

ARIAD

ASSET MANAGEMENT

ARIAD Patent Equity Strategy Profit from Intellectual Property



Background of the Strategy

- Intellectual property as an indicator p.2
- Intellectual property is highly relevant p.3
- Patents and their influence on company success p.4
- How patents can be analysed p.5

From Patents to the Patent Equity Strategy

- Making patent information usable p.7
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Results of the Strategy

- Performance of the „World“ patent strategy p.11
- Benchmark comparison sectors p.12
- Benchmark comparison countries p.13
- Performance of the „Europe“ region p.14
- Performance of the „Japan/Pacific“ region p.15
- Performance of the „USA“ region p.16

Potential applications of the Patent Strategy

- Applied on micro- & smallcap universe p.17
- Applied on equity index: MSCI Industrials Europe p.18

Further information & contact information p.19

Disclaimer p.20

Executive Summary

Intellectual Property

✓ Relevance

- Intangible assets account for the majority (>80%) of the market capitalisation of S&P500 companies
- Patent applications tripled in the last 3 decades
- Products becoming more complex, building upon many patents
- Licensing income from patents becoming more important

Scientifically Validated Connection to Company Success

- Patents protect innovations
- Patents increase: *company value*
revenue
overall profitability

Patent Data Processing

- Standardised, but complex patent information on various complex processes as a basis
- Is made usable from a database technical point of view (prepared, cleaned and correctly assigned)
- Calculation of scientifically based patent indicators
- The ARIAD company universe is made smaller by means of filter processes
- Universe basis:
company (mkt. cap. > €200 million) from "MSCI Developed Countries"

Outperformance from micro, small & mid cap „hidden champions“

- Clear outperformance in the Europe and Japan/Pacific regions
- Main sectors: industry, health/pharmaceuticals and technology
- Many candidates for inclusion "identified" at an early stage

Since the start of 2015, the ARIAD Patent Equity Strategy has also been very successfully implemented in a **mutual fund**.

Background & the Strategy

Put the future in your portfolio – today

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..... its principal place of business
..... is an actual or potential smart card competitor of LICENSOR and on behalf of its AFFILIATED

Intellectual Property as Indicator

What do these 37 companies have in **common**?



1. Takeover candidates



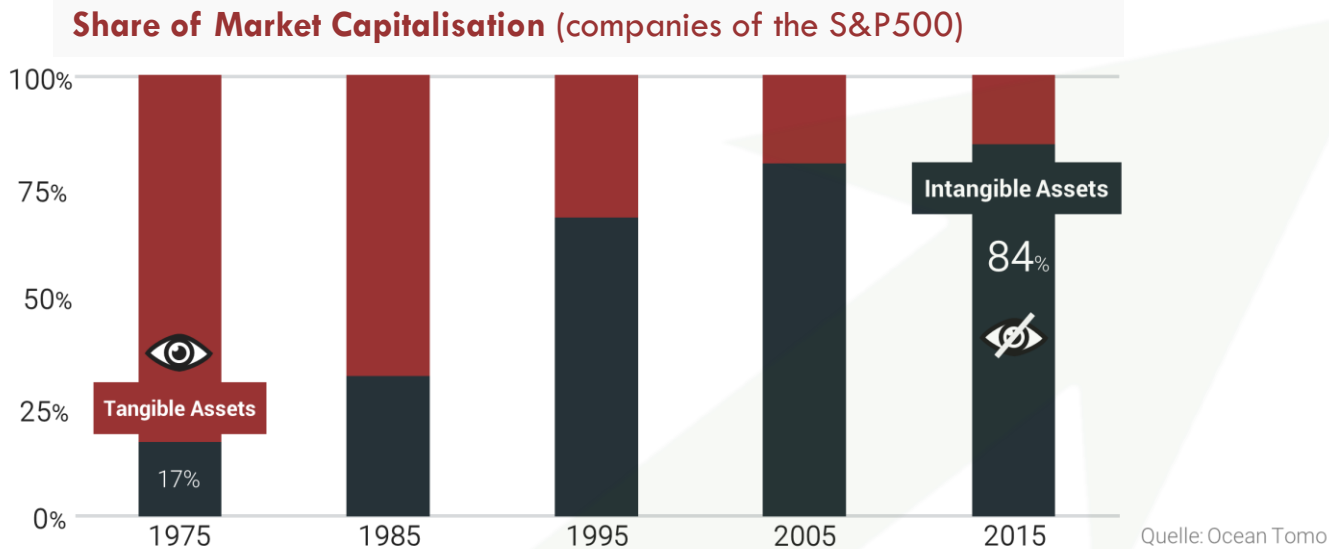
2. Technological sector leaders

Leadership protected by patents



3. In our portfolio before takeover

Intellectual Property is highly relevant



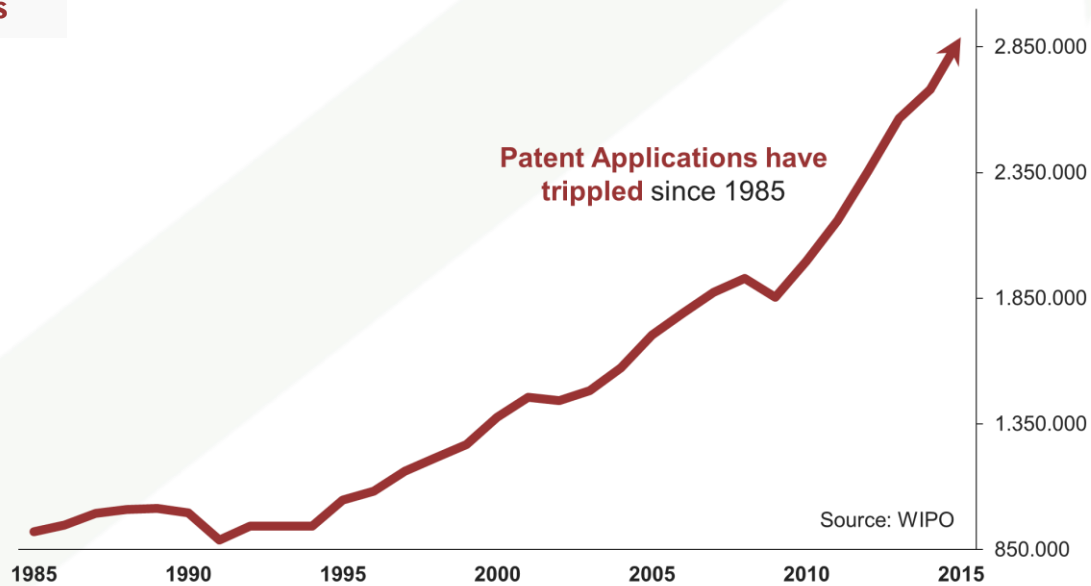
Reasons for the growing relevance

- 1. Complex products**
... based on many patents.
- 2. Emerging economies**
... in eastern Asia are seeking industrial property rights.
- 3. Patent infringement suits**
... in recent years ensure a more effective use of industrial property rights.
- 4. Licensing income**
... is becoming increasingly important.

Company IBM:

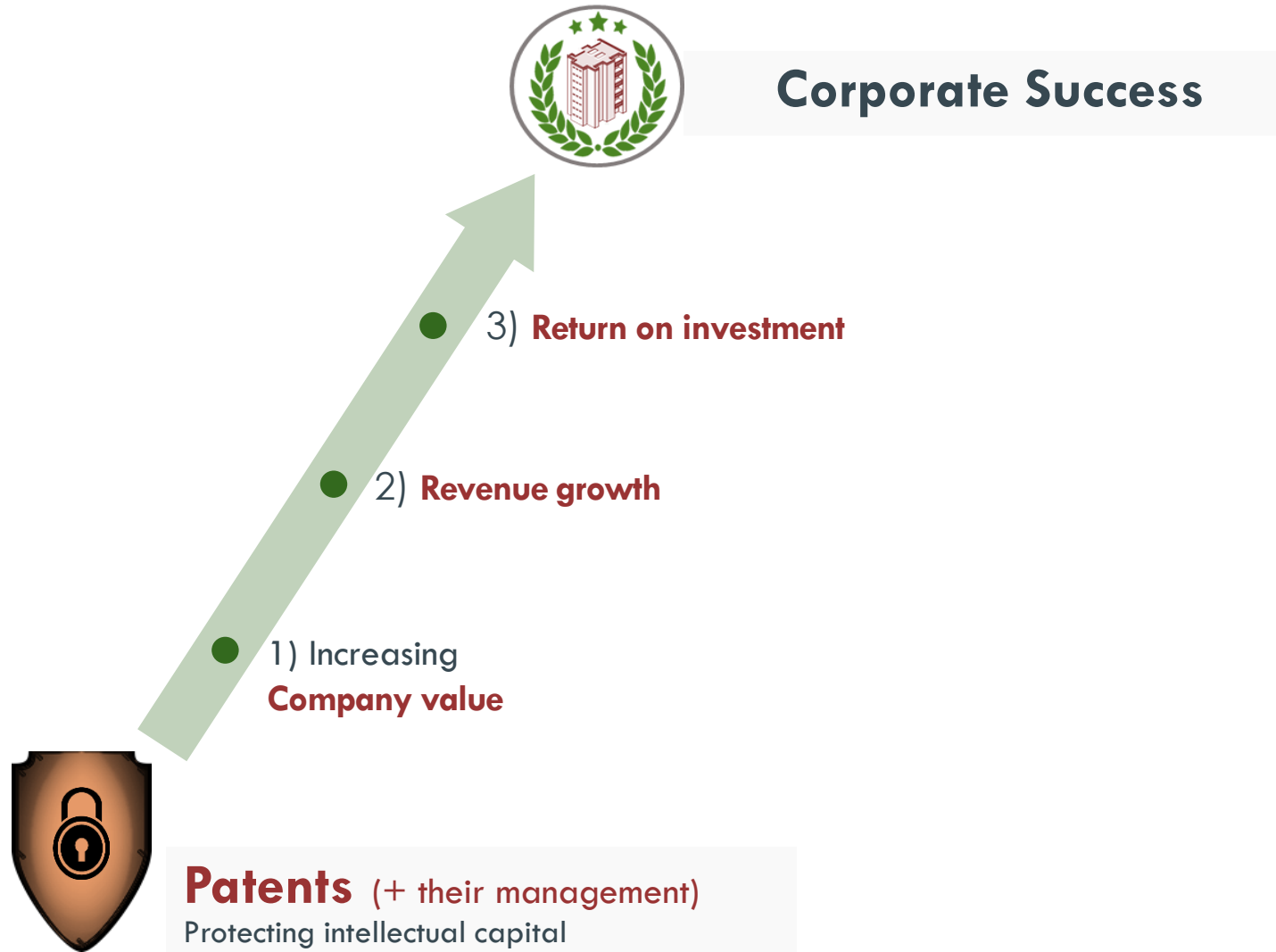
- 1990: USD 30 million
- 2017: USD **1,193** million

Top-Innovators



Patents protect Innovations

... and have a scientifically validated.
positive influence on a company's success.



Scientific confirmation

- 1) Tobin (1969); Wernerfelt u. Montgomery (1988); Lang und Stolz (1994); Bosworth u. Rogers (2001), Lee u. Grewal (2004); ...
- 2) Powell u. Dent-Micallef (1997); Spanos u. Lioukas (2001); Baum u. Wally (2003); Wiklund u. Shepherd (2003); Desarbo et al. (2005); ...
- 3) Penner-Han u. Shaver (1995); Baum u. Wally (2003); De Carolis (2003); Tanriverdi u. Venkatraman (2005) ; ...

... also of the ARIAD patent approach!



Prof. Dr. Houdou Basse Mama
ESCP Europe (Berlin Campus)

"Innovative efficiency and stock returns: Should we care about nonlinearity?" – Finance Research Letters (2017)



Close cooperation



ARIAD patent approach & data
... scientifically verified

How Patents can be analysed

Patent specifications

... offer **standardised**, **complete & up-to-date** information

The image shows a screenshot of a patent document with several fields highlighted by orange lines and labels:

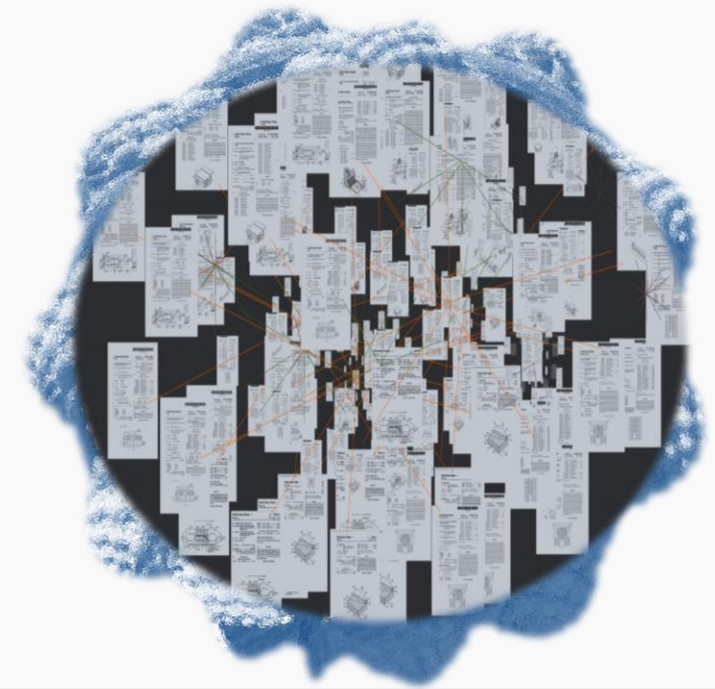
- Name of invention**: (54) METHOD OF MAKING PAPER
- Inventor**: (72) Stephen Michael Maloney, Milledale, MS (US)
- Owner**: (73) Assignor: Muddy Water Farms, LLC, Milledale, MS (US)
- Registry number**: (12) United States Patent; (16) Patent No.: US 8,971,661 B2
- Registry date**: (45) Date of Patent: Mar. 5, 2015
- Registry information**: (21) Applicant: Muddy Water Farms, LLC, Milledale, MS (US); (71) Applicant: Muddy Water Farms, LLC, Milledale, MS (US); (22) Filed: Aug. 18, 2014
- Information about involved patents**: (51) Int. Cl.: G06K 9/06 (2006.01); G06K 9/00 (2006.01); G06K 9/04 (2006.01); G06K 9/00 (2006.01); G06K 9/00 (2006.01); G06K 9/00 (2006.01)
- International Patent Classification**: (52) G06K 9/00 (2006.01); G06K 9/04 (2006.01); G06K 9/00 (2006.01); G06K 9/00 (2006.01); G06K 9/00 (2006.01); G06K 9/00 (2006.01)
- National Patent Classification**: (53) USPC: 358/250 (2010.01); 358/251 (2010.01); 358/252 (2010.01); 358/253 (2010.01); 358/254 (2010.01); 358/255 (2010.01); 358/256 (2010.01); 358/257 (2010.01); 358/258 (2010.01); 358/259 (2010.01); 358/260 (2010.01); 358/261 (2010.01); 358/262 (2010.01); 358/263 (2010.01); 358/264 (2010.01); 358/265 (2010.01); 358/266 (2010.01); 358/267 (2010.01); 358/268 (2010.01); 358/269 (2010.01); 358/270 (2010.01); 358/271 (2010.01); 358/272 (2010.01); 358/273 (2010.01); 358/274 (2010.01); 358/275 (2010.01); 358/276 (2010.01); 358/277 (2010.01); 358/278 (2010.01); 358/279 (2010.01); 358/280 (2010.01); 358/281 (2010.01); 358/282 (2010.01); 358/283 (2010.01); 358/284 (2010.01); 358/285 (2010.01); 358/286 (2010.01); 358/287 (2010.01); 358/288 (2010.01); 358/289 (2010.01); 358/290 (2010.01); 358/291 (2010.01); 358/292 (2010.01); 358/293 (2010.01); 358/294 (2010.01); 358/295 (2010.01); 358/296 (2010.01); 358/297 (2010.01); 358/298 (2010.01); 358/299 (2010.01); 358/300 (2010.01); 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- Research area**: (57) Abstract: Methods are disclosed relating to the production of composite images that include objects such as detecting a set of objects that have a diversity of color from the environment, pricing the set of objects within a scene, capturing a set of images of the scene, adjusting color to the set of images, assembling a composite image, pricing the composite image, making color adjustments and generating the composite image.
- Patent number & description**: (12) United States Patent; (16) Patent No.: US 8,971,661 B2
- Date of publication**: (45) Date of Patent: Mar. 5, 2015
- Citations**: (51) Int. Cl.; (52) USPC; (53) USPC
- Patent attorney**: (73) Assignor: Muddy Water Farms, LLC, Milledale, MS (US)
- Summary**: (57) Abstract

Big-Data Chaos

Patents are practically never stand-alone. They **form a network** of forward and backward citations, contradictions and superior patent families.

In combination with the countless variables of a single patent specification, this results in a jumble of information: **Big Data Chaos**.

The challenge is to make this information usable.



From Patents to the Patent Equity Strategy

Leveraging Big Data to drive investment returns

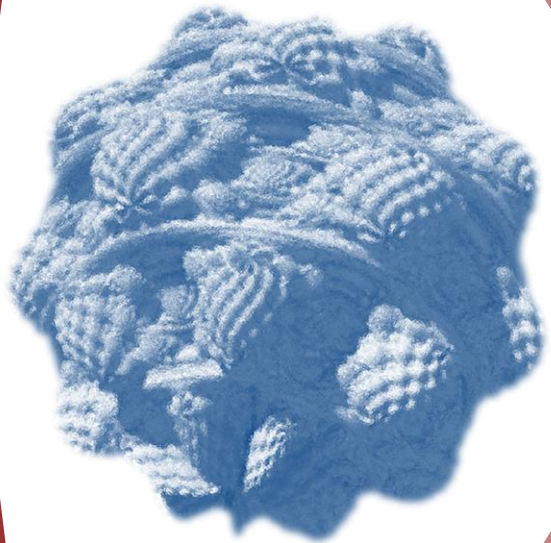
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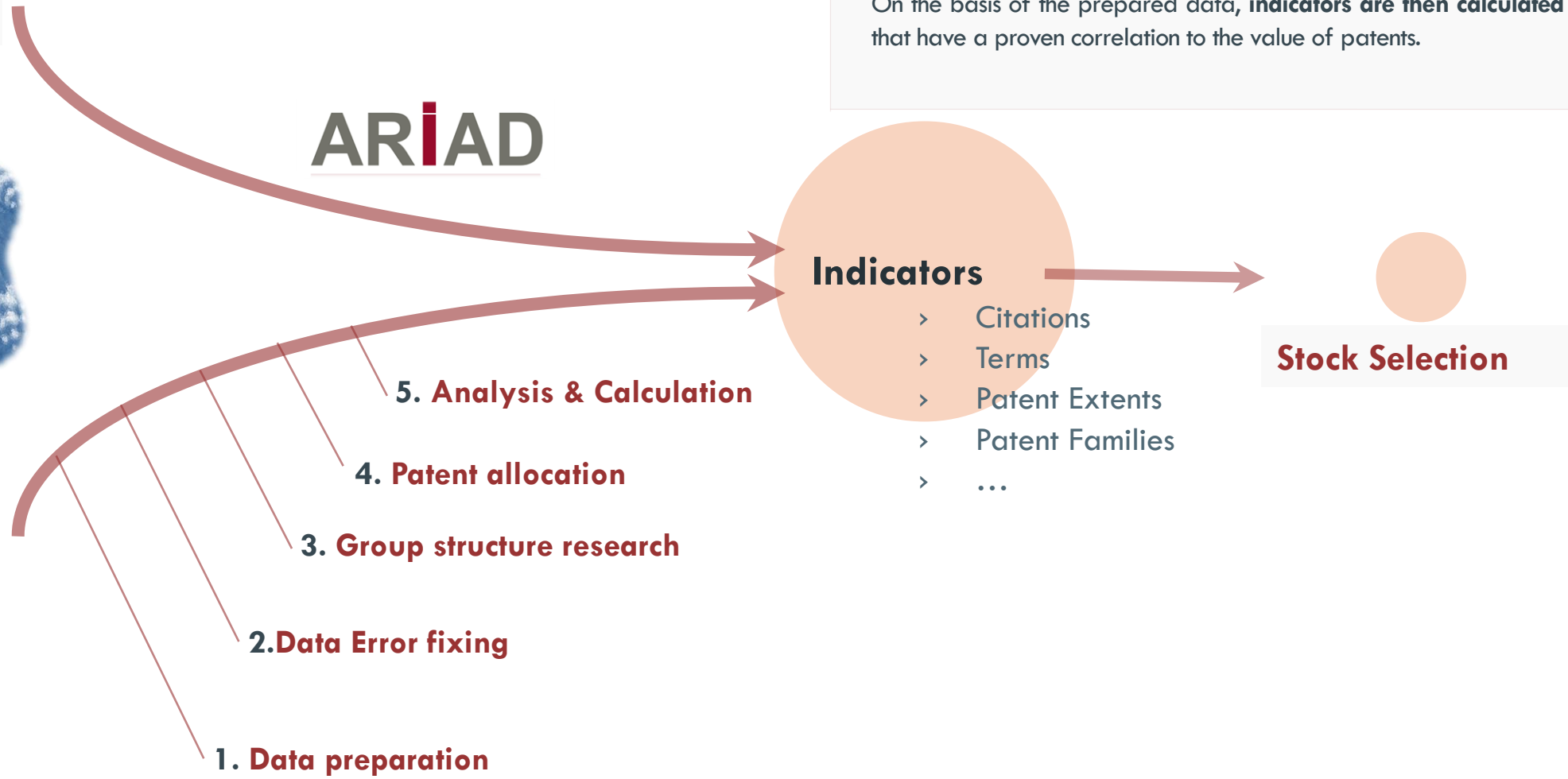
Making Patent Information usable

„Big Data“-Chaos

= Information-Overkill



ARIAD



From patent data to patent indicators

Using various complex **processes (1.-5.)** the patent information is made usable from a technical database point of view, prepared, cleaned and correctly assigned. Here, the **Group Structure Research** in particular is very time-consuming, since, for example, Siemens alone has more than 600 different subsidiaries with patents.

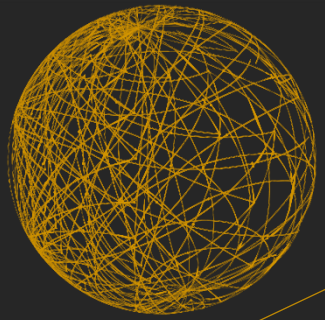
On the basis of the prepared data, **indicators are then calculated** that have a proven correlation to the value of patents.

Indicators

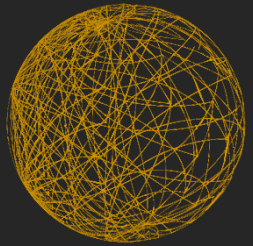
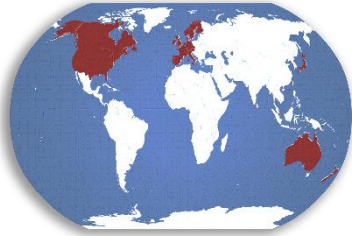
- > Citations
- > Terms
- > Patent Extents
- > Patent Families
- > ...

Stock Selection

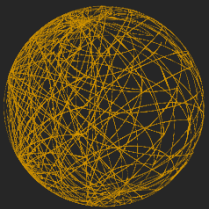
The global ARIAD Patent-Universe



#1: Industrialized Countries
+according to the definition of MSCI
+ additional filter (freefloat, marketcap)



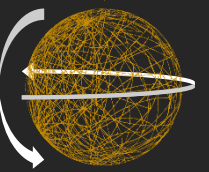
#2: Sectors with high patent activity



#3: Patent portfolio-ranking

- ✓ Most innovative companies
- ✓ Mainly micro-, small- und midcap
- ✓ Focus: USA, Japan, Europe

Yearly ranking



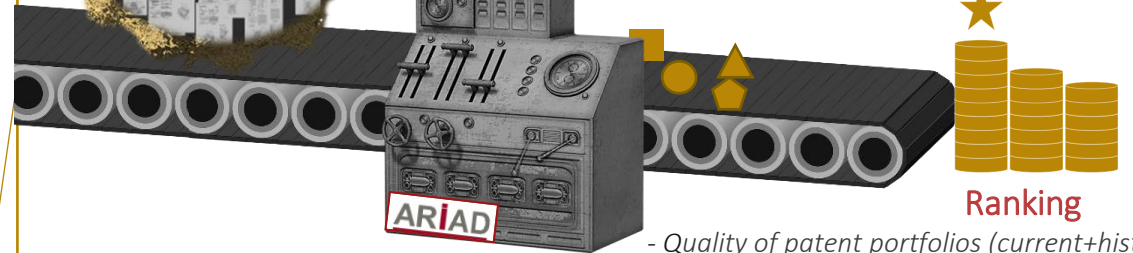
Quarterly rebalancing

ARIAD Patent-Universe



Patent indicators

- Citations
- Techn. breadth
- Patent families
- Durations
- ...



ARIAD data processing

1. Researching subsidiaries
2. Patent allocation & data cleaning
3. Computation of patent indicators

- Quality of patent portfolios (current+historic)
- Adjusted for company size

#4: Selection process

- ✓ Investment in **about 100 companies with highest ranking**
- ✓ Consideration of **fundamental and technical data**
- ✓ **No orientation on any benchmark**



The Strategy at a Glance

- Companies with a **high-quality patent portfolio** receive investment. (mainly small/midcaps)
- Positive side effect: above-average number of **candidates for takeover** in the portfolio - before takeover offers are known on the market.
- Regionally, the investments concentrate on **USA** and **Japan/Pacific** alongside the main focus of **Europe**.
- The main focus of the selection process is the **systematic quality evaluation of the patent portfolio** using many scientifically validated indicators.
- The **selection of regions and sectors** is determined by the quality of the patent portfolio.
- **High degree of diversification.** (approx. 100 titles in the portfolio)
- **Items are held in the medium to long term.**
- Adaptation according to ranking
 - "Opportunistic" transactions possible during the year
 - No currency hedging

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..... the "Parties".



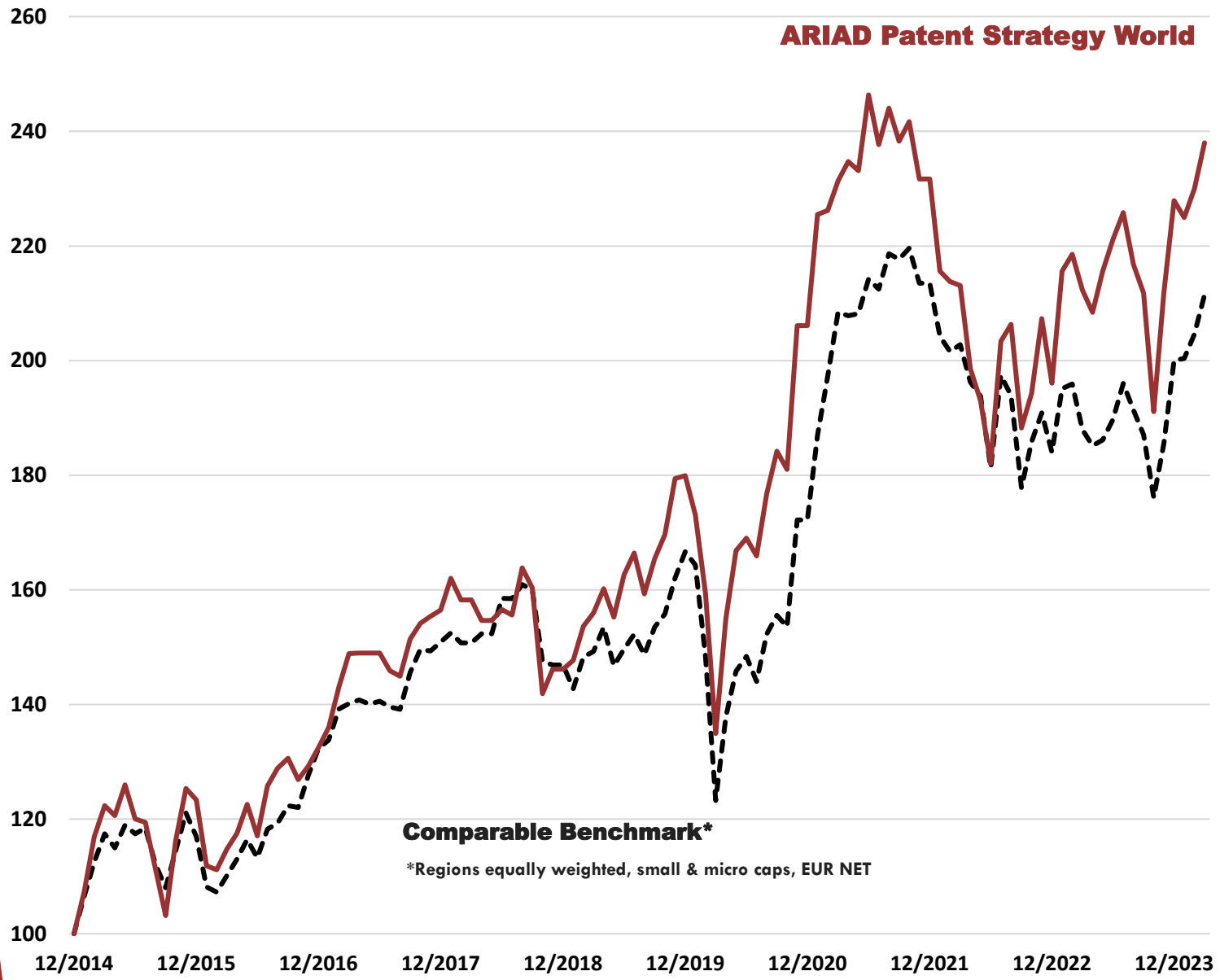
Results of the Strategy:

Outperformance, especially by small & mid cap stocks

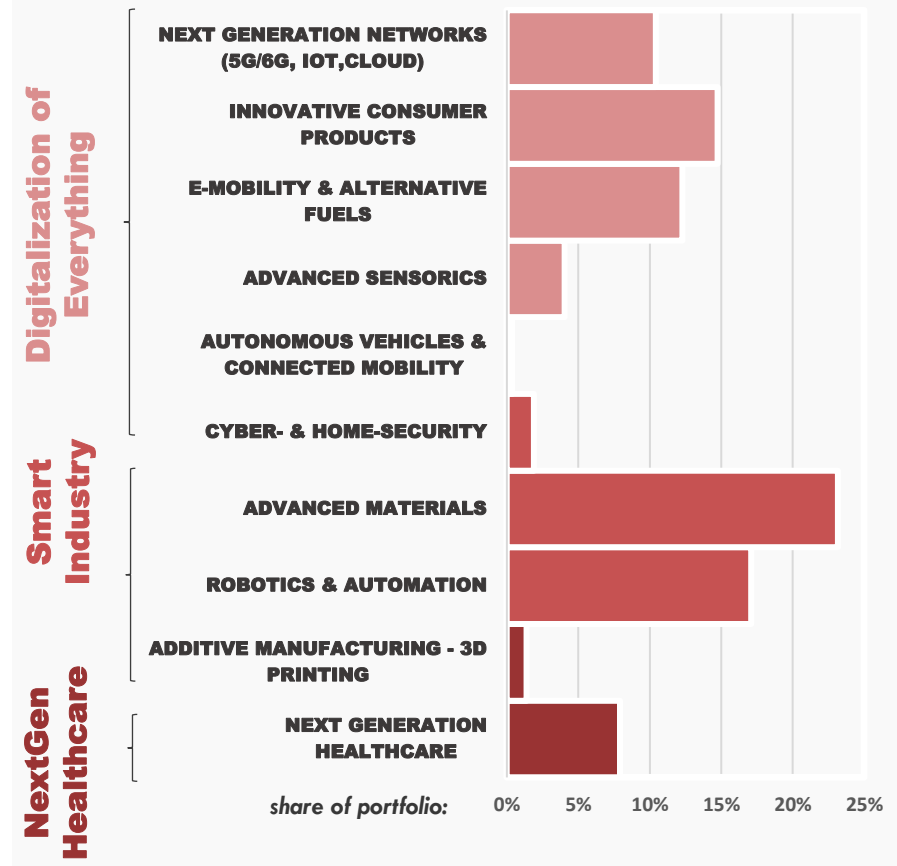
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Performance of the „World“ Patent Strategy: Multiple Track Records Prove the Added Value



TECHNOLOGY LEADERS IN MEGATRENDS IDENTIFIED BY PATENT DATA



Global Equities Small&Midcap
rank 1: 1-year performance
rank 2: 3-year performance
rank 2: 5-year performance

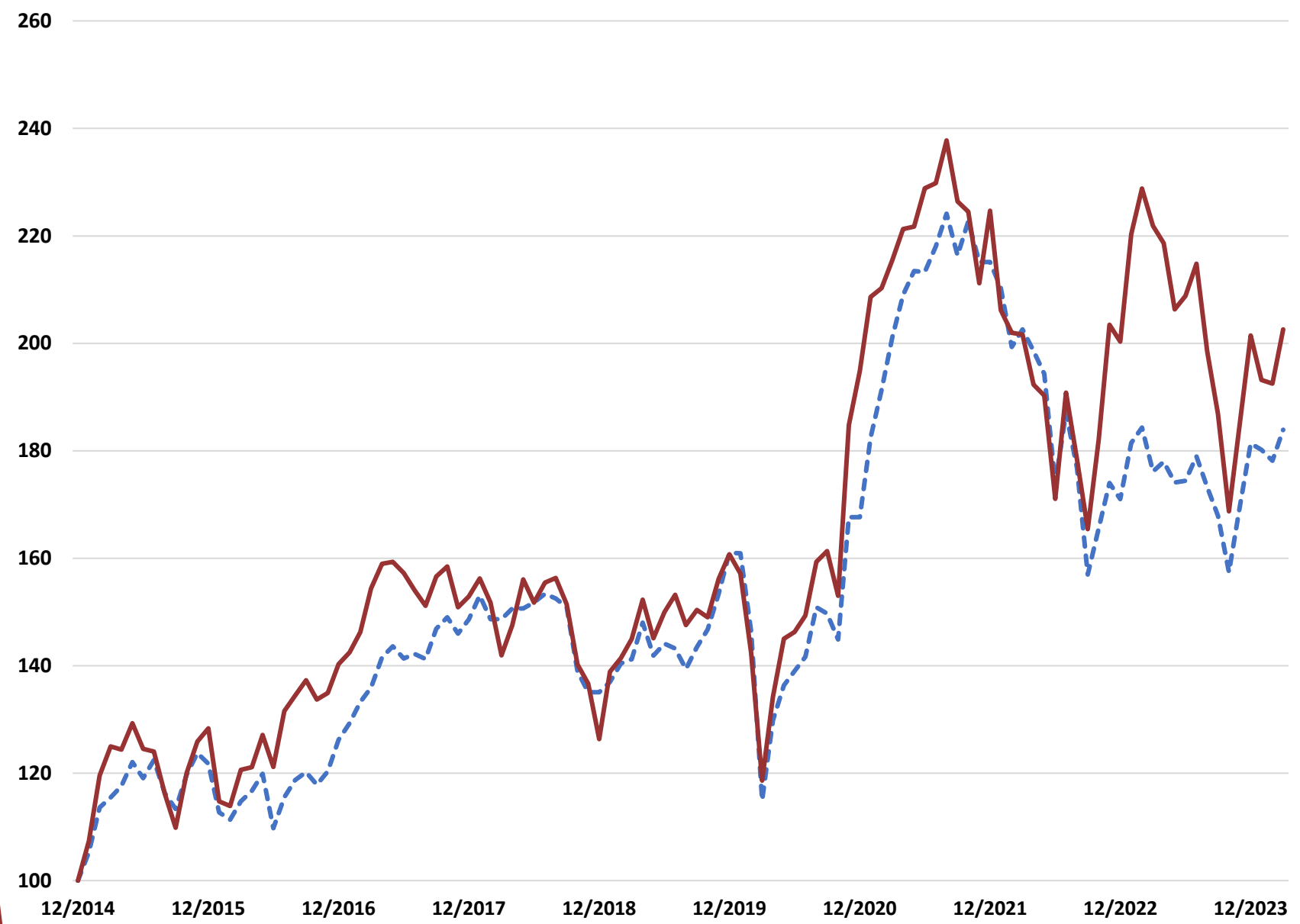
Awarded to the *Monega ARIAD Innovation R* that is based on ARIADs Patent Strategy

Quelle: ARIAD - Updated 03/28/2024

Region Europe



Main Sector - Industry



ARIAD Patent Strategy Europe
(Carve-Out)

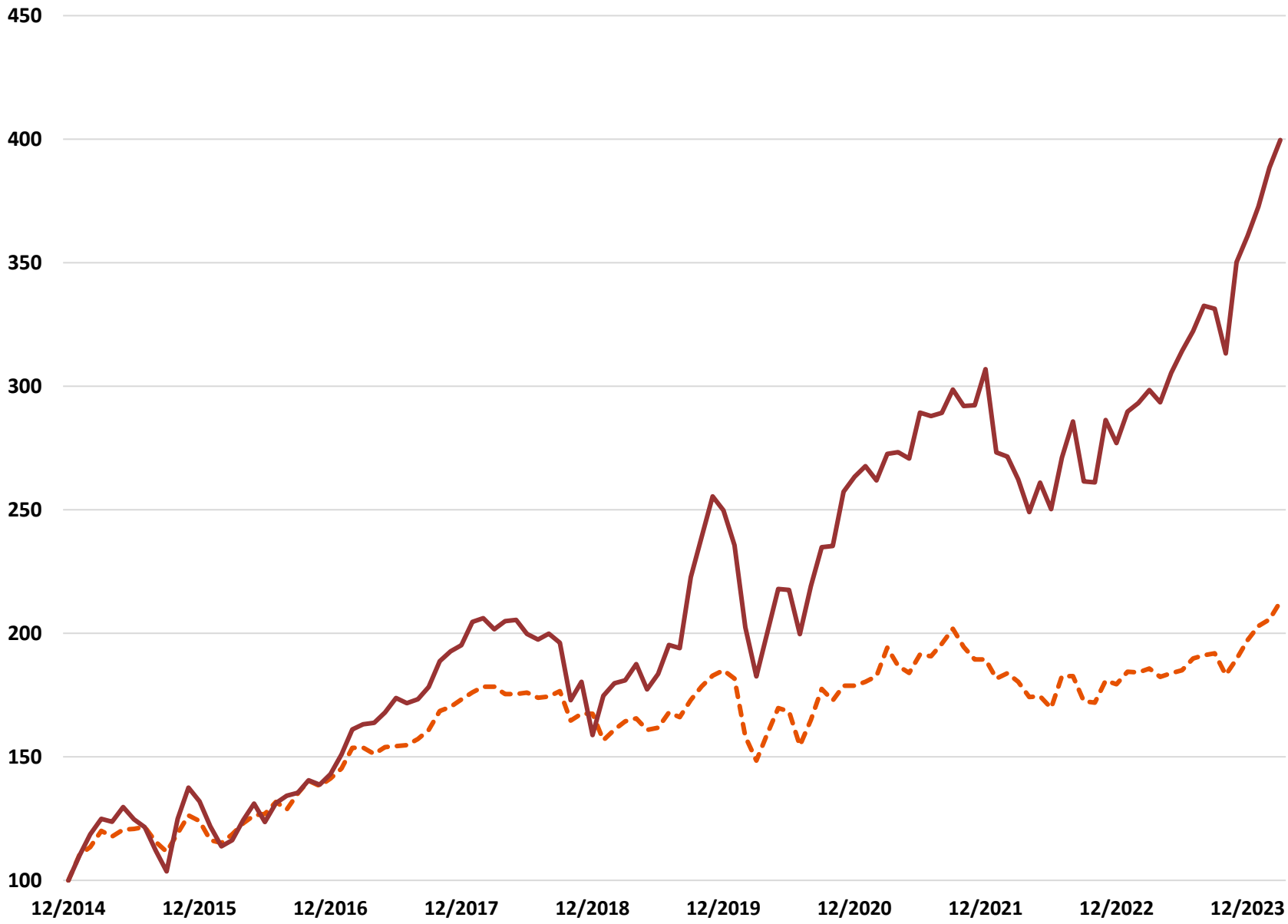
Comparable Benchmark*
*Europe, small & micro caps, EUR NET

Including transaction costs
Source: ARIAD - 03/28/2024



Main Sector - Industry

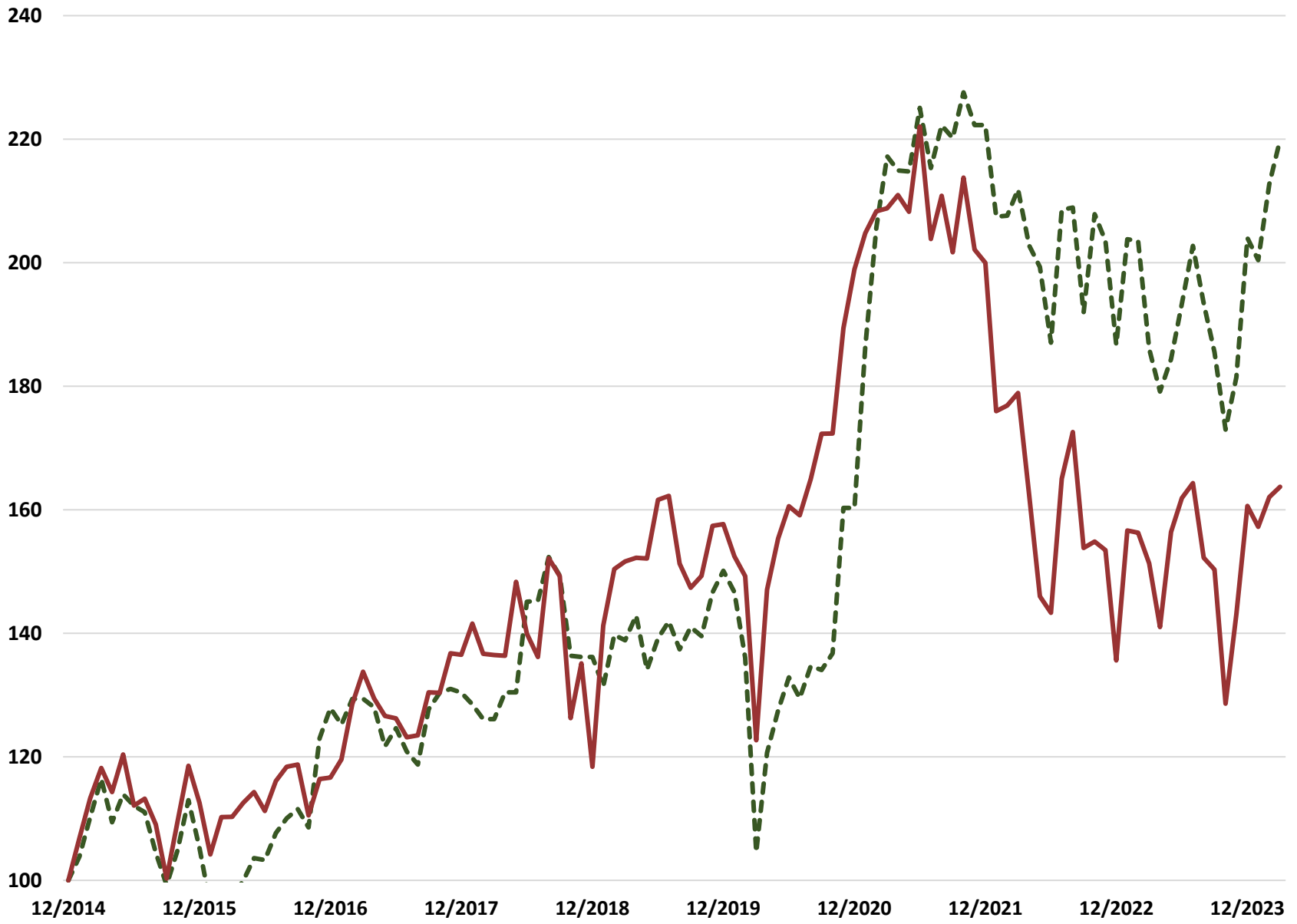
ARIAD Patent Strategy Japan (Carve-Out)



Comparable Benchmark*

*Japan, small & micro caps, EUR NET

Region North America



Main Sector - Biotech & Tech



Comparable Benchmark*

*USA, small & micro caps, EUR NET

**ARIAD Patent Strategy North America
(Carve-Out)**

Including transaction costs
Source: ARIAD - 03/28/2024

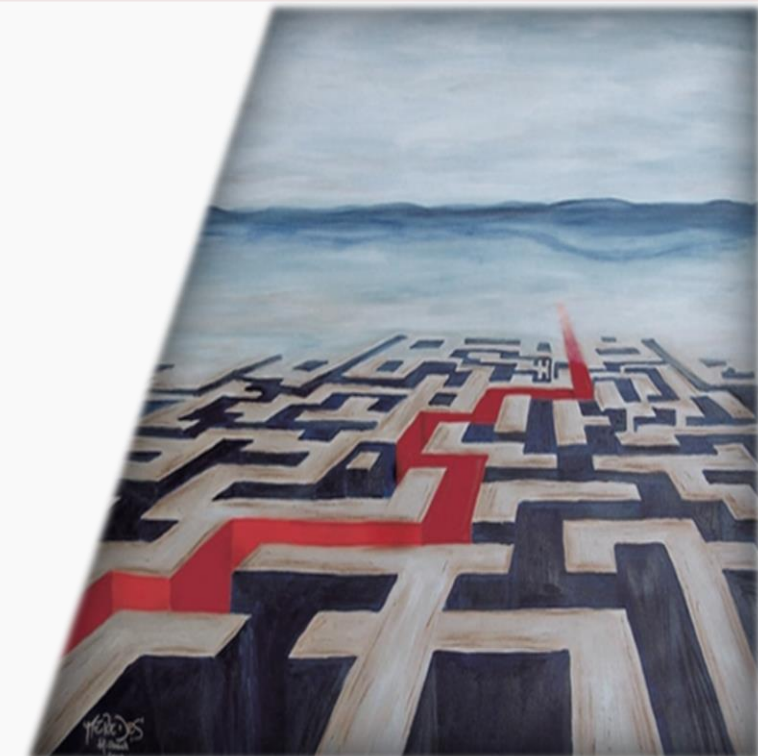
Further Information

The ARIAD Patent Equity Strategy :
has been fully implemented in a **mutual fund** since 2015:

Monega ARIAD Innovation (WKN 532102)

www.monega.de

As an institutional investor you can **register for a monthly update**
on the strategy at www.ariad.de .



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