The importance of patent data for the investor

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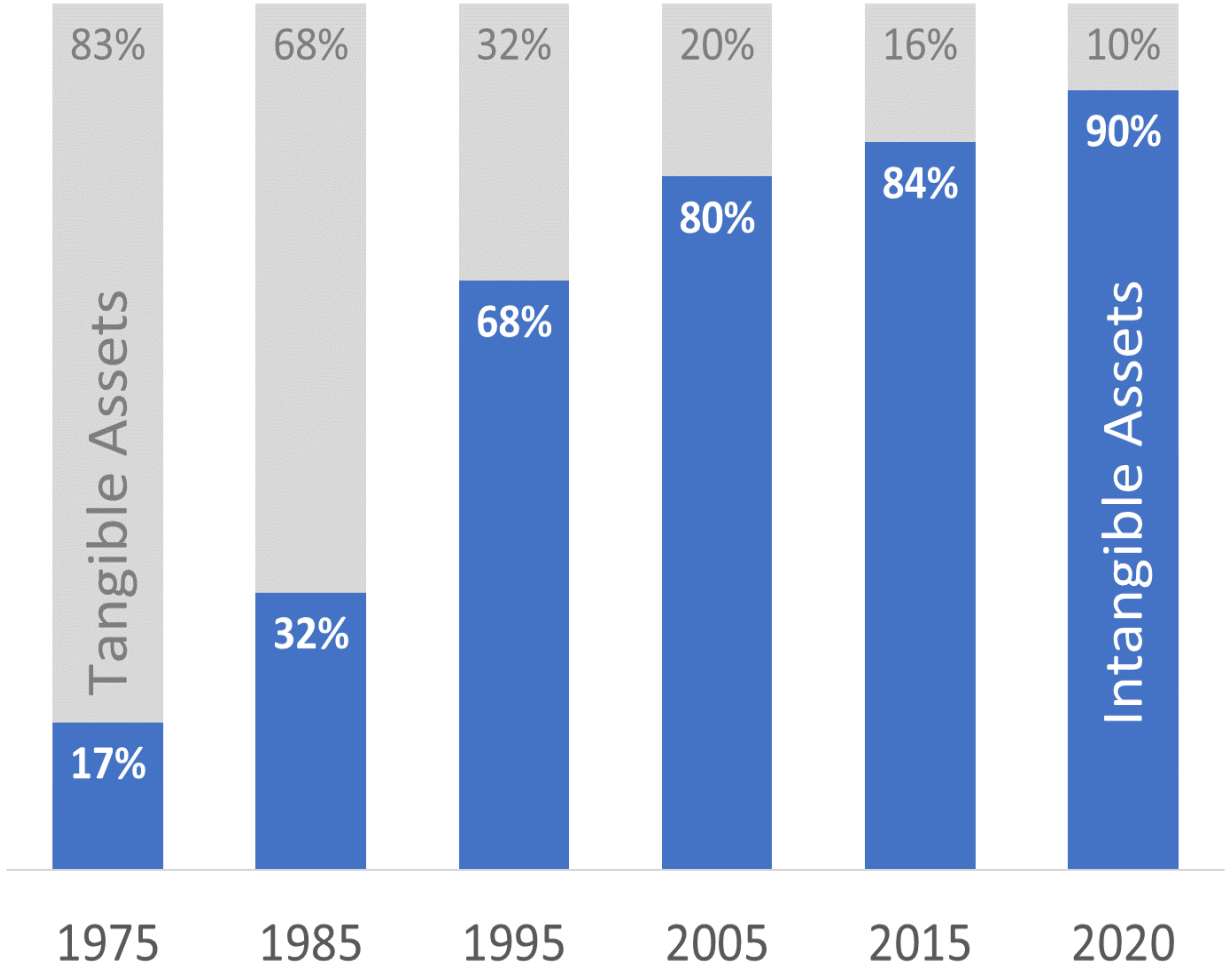
Economy Is More and More Based on Intangibles



So, in a nutshell, more than 2/3 of Company Values are due to Intangibles

> **Nice statistics, what about real life?**

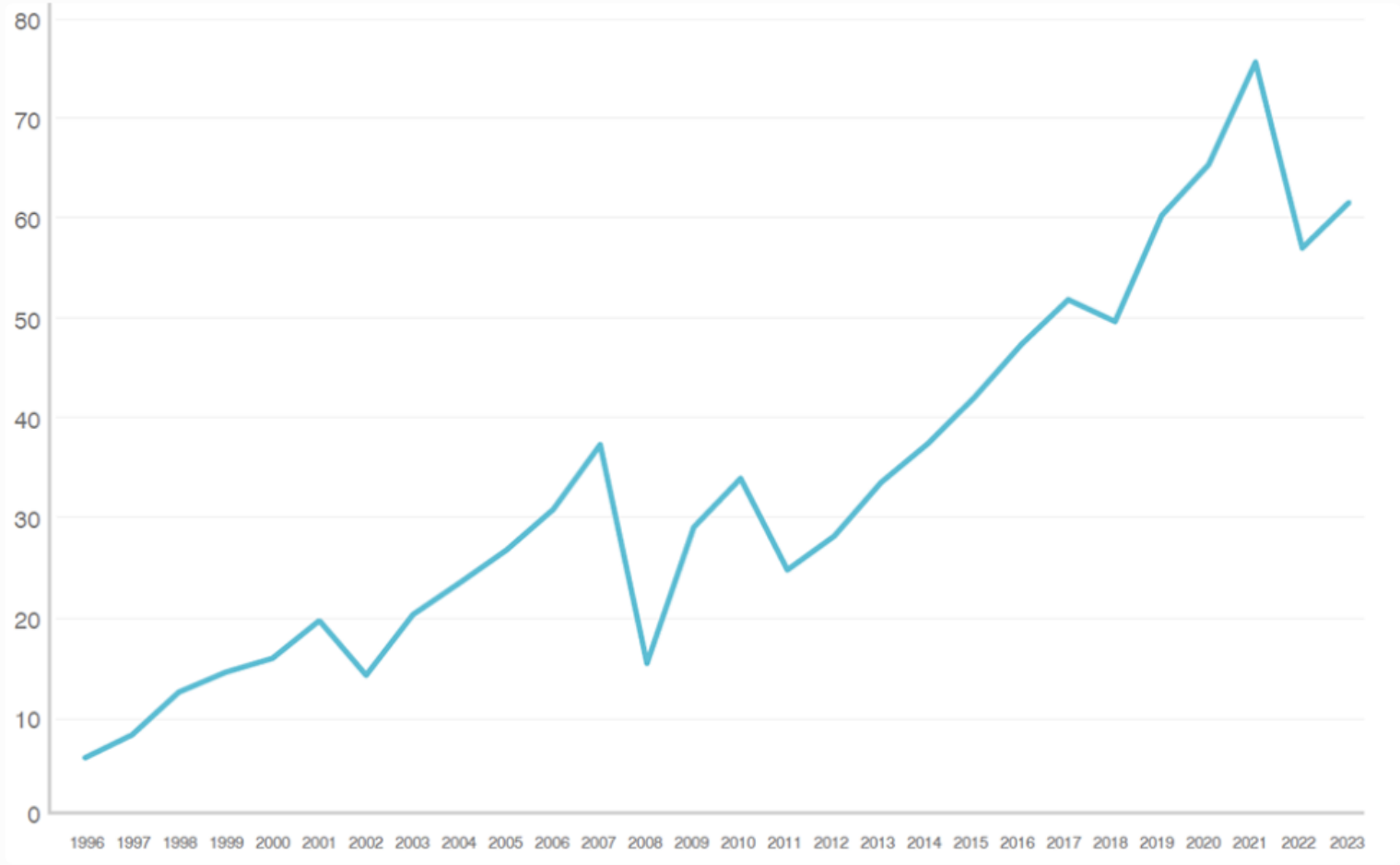
- Why do you choose one car instead of another?
- Why do you go to one concert instead of another?
- Why do you buy bread at one baker's than another?

- **How do you compare two companies?**
- Because of numbers, EBIT, EBITDA, Free Cash Flow, Structure of the Balance Sheet, ...)?
- Or because you trust the organization (management, commitments, ..)?
- And/or simply because you believe the (long term) payback of your investment in it is good?
- Trust is intangible

Sources: Ocean Tomo Intangible Asset Market Value Study, 2017; IP Closeup, 2021.
https://www.oceantomo.com/intangible-asset-market-value-study/
https://ipcloseup.com/2021/01/19/latest-data-show-that-intangible-assets-comprise-90-of-the-value-of-the-sp-500-companies/

WW Intangible Value

Figure 1: Global Corporate Intangible Value (USD trillion)

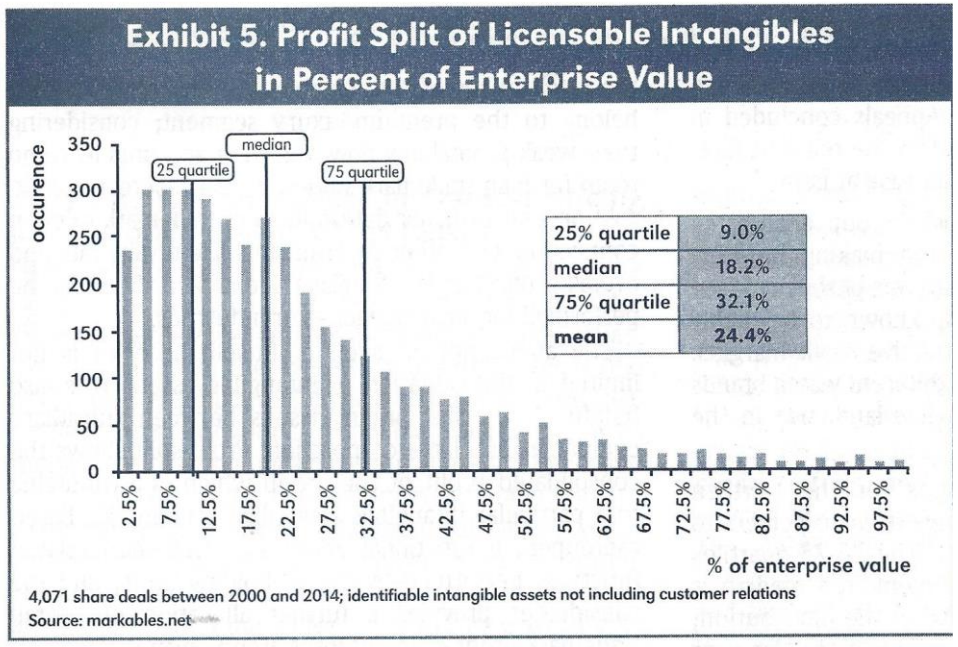


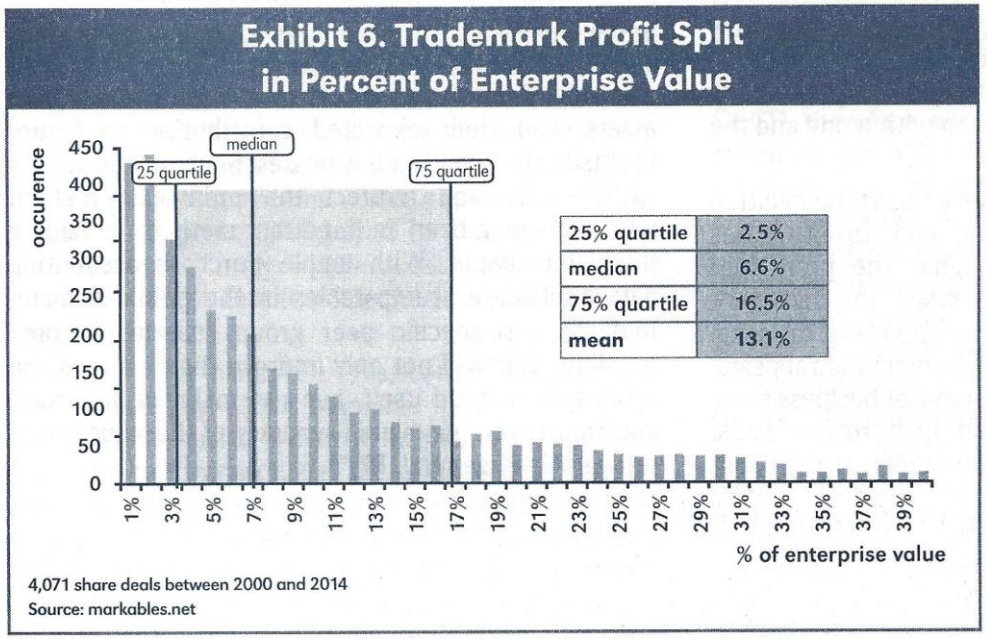
Source: Brand Finance Global Intangible Finance Tracker (GIFT) 2023

https://www.wipo.int/global_innovation_index/en/gii-insights-blog/2024/corporate-intangible-assets.html

IP Constitutes a Relevant Part of Intangibles

Source : Les Nouvelles, December 2015, Vol L N°4, Binder et al., pp 203-212





The median share of IP assets is around 25% of company values, in a range 10% - 45%

Investors Hurdles – What about IP?

- Several types of investors (see Prof. Zagos presentation) with different points of view
  - Venture Capitalists
  - Banks
  - Asset Managers
- Company reporting does not adequately report IP values in Balance Sheets, e.g.
  - Capitalization of costs incurred
  - Cost of acquisition in M&A operations (“Purchase Price Allocation”)
- On the contrary of fixed assets, value of IP is forward-looking:
  - Fixed assets : initial immobilization minus depreciation (**past-based**)
  - IP assets: their value depends on their **future usage**

What Does A Typical Investor Look at?

- Factors influencing value
- How to measure value?
- How to assess sustainability?

- Factors influencing risk?
- Strength of the IP?
- Is there a plan B?

- What is a typical return?
- How does it compare to fixed assets?

Patent Values – How are they determined

Patent Value

- Forward looking
  - The future net income it will generate
  - With which probability?
- Valuation : a difficult exercise
  - Cost-based method
  - Market-based method
  - Revenue-based method
- In what follows: focus on market-based methods
  - Fast, can be automated (e.g. IntraComGroup)
  - Allows comparisons
  - Generally sufficient for decision-making before detailed Due Diligence (Revenue-based method)

Example of a patent concerning a wonderful new green, cheap, efficient … source of energy

Cooking

€ to €€

Domestic Heating / Cooling

€€ to €€€€

Industrial Usage

€€€€€ to €€€…€

https://www.edf.fr/groupe-edf/espaces-dedies/l-energie-de-a-a-z/tout-sur-l-energie/produire-de-l-electricite/les-differents-types-de-centrales-thermiques

Value creation depends on many factors

Usage	Cooking	Domestic	Industrial
Technical abilities	**	****	**********
Financial resources	*	**	**********
Marketing abilities			*****
Human Resources	*	***	**********

Market Approach : a Common Analogy

- A priori, all flats of the same category/floor look comparable
- Anyway, their rental value will depend on
  - Exposure
  - Lightning
  - Maintenance state
  - Neighborhood
  - …

Direct Valuation

- Qualitative features could allow to compare flats in different locations
  - Floor / center or angle / exposure
  - Maintenance state
  - Neighborhood
  - …

Indicator-Based Comparison Valuation

Understanding Market Approach

Market approach/ Market analogy

- Compares an object with similar object in the market
- Determines the price of the similar object(s), that were traded in the past
- Determines the value based on the references that were found, i.e as an average value
- Is used in real estate valuation

Monetarisation:The reference price(es) is the value

PROBLEM:

- Key idea of patents is uniqueness - finding corresponding patents may be difficult
- Data availability: prices are rarely published
- Alternatives may lead to complete different values e.g. when a standard is involved

Indicators-Based Market Approach

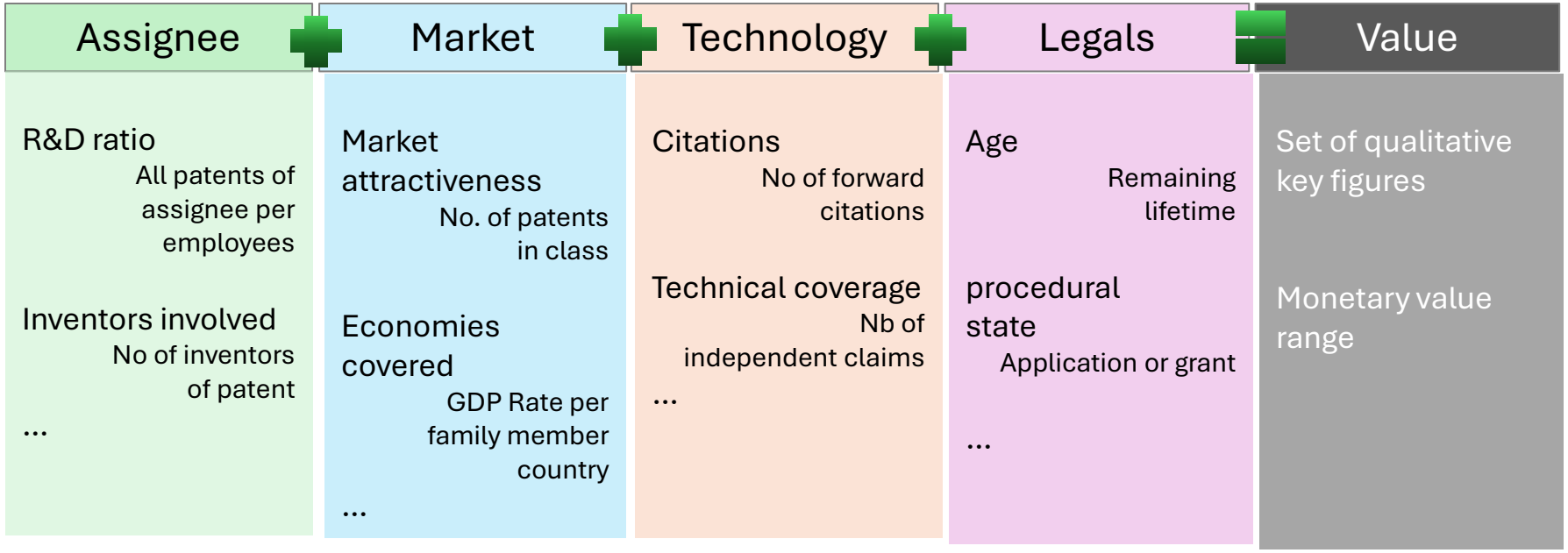
Indicators determine certain „patent-features“

- Each patent is reduced to a set of indicators, examples:
  - A big patent family size indicates a high family value (Lanjouw et al, 1998)
  - The number of citations that a patent receives indicates technological importance (Trajtenberg, 1990; Hall, et al., 2005; Harhoff et al., 2003).
- Result: qualitative image of a patent, it can indicate a high or low quality of a patent.
- Good for comparison of patents, e.g. own vs. competitor patents.

Monetarisation:

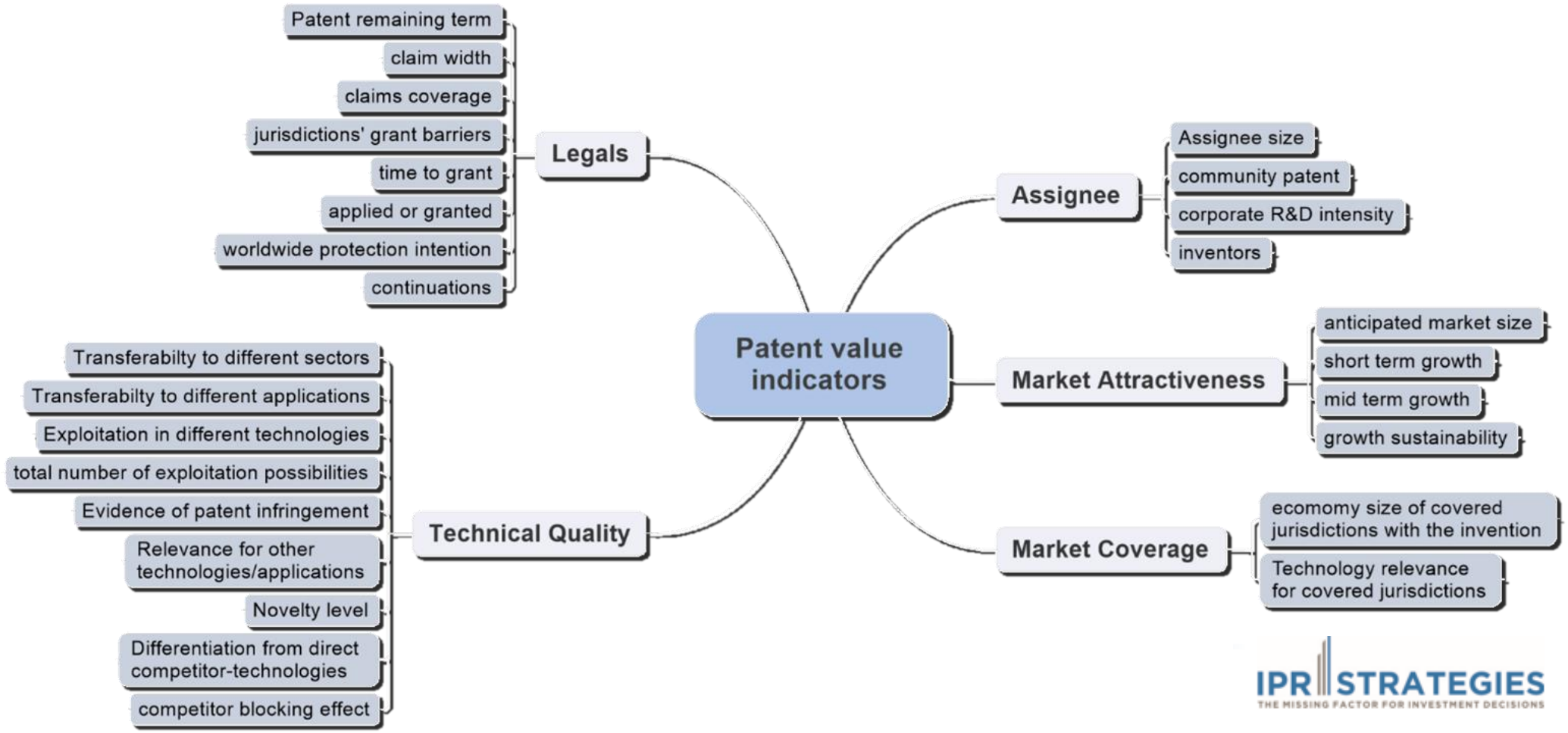
- **Assigning a monetary value is possible by applying the market analogy to indicator models…**

Patent Valuation based on Market Method: A Combination of Many Dimensions



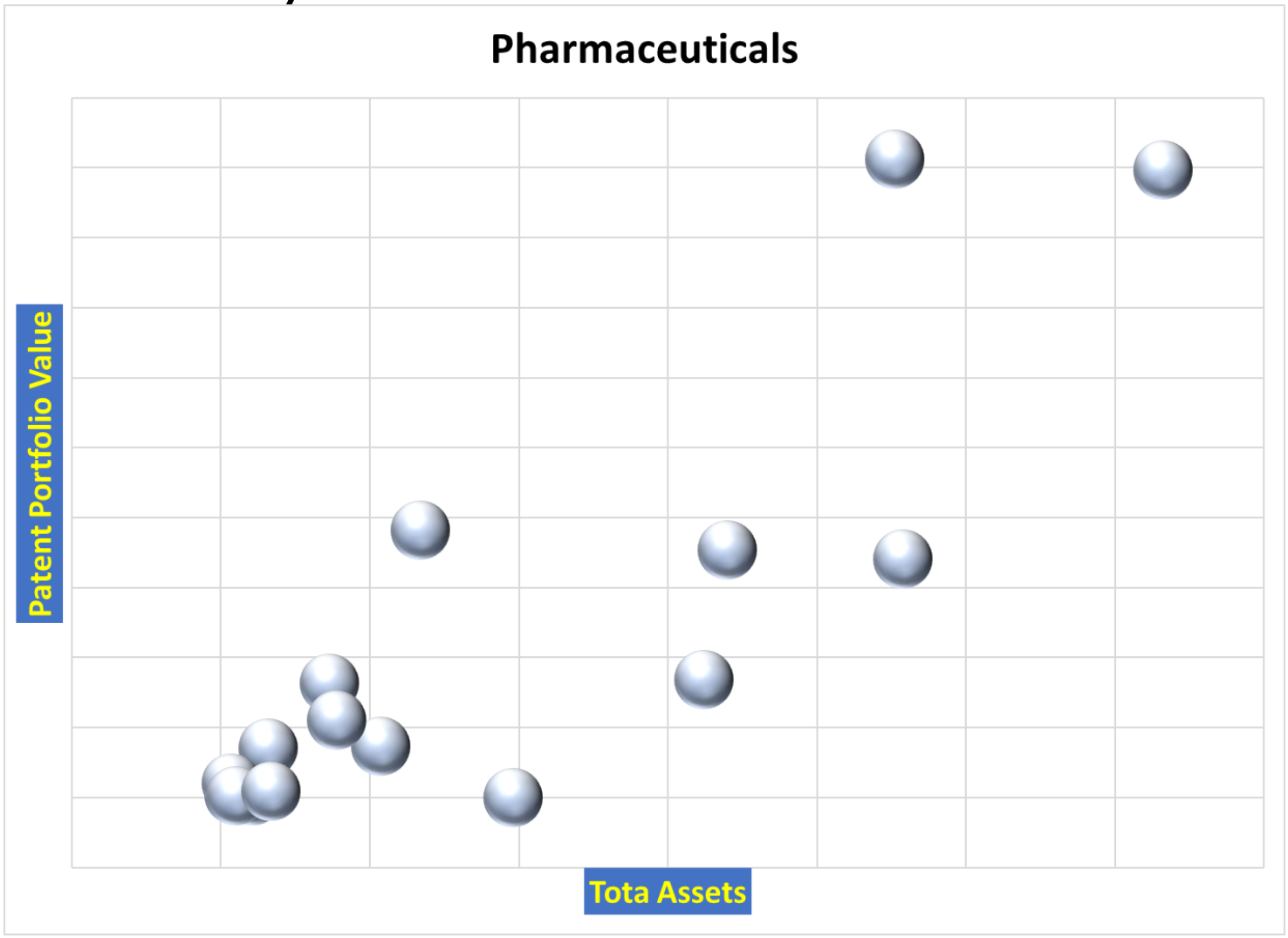
Indicators can be sourced automatically - as long as they are available - or manually.
Investors should at least understand this macro-level – Long way to go!

Key Indicators



IPR STRATEGIES
THE MISSING FACTOR FOR INVESTMENT DECISIONS

Patent Value and Total Assets - Stoxx 600, 2022)



The Share of Patent Value in Total Assets is Strongly Dependent on the Sector

Some Data

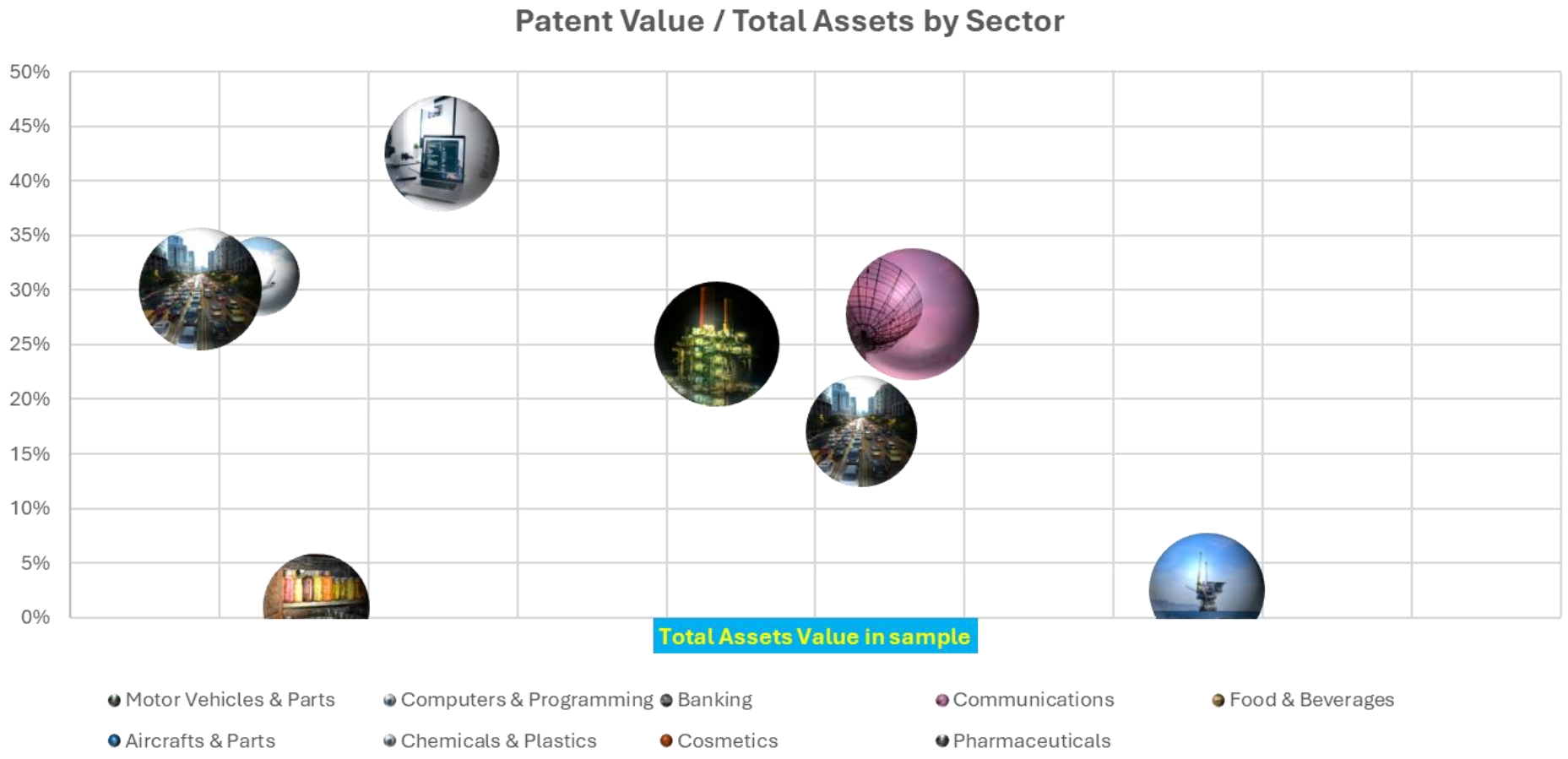
Patent Value / Total Assets

2022 Stoxx 600

• Computers & Programming	42,47%
• Aircrafts & Parts	31,26%
• Cosmetics	30,24%
• Pharmaceuticals	30,11%
• Communications	27,78%
• Chemicals & Plastics	25,03%
• Motor Vehicles & Parts	17,01%
• Oil& Gas	2,51%
• Food & Beverages	0,90%
• Banking	0,30%

Distribution of Patent Value / Total Assets

Bubble size proportional to number of companies in sample



Assessing Sustainable Value

Patents and SDG

- Patents can have impacts on one, several or none of the 17 SDGs
- Assessing impact can be done automatically (based on classifications) *and refined manually if needed*

SDG – IP Index – Allows comparisons between companies AND sectors

A. Gorius, A. Zagos, 2022

- Compute Company SDG-IP Index

$$\mathrm{Ic} = \frac{Company\ SDG\ Patent\ Value}{Total\ Company\ Assets}$$

- Compute Sector's SDG-IP Index

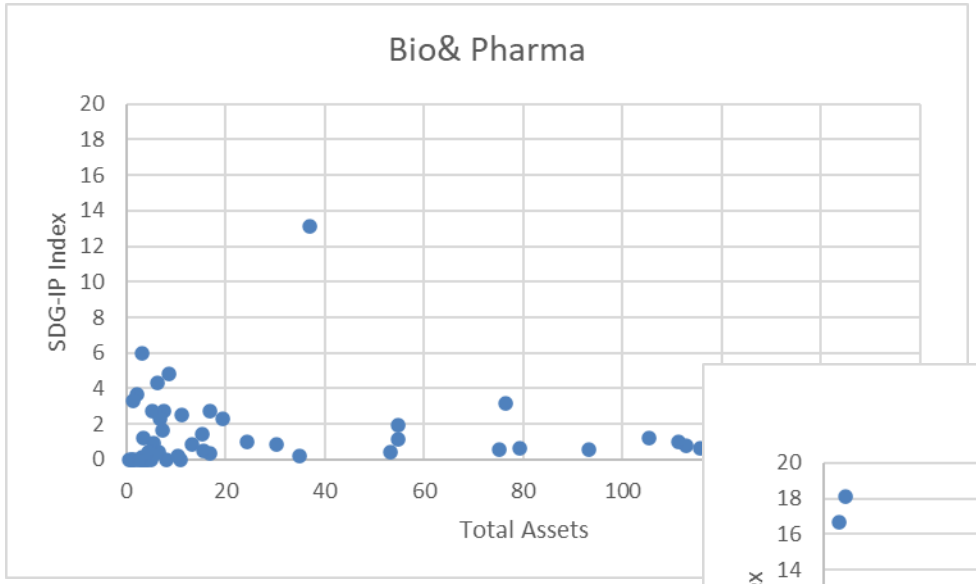
$$\mathrm{Is} = \frac{Sector\ SDG\ Patent\ Value}{Total\ SectorAssets}$$

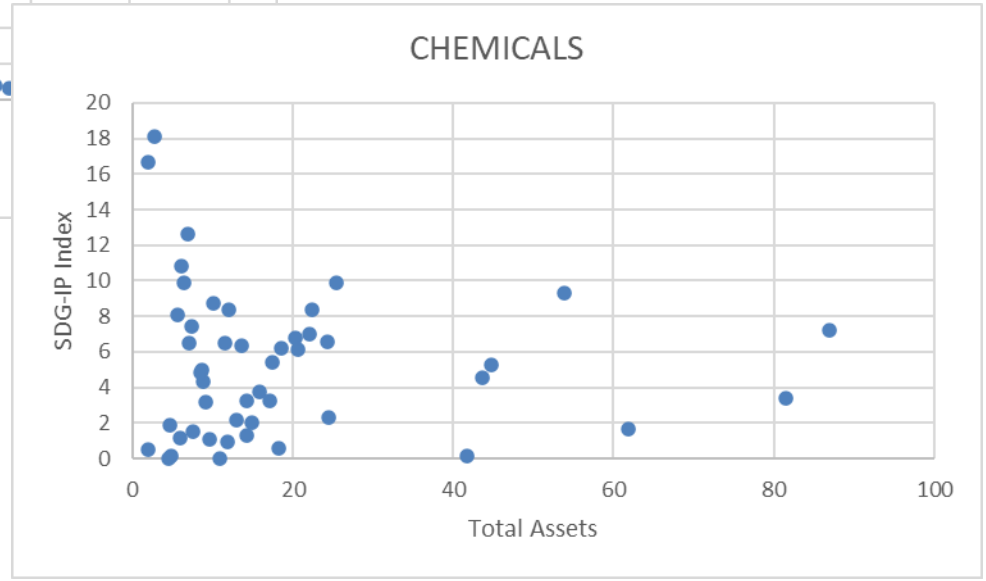
- Compute SDG-IP Index :

SDG-IP Index =Ic/Is

  - If Index < 1, company performs lower than average
  - If Index > 1, company performs better than average

- Rank companies according to SDG-IP Index





Investor's Assessment : Value

Patent Value Determinants

- Intrinsic characteristics of the owner / operator (e.g; the team)
- Intrinsic characteristics of the patent (family)
- The match between technology and market
- The sustainability (ESG, SDG)
- The market dynamics

In a nutshell, a 360° view is needed

Investors' Assessment: Risk

Investment Risk

- All investments are risky
- IP Value is intrinsically non-deterministic
  - It is an Expert's opinion
  - At a given point of time
  - In given circumstances
- Nevertheless, risk can be
  - Assessed
  - Managed
  - Quantified (almost)
- The key: Risk Analysis

Typical Risk Analysis : List Potential Risks

Technology – related (TRL, ….)

- Objectives attainment (Product/Service features, time to market, …

Plant startup

- Engineering
- Competencies
- Startup team

Manufacturing

- Raw Materials
- Supply Chain
- License to operate

IT-related

- Security
- Software performance

Financial

> Liquidity
> Market
> Foreign Exchange

Team

> Technical / scientific skills
> Entrepreneurship
> Business orientation

Market

> Competition
> Market acceptance
> Margins

Communities

> Social/local resistance
> Environment
> Politics

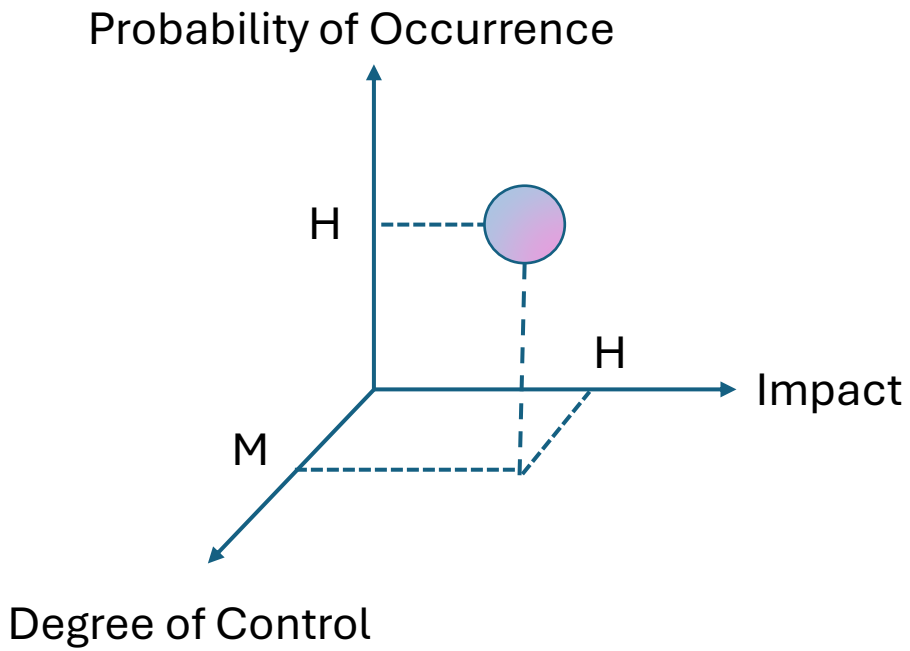
Reputation

Natural/climatic

Etc.

Quantification of Risks - Multidimensional

- Generally, 3 levels each (L,M,H)
- Probability of occurrence - Example
  - H: in the next year
  - M: in the next 3 years
  - L: in the next 5 years
- Impact – Example
  - H: loss > 10M€
  - L: Loss < 1M€
- Degree of Control
  - H: decision-based
  - L: extragenous
- Classification and choice of 3-5 most important risks
- **Check existing or need-to-be mitigation action plans**



Mitigating Risk: the plan B Approach –the more potential reapplications, the lower the risk

Plan B – Reapplication of Inventions

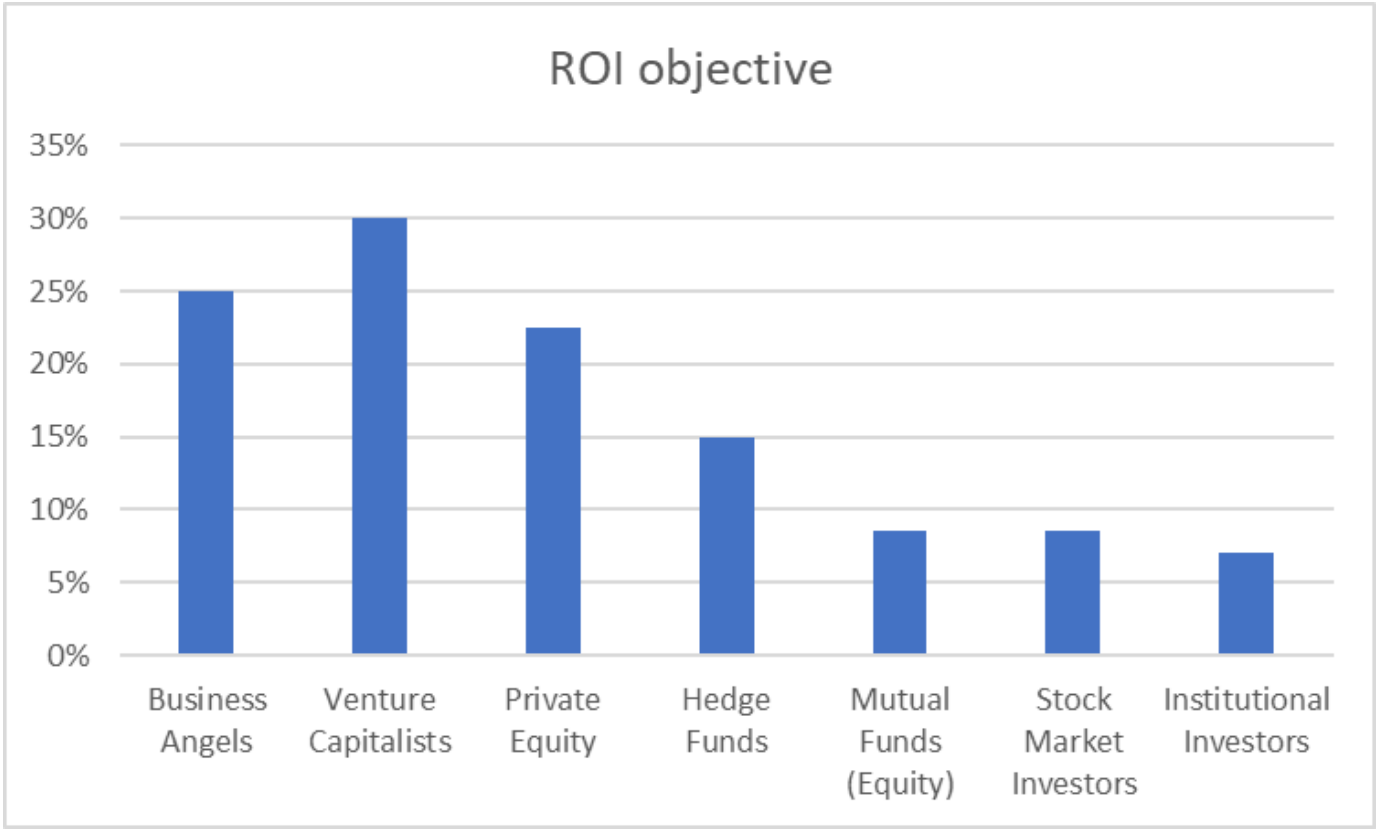
- Microwave Oven (1945)
  - Initially developed for cooking food
  - Reapplied in surgery (ablation of tumors)
- Duct Tape (1943)
  - Initially developed for military applications
  - Reapplied in medical field
- Super Glue (1949)
  - Initially developed for materials
  - Reapplied for suture alternatives

Reapplication – What does it take?

- Understanding of the features of the invention:
  - The functions the object performs (e.g. sealing materials)
  - The functions the object could perform (e.g. impermeability to water)
  - There are methods to do this (TRIZ, AI, …)
- Understanding the potential applications – being open minded
  - Hertz when he demonstrated waves transmission (1888): ***"It is of no use whatsoever […] this is just an experiment that proves Maestro Maxwell was right"***
- Combining technologies for new applications
  - Einstein could not imagine that when he discovered relativity (Special and General!) he would help me locate a good restaurant with an ccuracy of 1m with my phone's GPS
- Reapplication is often a team's work

Investors' Graal: Return on Investment

ROI Objectives – orders of Magnitude



ROI measured by Relief of Royalty – A simplistic example

IP Valuation to determine ROI

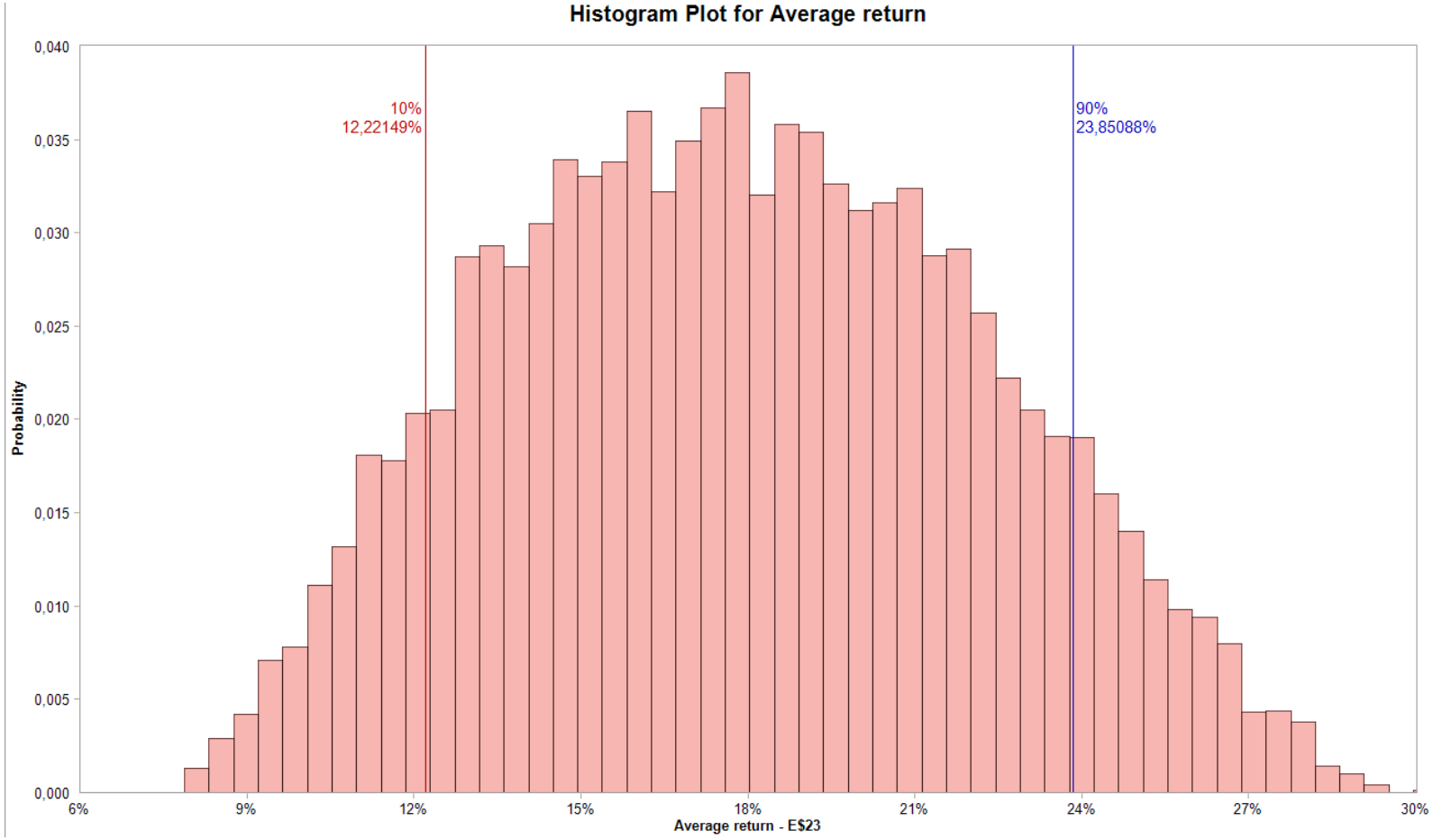
- Sales are 10 M€ the first year, and grow at a fixed rate over the next 9 years
- The IP can be licensed for a 5% median royalty rate
- The median discount rate used is 15% (Return on Equity of the Sector + Risk Premium)

Expected Return on Investment (2,6M€)

		Discount Rate			
		10%	**15%**	**20%**	**25%**
Sales growth Rate	**2%**	13,2%	16,4%	19,8%	23,3%
	3%	**13,3%**	**16,6%**	**20,1%**	**23,7%**
	4%	**13,4%**	**16,8%**	**20,4%**	**24,1%**
	5%	13,5%	17,0%	20,7%	24,5%
	6%	13,6%	17,2%	21,0%	25,0%

What ROI on IP Assets – Relief or Royalty – Monte-Carlo Simulation

- Median return is around 18%
- About 80% of chances that ROI is between 12% and 24%
- Not astonishingly, Discount Rate (i.e; Risk) is the most influencing parameter



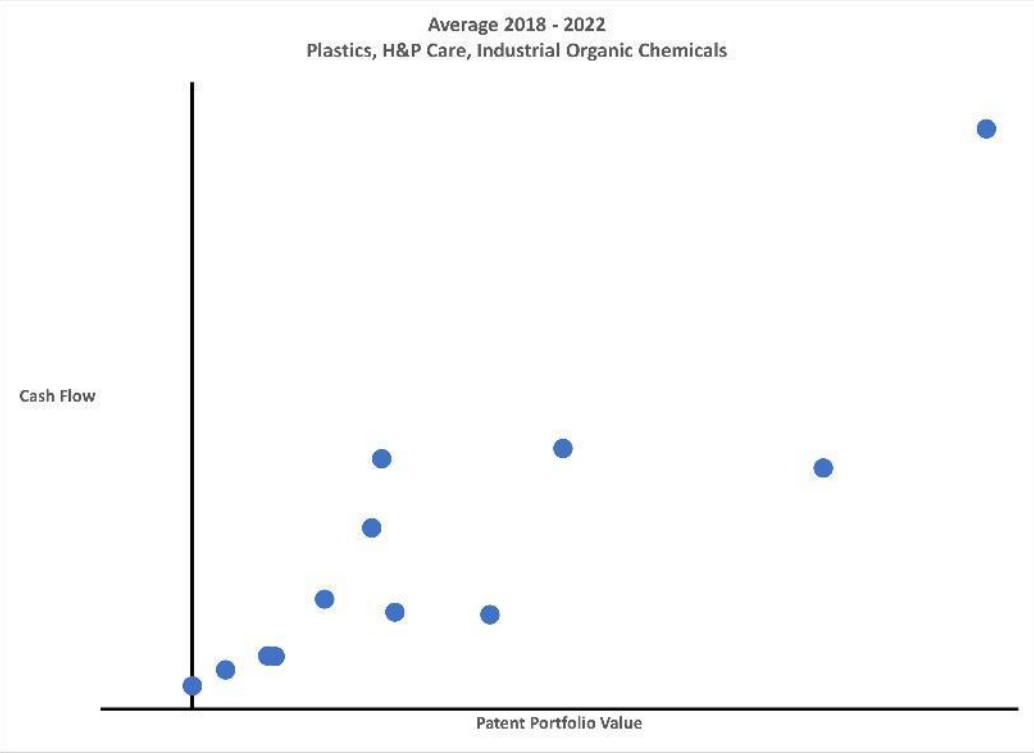
IP Assets: only as collateral?

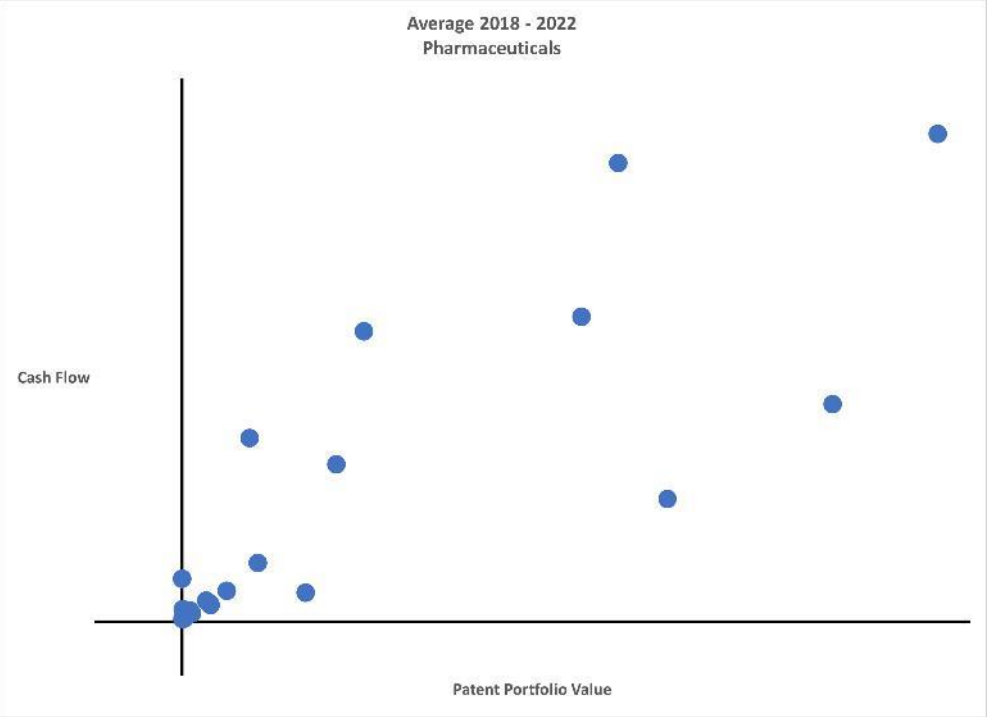
IP Asset – based investment strategies

- IP as a collateral: “I have an IP asset worth 10M€, invest for 1M€”
- Maybe a better way:
  - I have an IP Asset worth 10M€
  - This implies (statistically) that my business model and the company are sane
    - Default rate is strongly diminished when valuable assets are present) – See Prof. Zagos presentation, June 14th 2024.
    - Valuable patent portfolios positively affect free cash flow (*)

(*): Building An IP Economy: The Role Of Patent Value, Les Nouvelles June 2024, A. Gorius and A. Zagos

Impact of Patent Portfolio Value on Free Cash Flow – Stoxx 600 2018 - 2022





Building An IP Economy: The Role Of Patent Value, Les Nouvelles June 2024, A. Gorius and A. Zagos

Conclusions

Investors and IP / Patents

- Focus on Sustainable Value, Risks and ROI
- Value:
  - Determined by Patent Data (legal, technical & geographical coverage, …), but also
  - Intrinsic characteristics of user (Team, …)
  - Market (existence, dynamics, ..)
- Risk:
  - Same dimensions
  - Measured by Risk Analysis
  - Mitigation:
    - Risk Analysis mitigation plan
    - Plan B
- ROI:
  - Can be estimated by IP Valuation
  - Strongly dependent on distance to the market launch
  - General ranges compatible with Investor's expectations

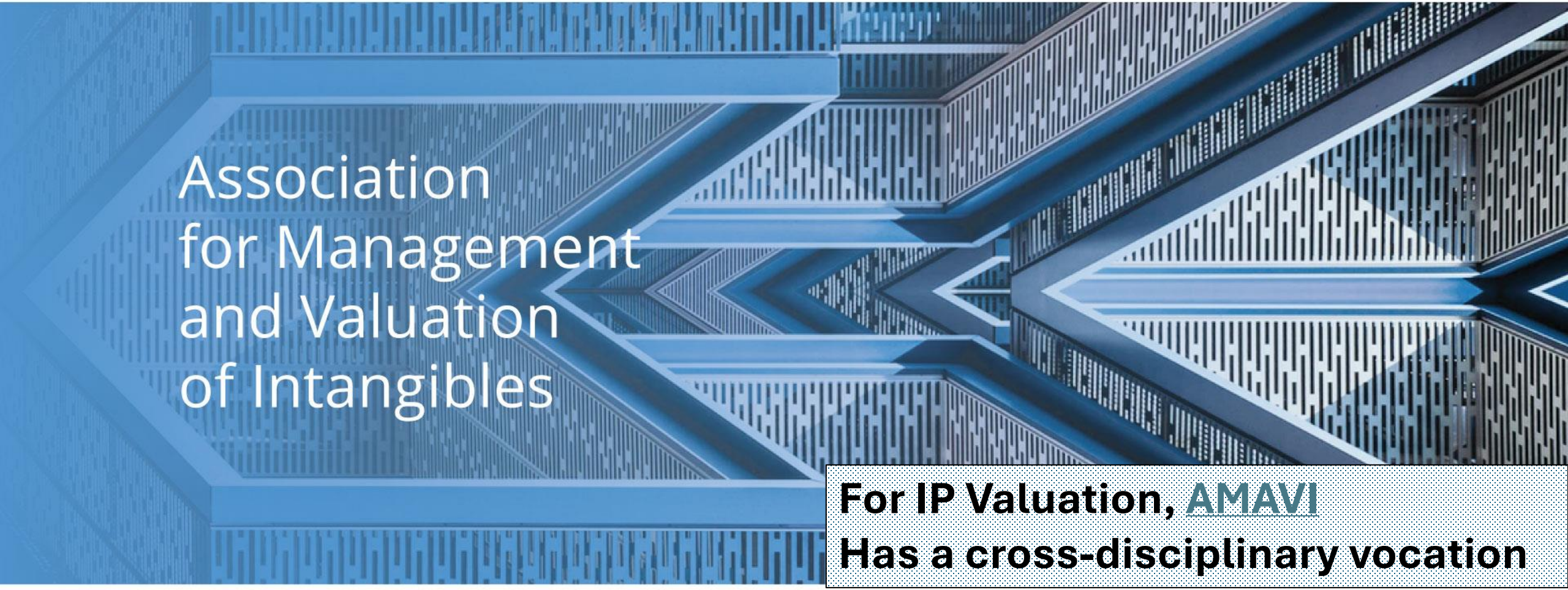
Conclusions

Strategy and Due Diligence

- IP Assets can be used as collaterals – Generally not easy
- IP Assets can also be considered as forward-looking proof of company sanity – Seems easier
- Due Diligence must include all dimensions, in addition to Financial Due Diligence
  - Assessment of Company's competencies
  - Patent Expert(s)
  - Market Expert(s)
  - IP Valuation Expert(s)

AMAVI

ABOUT SERVICES CONTACT



For IP Valuation, AMAVI
Has a cross-disciplinary vocation

AMAVI
ASSOCIATION FOR MANAGEMENT AND VALUATION OF INTANGIBLES

Block 1

Fundamentals of IP Valuation

1. Why Value IP
2. Understanding the key features of different forms of IP
3. Financial concepts and theories required for IP Valuation

Block 2

Financial Valuation of IP

2.1 Deterministic valuation approaches

2.3 Probabilistic valuation approaches

2.4 Context and Purpose of Valuation

Block 3

Valuation Process and Report

3.1 Establish overall context and purpose of valuation

3.2 Collect information, do analysis and due diligence, make decisions

3.3 Perform valuation

3.4 Risk analysis, sensitivity analysis, further due diligence

3.6 Conclusion of value

GOVALIA

Thank you for your attention

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