<td>Wages &amp; salaries other than in production</td>
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<td><em>Research &amp; Development</em></td>
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<td>Depreciation/amortization</td>
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<td></td>
<td>Interest expenses</td>
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<td><strong>Income</strong></td>
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<td><strong>Dividends</strong></td>
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<tr>
<td></td>
<td><strong>Retained earnings</strong></td>
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</tbody>
</table>
International standards

International Accounting Standard (IAS) 38 on intangible assets

• intangible assets generated through in-house development may be recognized if
  – Development costs can be measured reliably
  – The company is willing & able to complete and then use or sell the intangible asset
  – The company can explain how the asset generates future economic benefits
International standards

International Accounting Standard (IAS) 38 on intangible assets

- After initial inclusion in the accounts, intangible asset values can be adjusted over time using one of 2 models
  - Cost model: initial cost
  - Revaluation model: fair value in an active market
International Standards

So in-house development expenditures **meeting the above criteria** can be activated on the balance sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Equity</th>
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<tbody>
<tr>
<td>Current assets</td>
<td>Short-term liabilities</td>
</tr>
<tr>
<td>Cash</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>Unearned revenues</td>
</tr>
<tr>
<td>Inventory of finished products</td>
<td>Short-term bank debt</td>
</tr>
<tr>
<td>Supplies of raw materials &amp; intermediate inputs</td>
<td>...</td>
</tr>
<tr>
<td>Property, plant &amp; equipment</td>
<td>Long-term liabilities</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>Short-term bank debt</td>
</tr>
<tr>
<td>Goodwill</td>
<td>Bonds outstanding</td>
</tr>
<tr>
<td><strong>Intellectual property</strong></td>
<td>...</td>
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<tr>
<td>...</td>
<td>Equity capital</td>
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<tr>
<td></td>
<td>Retained earnings</td>
</tr>
<tr>
<td></td>
<td>Stock</td>
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International Standards

- ... and can be depreciated over time

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International standards

International Accounting Standard (IAS) 38 on intangible assets

• Both cost & revaluation model allow for adjustment over time through depreciation/ amortization

➢ **Need to determine remaining useful life of the intangible asset**
• No physical wear-down
• But legal rights may *expire* (e.g. patent terms)
• Intellectual property rights may be *impaired* through technological *obsolescence* or challenges to their *validity*
International standards

• International Accounting Standard (IAS) **36 on impairment**

• Impairment: if fair market value or “value in use” is less than cost at which the asset is currently carried in the accounts

  ➢ Immediate write-down & recognition as loss
International standards

• International Financial Reporting Standard (IFRS) 3 on business combinations
• In consolidated balance sheet, intangible assets can be recognized at fair value if separately identifiable
International standards

• International Financial Reporting Standard (IFRS) for SMEs
• Does NOT allow any recognition of internally generated intangibles
• all R&D expenses related to intangibles have to be treated as operating expenses
• BUT: R&D expenses not capitalized into tangible assets can be disclosed separately
Challenges of valuing intellectual property for accounting purposes

- Trade-off objectivity/verifiability vs relevance
- Patent premium
- Internally-generated IP/ intangible assets
- Lack of comparability and active markets
- Risk of validity challenges
Challenges of valuing intellectual property for accounting purposes

- **Objectivity/verifiability vs relevance:**
  - Accounting rules focus on *cost measures*
  - Try to avoid subjective assumptions about future
  - But cost is often a poor measure of the true value of IP

  ➢ **Accounts may not provide full picture of activities & results of innovative companies**
Challenges of valuing intellectual property for accounting purposes

- **Patent premium:**
  - Need to distinguish between the value of a patent, i.e. *exclusive right to the use* of a technology, and the *value of the technology* itself w/o an exclusive use right
  - Cost measure is useless for this purpose; requires assumptions about competition & future innovation
Challenges of valuing intellectual property for accounting purposes

- **Potentially inconsistent treatment of acquired and internally-generated IP/ intangible assets**
  - Business combination: an intangible asset that was generated internally by one business and could not be recognized in the accounts may be able to be recognized by the new combined business
  - Balance sheets of similar businesses may look very different depending on how they generated/obtained their IP
  - Financial markets/investors may struggle to correctly assess innovative companies
  - May distort incentives & behavior towards acquiring intangible assets rather than generating them in-house
Challenges of valuing intellectual property for accounting purposes

- **Lack of comparability and active markets**
  - Accounting rules allow in principle the use of the revaluation model but:
  - The heterogeneous nature of intangible assets means that it is rarely possible to find market evidence of transactions involving identical assets
  - Because of the heterogeneous nature of many intangible assets, there is often a greater need to consider the use of multiple approaches and methods to derive value than for other asset classes
  - Where evidence of either prices or valuation multiples is available, it will often be necessary to make adjustments to these to reflect differences between the subject asset and those involved in the transactions
  - Such adjustments may only be determinable at a qualitative, rather than quantitative, level

  ➢ **For accounting purposes, valuation by fair value in active market rarely feasible**
Challenges of valuing intellectual property for accounting purposes

- **Risk of validity challenges to IP:**
- Where IP can be included in the balance sheet, accounting rules call for an assessment of its useful life, which determines the depreciation schedule.
- Unlike the case of tangible assets, this may require an assessment of the risk of a successful legal challenge to the validity of the IP, e.g. of the strength of the patent.
- Cost measure is useless for this purpose.
Recent & desirable future developments

• supplementary reporting on innovation & intangible assets: intellectual capital reporting
• Non-financial information (including qualitative information) on a firm’s innovation activities & LT strategy
• To improve communication w/ investors & potential business partners
• To improve internal management, including corporate governance
Recent & desirable future developments

- Need for International convergence:
  - Different national accounting & valuation standards
  - And/or different national interpretation, implementation and enforcement of international standards
  - => Create costs & uncertainty for internationally operating businesses

 Recommendation 5: G-20 to encourage and support the development, adoption, implementation and consistent interpretation of globally accepted high-quality international standards, to the greatest extent possible, for each of financial reporting, auditing, valuation, and actuarial services.

Private Sector Task Force of Regulated Professions and Industries, Final Report to the G-20 Deputies on Regulatory Convergence in Financial Professions and Industries, September 2011
Summary of main points - Accounting

- Accounting is a key management tool
- Intangible assets incl. IP increasingly important for businesses & economies
- Increasingly important to account for IP in meaningful way
- But current accounting rules stress objective verifiability of valuations
- Reject valuations based on assumptions about future
Summary of main points - Accounting

• Not all IP can be accounted for
• What can be accounted for has to be valued at cost
• Cost often doesn’t give most realistic value for management purposes
• Conflict between verifiability & relevance of IP valuation for accounting purposes
• Need to supplement accounts w/ non-financial, qualitative information on innovation activities & results
Summary of main points points - Accounting

• Several sets of rules on IP valuation for accounting
• International rules non-binding
• Interpretation & application of international rules varies across countries
• Creates costs & risks for international business
• Need for more harmonization in interpretation & application of international rules
Resources on IP Valuation in Accounting

• Website of the International Accounting Standards Board: www.ifrs.org/Home.htm

• The IFRS Foundation provides training materials free of charge, conducts training workshops and runs an Implementation Group which is developing guidelines for SMEs on the implementation of the standard

• Website of the International Valuation Standards Council: www.ivsc.org/
Resources on IP Valuation in Accounting

• Website of the InCAS project (Intellectual Capital Statements for Europe)  [www.incas-europe.org/index-en.htm](http://www.incas-europe.org/index-en.htm)

IP Valuation in Licensing Deals

• Licensing IP as part of the business strategy of innovative Small and Medium Sized Enterprises
• Factors determining the value of licenses
• Financial terms in license agreements
Strategic benefits of licensing in/out

• Avoid re-inventing the wheel: use technologies/products/brands developed by others
• Avoid disputes on the infringement of intellectual property rights
• Cooperate w/ partners who have complementary expertise and resources (commercialization, geographical)
• Generate revenues directly from research
Benefits of licensing out

Can create revenues **directly** from research and development

- Some innovative SMEs are strong in research and invention, but lack the resources and competences for the development and commercialization of products

  - Licensing out to other companies who will commercialize the technology yields royalty income
  - Allows SME to focus on its strength and to re-invest in follow-on inventions
Factors Determining the Value of Licenses

The degree of exclusivity granted by the license:

- Exclusive licenses, where the licensee will be the only one with access to the technology/trademark, are the most valuable.
- Sole licenses, where there is only one licensee but the licensor may also use the technology/trademark, are second.
- Non-exclusive (ordinary) licenses, where the licensee is one among several/many, are the least valuable.
- Authorization to grant sub-licenses in the case of exclusive or sole licenses makes the license more valuable.

**BUT:** The total value of the technology to the owner may be greater with a sole or multiple non-exclusive licenses than with one exclusive license.
Factors Determining the Value of Licenses

The geographical reach of the license:

- Global licenses are more valuable than regional or national licenses

**BUT AGAIN:** the total value to the licensor may be higher with multiple regional/national licenses than with one global license
Factors Determining the Value of Licenses

• Maximizing the value of a technology/trademark through licensing typically requires granting separate licenses for different industries/product categories (where there are several applications)
Factors Determining the Value of Licenses

The cost and risk of commercialization:

- How much additional R&D is needed to create a market-ready product?
- How high is the risk that no market-ready product can be developed or that the product will not be commercially successful?
- Does the licensee need additional licenses from other parties to develop a product? If so, how expensive are these, and how high is the risk that the licensee might not obtain these additional licenses?
- How high is the risk that the validity of the licensed IP can be successfully challenged and can be invalidated?
- How high is the risk that the underlying technology will become obsolete b/o competitors’ innovations?
Factors Determining the Value of Licenses

The quality of the potential licensee:

- Does the potential licensee have the technological capabilities to further develop the technology?
- Does the potential licensee have the financial resources to invest in further R&D and/or to maintain and enforce the underlying IP?
- Does the potential licensee have sufficient knowledge of the target market(s) to successfully commercialize a product?

➢ **Important to choose the right partners**
Factors Determining the Value of Licenses

The alternatives available to the potential licensee:

• Could the potential licensee use an alternative existing technology to put his product on the market? If so, at what cost?

• Could the potential licensee develop an alternative technology of its own (work-around solution)? If so, at what cost?

• Could the potential licensee challenge the validity of the underlying IP in court in order to be able to use the technology for free? If so, at what cost and probability of success?
Factors Determining the Value of Licenses

Revenue which licensor can expect from a license depends on:

• Allocation of costs between licensor and licensee
  • Who will pay for maintaining the underlying IP, i.e. renewal fees for patents, litigation costs in case of disputes?
  • Who will pay for the development and commercialization of a licensed product?
  • Who will finance investments in technology improvements if any?

**NOTE:** This allocation will in part depend on the type of license. In the case of non-exclusive licenses, the maintenance costs will typically fall on the licensor.

**NOTE:** This allocation will also have an impact on how the risks are shared!
Factors Determining the Value of Licenses

• Value of comparable IP in the market
  • Have there been comparable deals in the recent past?
    ➢ Due to the often unique character of innovative technologies, it may be difficult to obtain reliable and sufficient information

• Intensity of competition in the market for the final product
  • If there are competing products which are close substitutes for the product to be introduced by the licensee, the expected profits will be low and the license will not be very valuable
Valuation Methods

• In principle, any and all methods are applicable; no legal limitations
• The only thing that matters is that both parties to the licensing contract can agree
• Due to high uncertainty about commercialization and IP risks, advisable to use more than one method
  ➢ Establish a range of plausible values/scenarios
Financial Terms in License Agreements

Difficult to objectively determine the value of a technology/trademark and the corresponding licenses ex ante

- Difficult to assess the risk of commercialization
- Difficult to assess the risk of challenges to the underlying IP

**BUT: no need to fully determine the value ex ante!**

- Financial terms can be used to adjust payments over the course of the licensing agreement as more information becomes available!
Financial Terms in License Agreements

Various types of financial compensation for Licensor

- down payment at the execution of the agreement
- milestone payments
- running royalties
- minimum royalties
- fully paid up license through one payment
- option fees
- shares in joint venture based on IP
Financial terms in License Agreements

Down payment

• The longer the way to market, the lower the down payment will be
• The higher the risk for the licensee that the development of the product will fail, the lower the down payment will be
• High down payments can only be expected for advanced product developments or where the licensee lacks real alternatives

Advice: Down payment may be split, e.g. based on the results of the evaluation of the technology in a study of superiority

➢ Down payment can be set at minimum estimated value of the license, with additional payments conditional on commercialization success
Financial terms in License Agreements

Running royalties

- In most cases determined as a percentage of Net Sales
  - Importance of the definition of Net Sales (deductions, sales between affiliated enterprises etc.)
- In exclusive licenses the royalty will be higher
- Running royalties may be scaled depending on the turnover, e.g.
  - 10% for the first 1 mio US $ of Net Sales
  - 8% for Net Sales above 1 mio up to 1.5 mio US $ etc.

> Revenues of the licensor will be high if the product is commercially successful, i.e. if the license turns out to be valuable; revenues will be low if the license turns out not to be valuable
Summary of main points - Licensing

- The value of a license depends on its exclusivity (exclusive, sole, non-exclusive)
- And its geographical reach (global, regional, national)
- As well as the costs and risks associated with bringing a successful product to market
- It also depends on the strength of the underlying IP and the alternatives available to the potential licensee
- And on the intensity of competition in the product market
Summary of main points - Licensing

• Advisable to use several valuation methods
• It is often not necessary to agree on a definitive value at the beginning of the licensing relationship
• The financial terms of the license can be used to adjust payments during the course of the commercialization as more information about the commercial potential of the product becomes available
• This can be done by combining a moderate initial down payment with milestone payments and royalties whose size depend on progress with product development and success in commercialization
Resources on IP Valuation in Licensing Deals

- There are many commercial providers of searchable databases collecting information on licensing deals, including royalty rates and other financial information, that can be used as benchmarks when valuing intellectual property in licensing deals.
- Some of these are general, some focus on specific industries, such as pharma or biotech.
- http://valuationresources.com/EconomicData/Royalty.htm contains a free guide to some of these databases.
• New UNECE publication: www.unece.org/index.php?id=26564&L=0
THANK YOU for your attention

• For further information:
  • [www.unece.org/ceci/welcome.html](http://www.unece.org/ceci/welcome.html)
  • mailto: [ralph.heinrich@unece.org](mailto:ralph.heinrich@unece.org)
  • Phone: + 41 22 917 1269