

# ARIAD

ASSET MANAGEMENT

## ARIAD Patent Equity Strategy Profit from Intellectual Property



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# 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. > €100 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

For about **5 years**, 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

# PATENT LICENSE AGREEMENT

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

# Intellectual Property as Indicator

What do these 24 companies have in **common**?



**1. Takeover candidates**



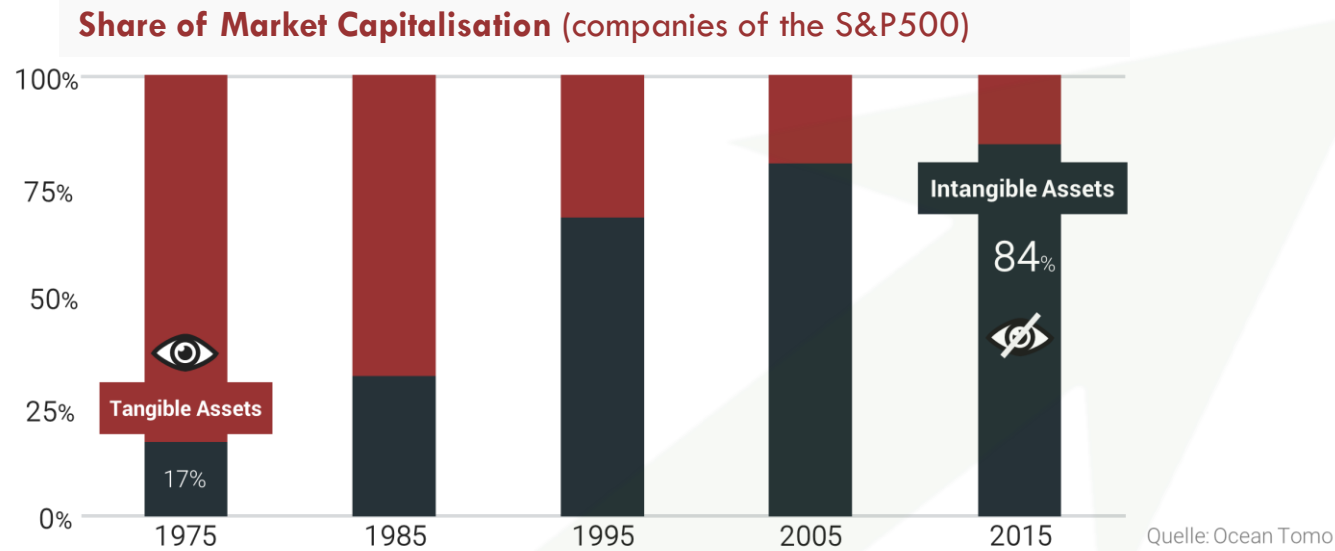
**2. Technological sector leaders**

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.

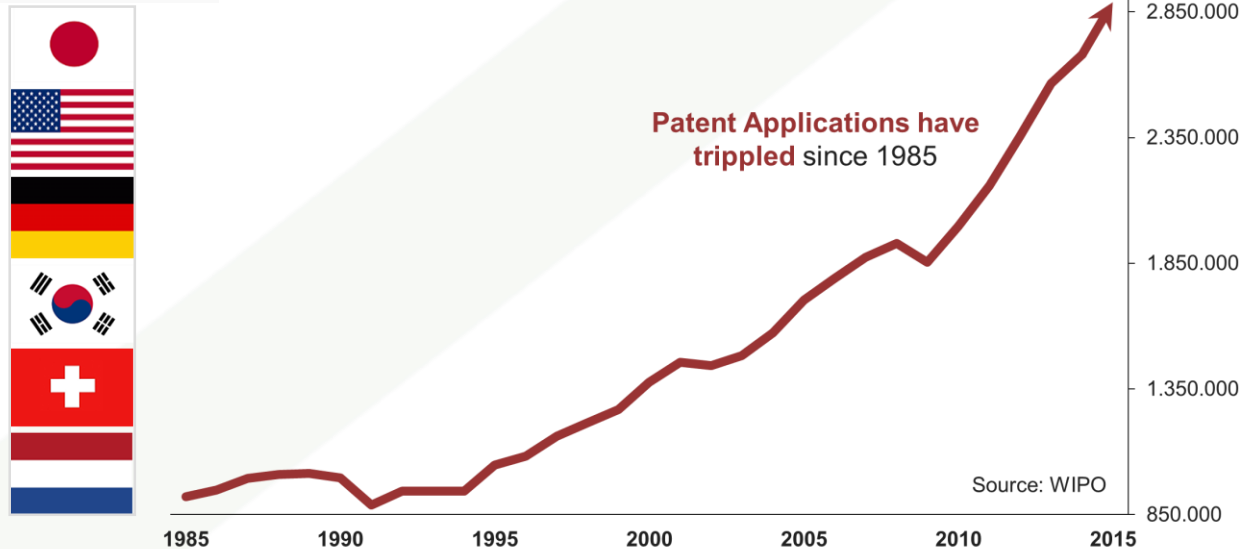
### 4. Licensing income

... is becoming increasingly important.

#### Company IBM:

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

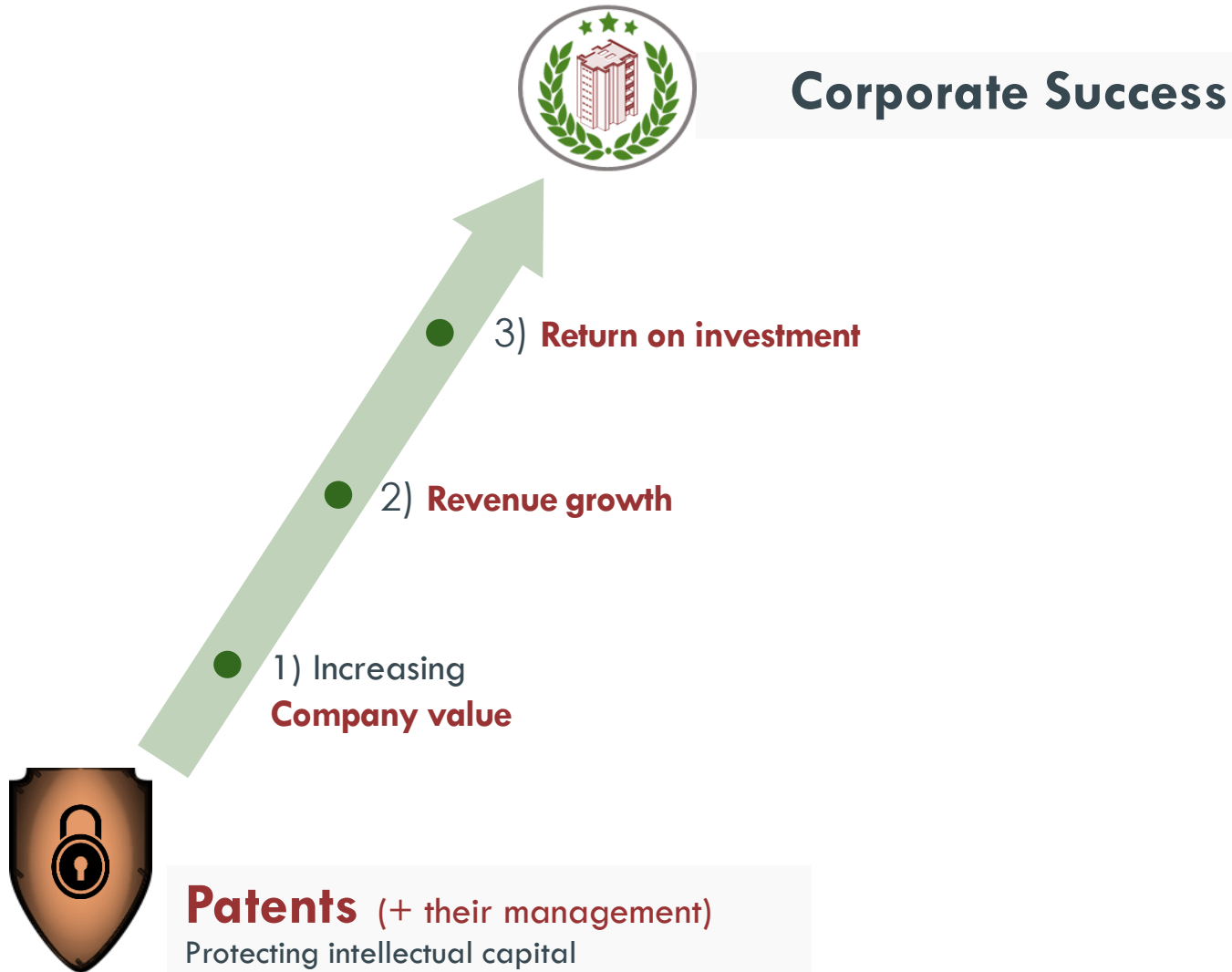
## Top-Innovators



# 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

(12) **United States Patent**  
Maloney

(16) Patent No.: **US 8,971,663 B2**  
(45) Date of Patent: **Mar. 5, 2015**

(24) **METHOD OF MAKING A COMPOSITE IMAGE**  
(71) Applicant: **Muddy Water/Kenn, LLC, Malvern, MA (US)**  
(72) Inventor: **Stephen Michael Maloney, Malvern, MA (US)**  
(73) Assignor: **Muddy Water/Kenn, LLC, Malvern, MA (US)**  
(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/925,918**  
(22) Filed: **Aug. 18, 2014**  
(96) **Prior Publication Data**  
US 2014/0147999 A1 Nov. 27, 2014  
**Related U.S. Application Data**  
(63) Continuation of application No. 13/137,835, filed on Sep. 18, 2011.  
(90) Provisional application No. 61/905,424, filed on Sep. 16, 2010.

(51) Int. Cl.:  
G06K 9/00 (2006.01)  
G06K 9/00 (2006.01)  
G06K 9/00 (2006.01)  
G06K 9/00 (2006.01)  
G06K 9/00 (2006.01)  
G06K 9/00 (2006.01)  
(52) U.S. Cl.:  
2014/0147999 A1  
2014/0147999 A1  
2014/0147999 A1  
2014/0147999 A1  
2014/0147999 A1  
2014/0147999 A1  
(53) U.S. Cl.:  
2014/0147999 A1  
2014/0147999 A1  
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2014/0147999 A1  
2014/0147999 A1  
2014/0147999 A1

(56) **Field of Classification Search**  
See application file for complete search history.

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2014/0147999 A1 \* 7/2014 Maloney 380/347

(58) **Primary Examiner**: **Maloney, Sally**  
(74) **Attorney, Agent or Firm**: **John B. Hight, John Hight, LLC**

(57) **ABSTRACT**  
Methods are disclosed relating to the production of composite images that include target such as locating a set of objects that have a density of color from the environment, placing the set of objects within a scene, capturing a set of images of the scene, adjusting color in the set of images, assembling a composite image, placing the composite image, making color adjustments and repeating the composite image.

1 Claim, 1 Drawing Sheet

Name of invention  
Inventor  
Owner  
Type  
Applicant  
Registry number  
Registry date  
Registry information  
Information about involved patents  
International Patent Classification  
National Patent Classification

Patent number & description  
Date of publication  
Research area  
Citations  
Patent attorney  
Summary

## Countless Variables

Von (10) **Patent designation** [...]

...über (50) **technical data**[...]

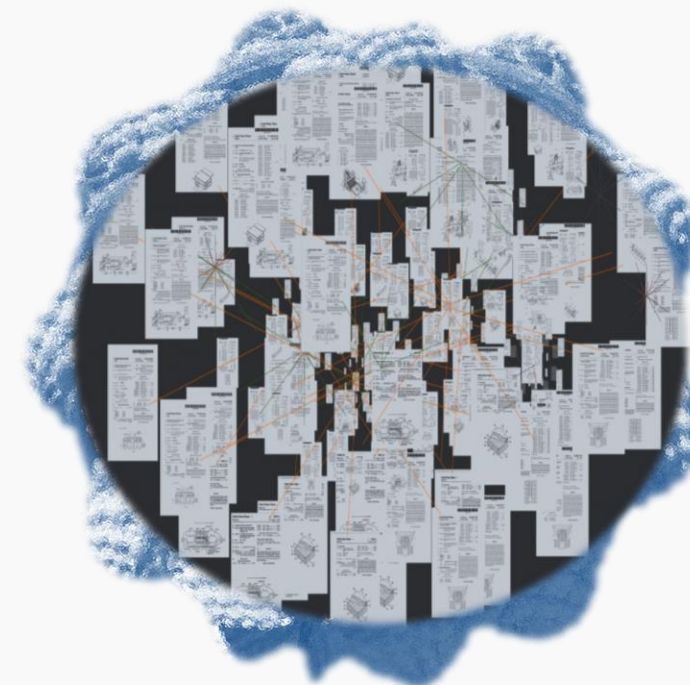
... bis (98) [...] **application-date for the extension of the duration** [...]

## 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

### PATENT LICENSE AGREEMENT

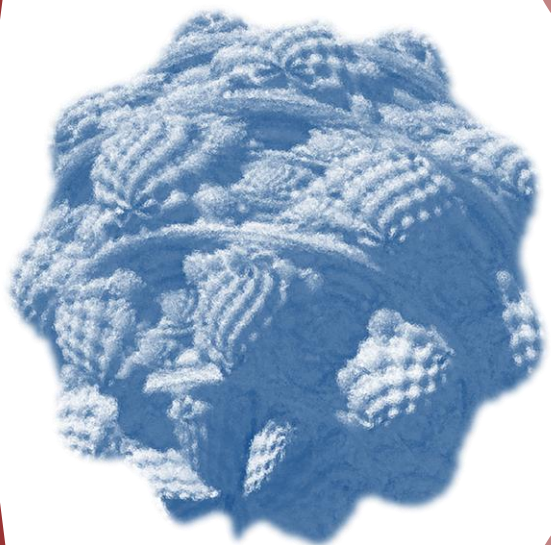
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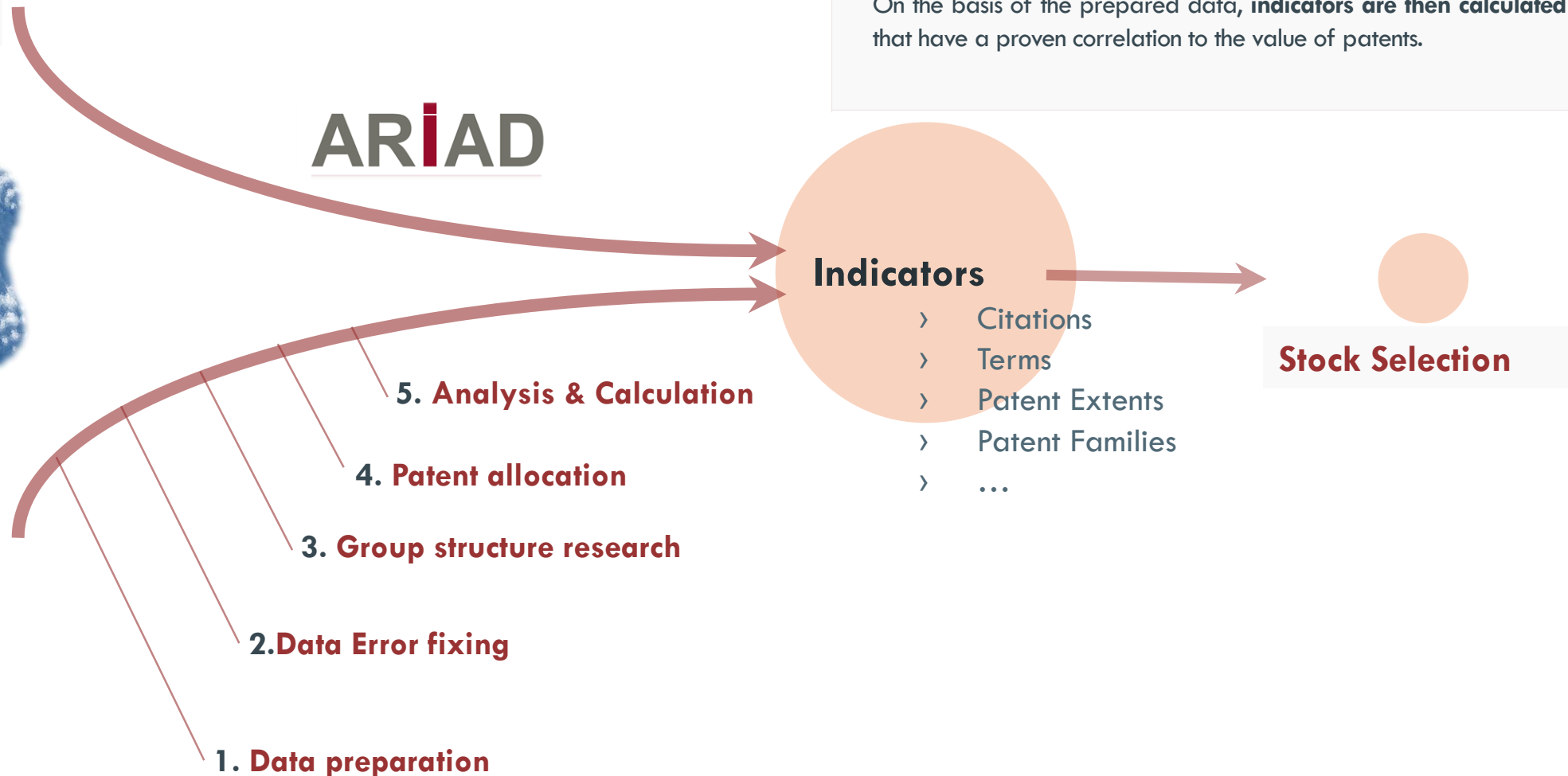
# Making Patent Information usable

## „Big Data“-Chaos

= Information-Overkill



ARIAD



## From patent data to patent indicators

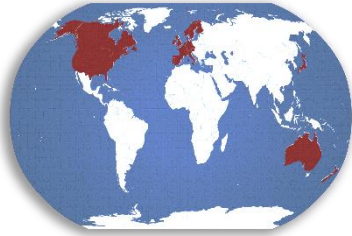
Using various complex **processes** (1.-5.) the patent information is made usable from a technical database point of view, prepared, cleaned and correctly assigned. Here, the **Group Structure Research** in particular is very time-consuming, since, for example, Siemens alone has more than 600 different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

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

# The global ARIAD Patent-Universe

## #1: Industrialized Countries

+according to the definition of MSCI  
+ additional filter (freefloat, marketcap)



## #2: Sectors with high patent activity



Utilities



Logistics

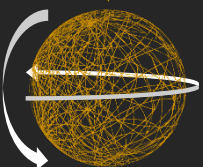


Raw Materials

## #3: Patent portfolio-ranking

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

Yearly  
ranking



Quarterly  
rebalancing

ARIAD Patent-Universe

## Big-Data

>80,000,000 patent  
data files

## Patent indicators

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

## ARIAD data processing

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

## Ranking

- 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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..... and on behalf of its AFFILIATED  
..... the "Parties".





**Results of the Strategy:**  
Outperformance, especially by small & mid cap stocks

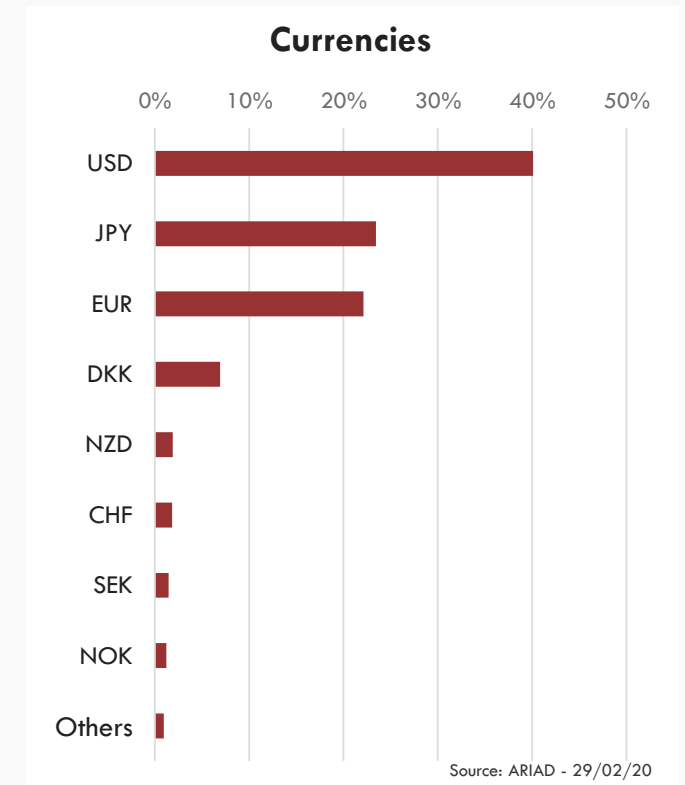
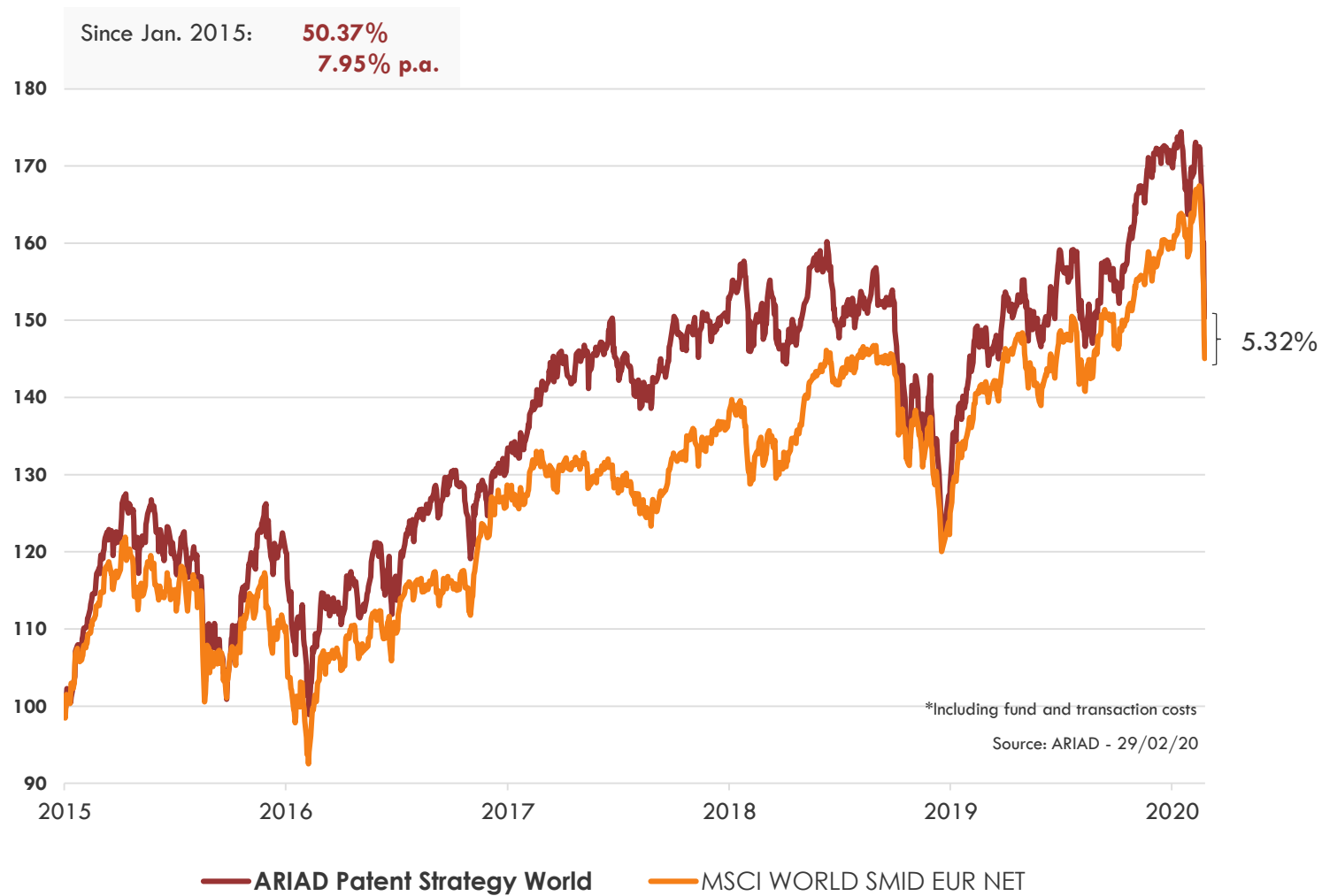
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# Performance of the „World“ Patent Strategy



## Global Equities Small&Midcap

**rank 1:** 1-year performance

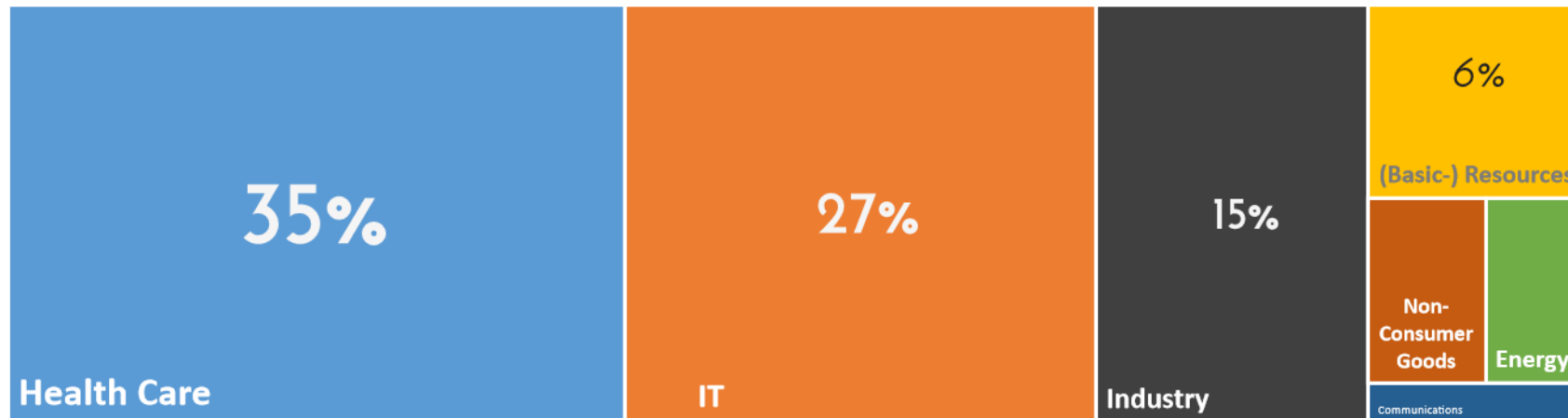
**rank 2:** 3-year performance

**rank 2:** 5-year performance

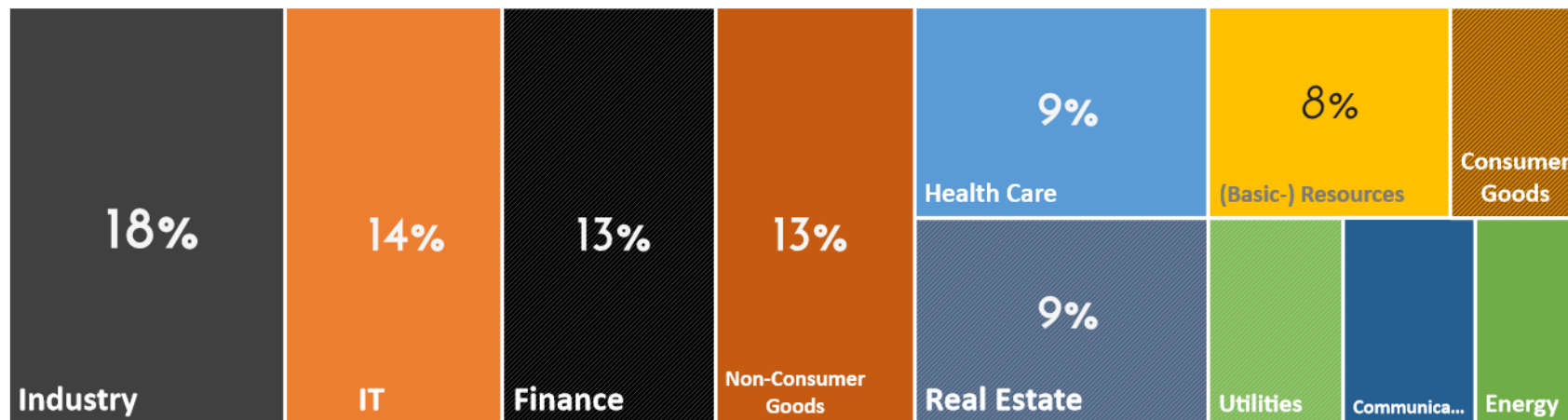
The prize was awarded to the public fund **Monega Innovation R** that is based on ARIADs Patent Strategy

# Sector comparison with the MSCI World SMID EUR NET

ARIAD Patent Strategy World



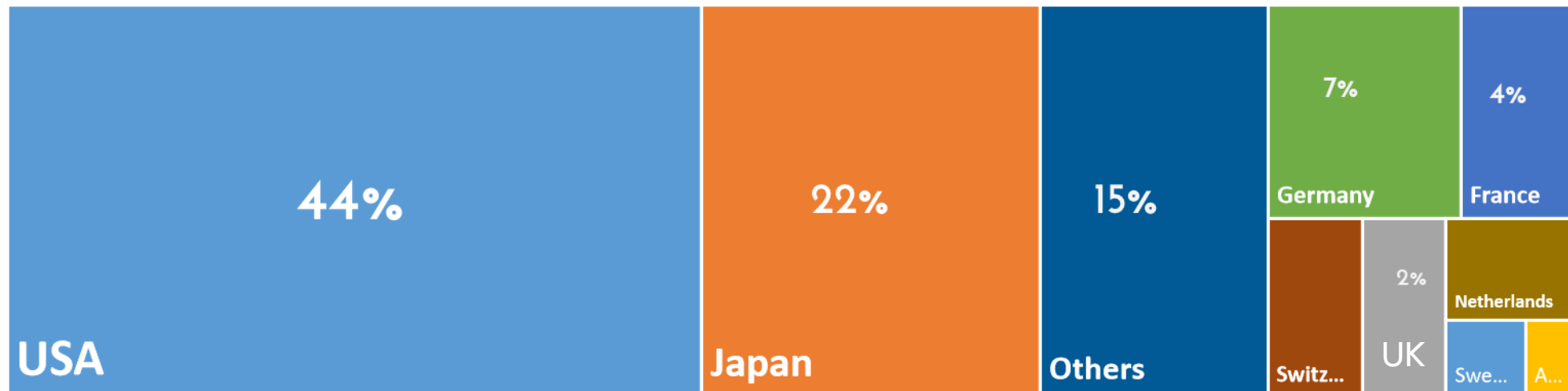
MSCI World SMID NET EUR



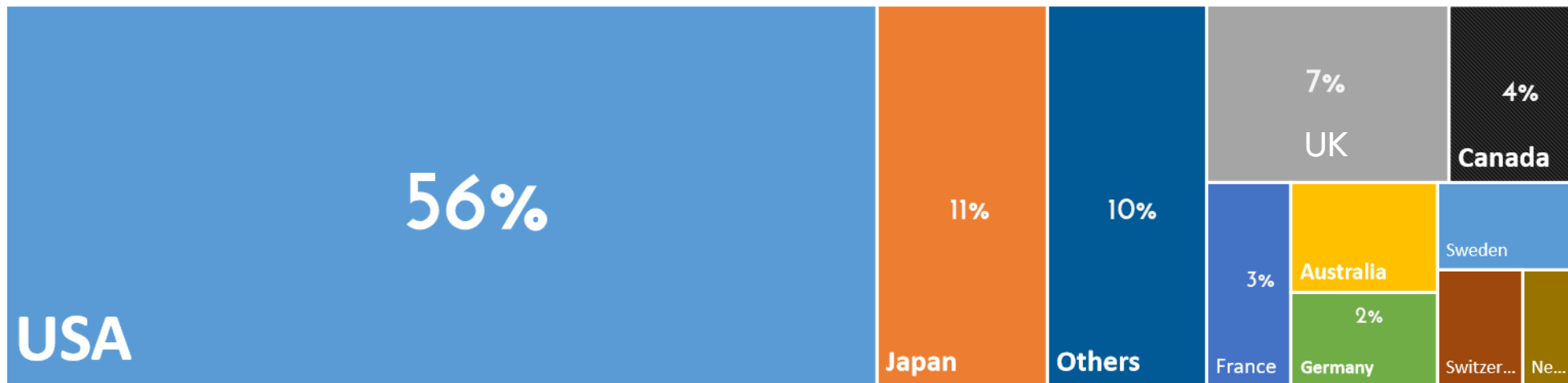


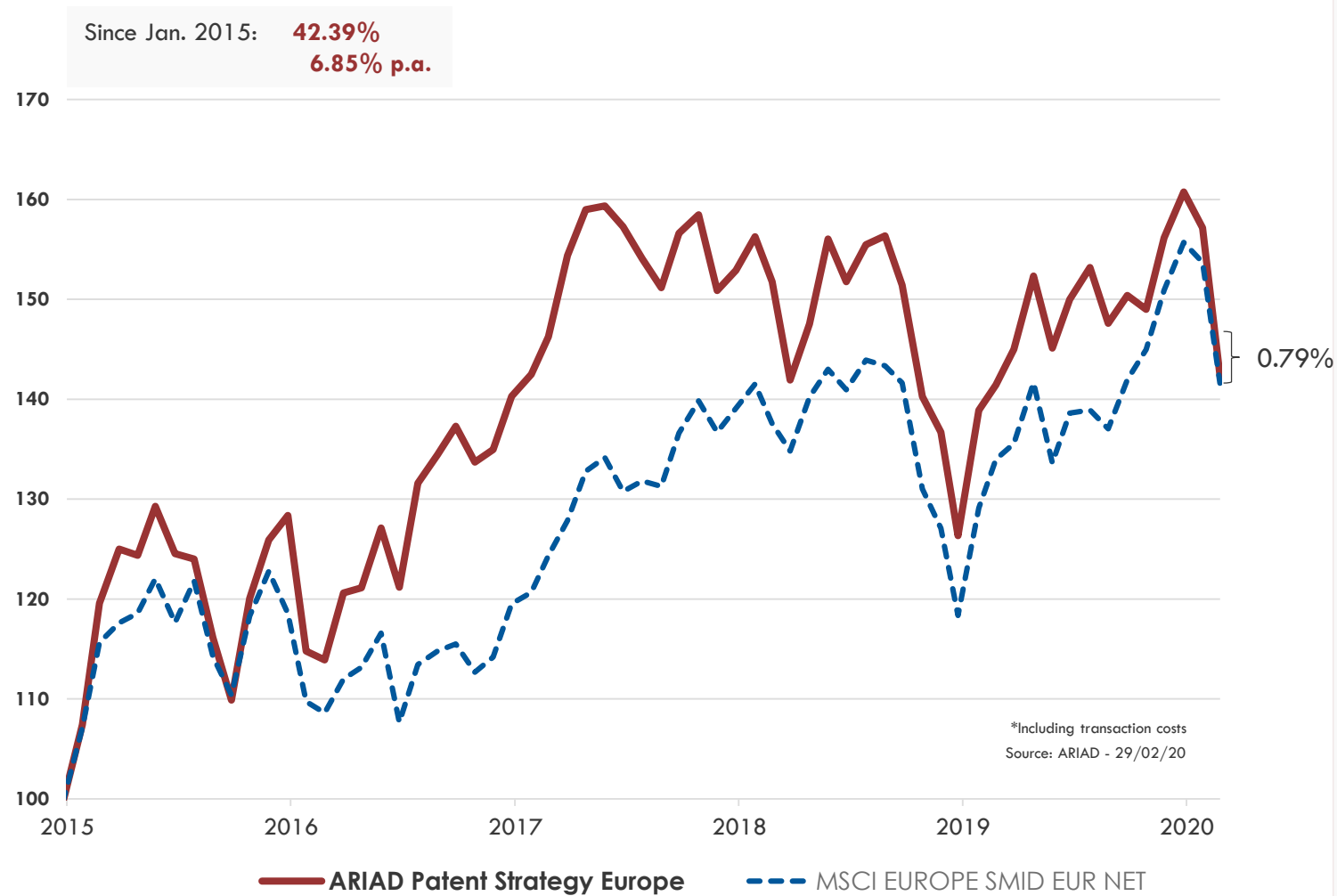
# Country comparison with the MSCI World SMID EUR NET

ARIAD Patent Strategy World



MSCI WORLD SMID NET



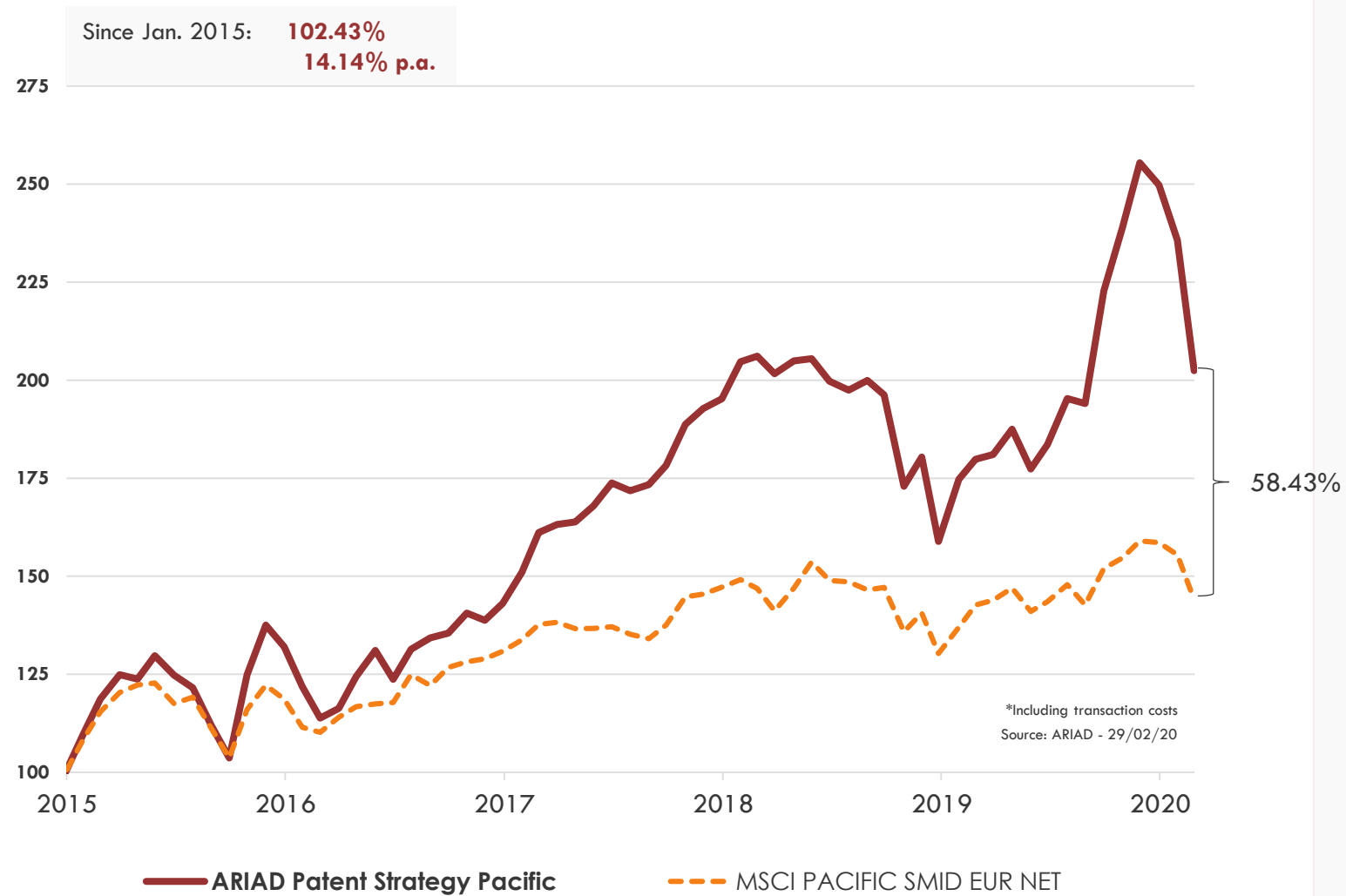


## Top Holdings Europe

- **ZumTobel Group** (Austria)
- **Soitec SA** (France)
- **Ion Beam Appl.** (Belgium)
- **Demant AS** (Denmark)
- **Corbion NV** (Netherlands)

**Main Sector - Industry**





## Top Holdings Pacific

- **Sanken Electric** (Japan)
- **Dexerials Corp** (Japan)
- **Fisher&Paykel H.** (New Zealand)
- **Hodogaya Chem.** (Japan)
- **Akebono Brake Ind.** (Japan)

**Main Sector - Industry**







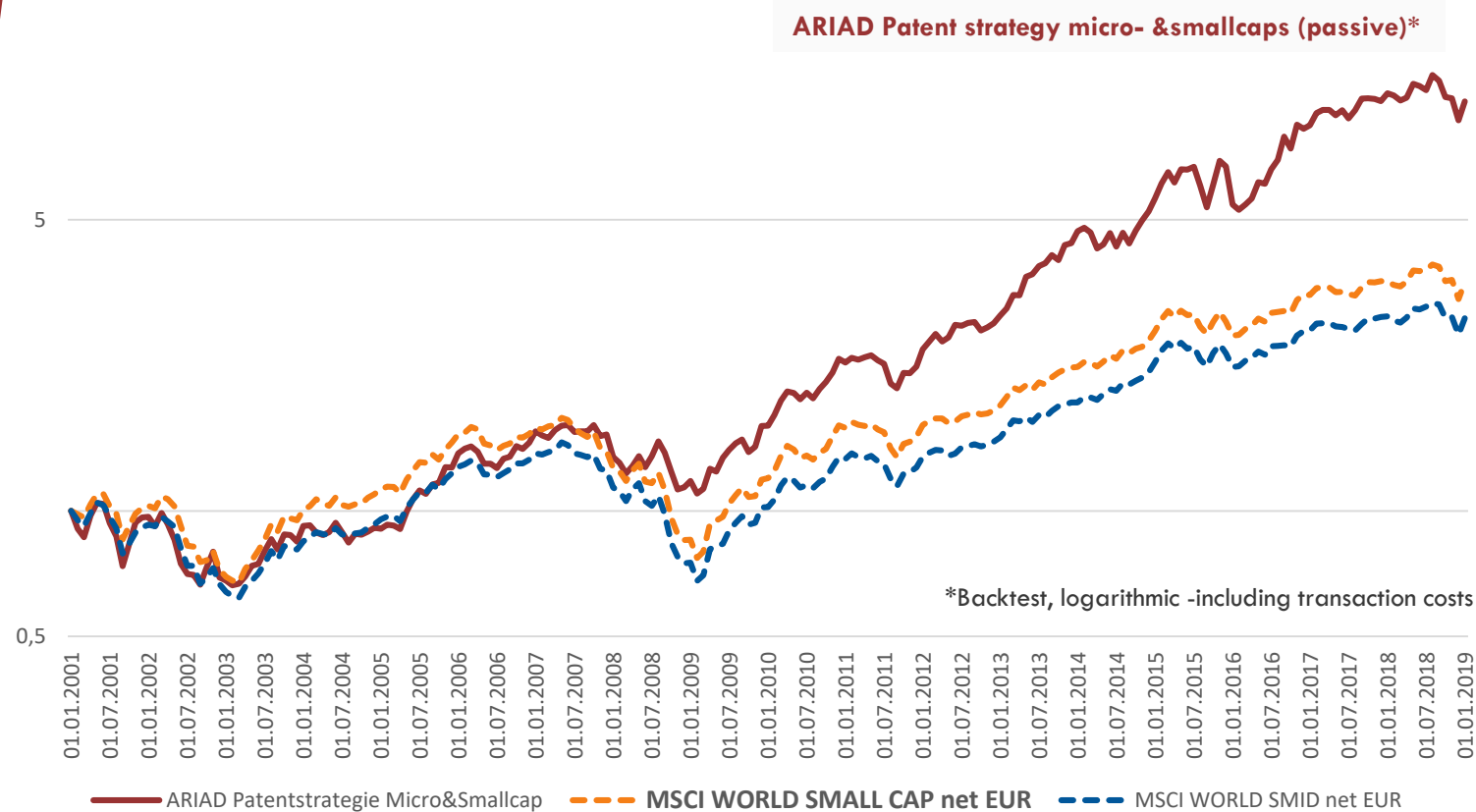
## Top Holdings North America

- Ironwood Pharmaceuticals
- Lennox International
- Alarm.Com Holding
- Immersion Corp
- Intercept Pharma.

**Main Sector - Pharma**



# Patent-Strategy: greatest potential with micro-& smallcaps



As the ARIAD patent approach aims at **identifying innovative „hidden champions“ early on**, this strategy works best with smaller, specialized companies that are little known before their commercial breakthrough becomes unmissable (micro-& smallcaps).

Therefore, we see **great potential for a fund** that focuses solely on these small listed companies.

Compared to the benchmark (MSCI WORLD SMALL CAP NET EUR, blue line) the **passive ARIAD patent strategy** (red line) was able to **outperform** over the 18-year period, without considering additional fundamental or technical data.

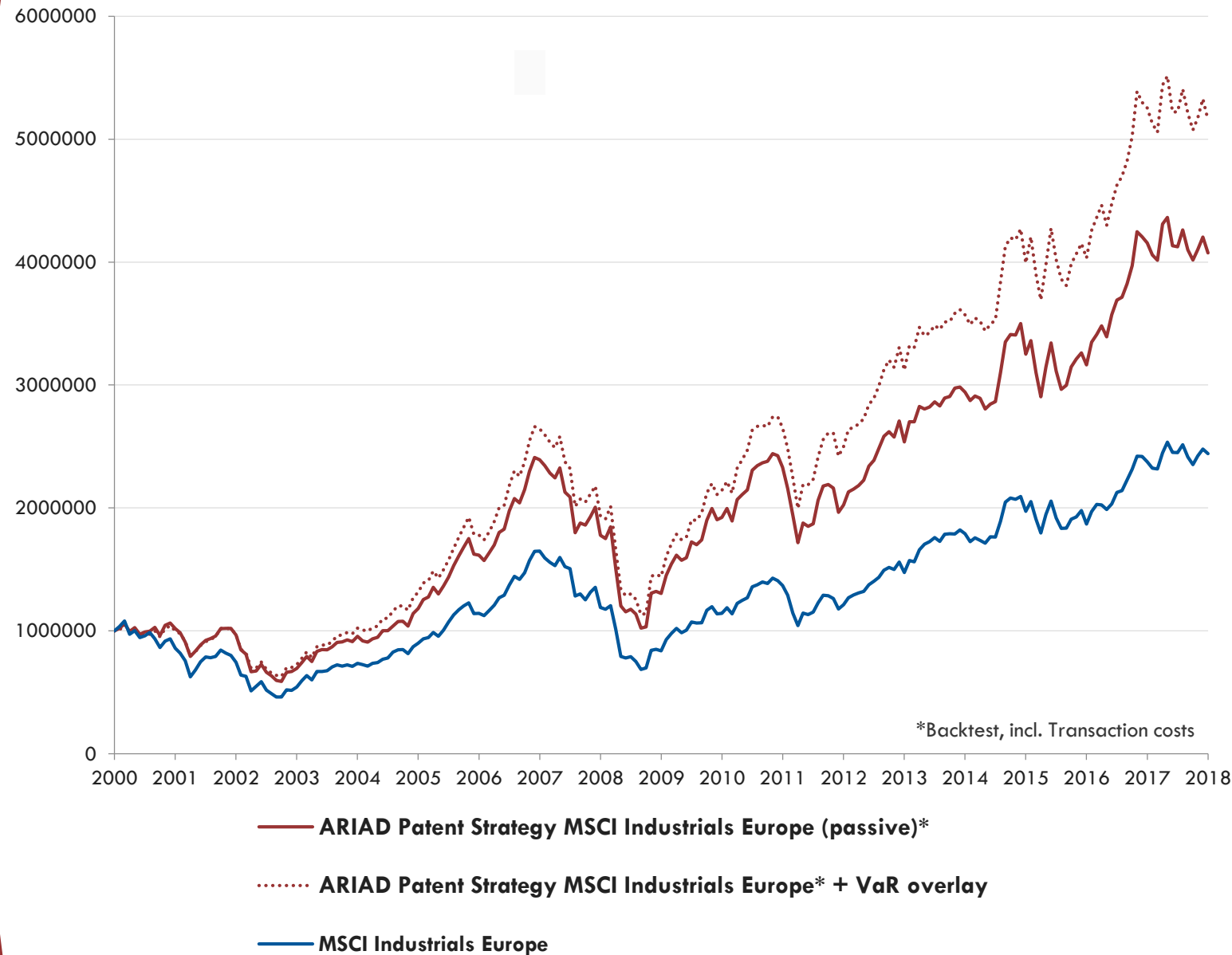
Especially the **highly innovative companies from USA and Asia** (mainly Japan) are mainly contributing to this return – a result that is supported by the global trend regarding patent application activity and quality data.

The well performing **„future markets‘ emerging markets** (China, Taiwan, South Korea) aren't even included, yet – but we are working on it!

Additionally, the pure passive ARIAD patent strategy can be enhanced with **active components** (i.e. risik-overlay, momentum,...) or can be **tailor-suited** to fit investors needs regarding **special technology trends** (i.e. Blockchain, Industry 4.0, robotics, ...).

|                        | ARIAD Patentstrategie Micro&Smallcap | MSCI WORLD SC NET EUR | MSCI WORLD SMID NET EUR |
|------------------------|--------------------------------------|-----------------------|-------------------------|
| Performance (absolute) | 860%                                 | 254%                  | 190%                    |
| Performance (%p.a.)    | 13.33%                               | 7.24%                 | 6.06%                   |
| Volatilität (%p.a.)    | 21%                                  | 16%                   | 15%                     |
| Mod. Sharpe-Ratio      | 0.64                                 | 0.45                  | 0.4                     |
| Max. Drawdown          | -37%                                 | -54%                  | -53%                    |

# Patent-Strategy applied to equity indices: MSCI Industrials Europe



The ARIAD Patent approach can also be **applied to almost any equity index**.

A potential investor asked us to evaluate the outcome of using the Patent approach **solely on companies that are part of the MSCI Industrials Europe** (low tracking error). Changes in the constituents of the index were taken into account.

The ARIAD Patent strategy MSCI Industrials Europe (passive) **invests in index constituents that are part of the ARIAD patent ranking (equal weights)**.

Additionally, a second version of the strategy with a systematic **value-at-risk overlay** was implemented that gives a **weight penalty** to companies that exceed a certain risk threshold.

The results of these approaches can be seen on the left:

**The MSCI Industrials Europe could be outperformed significantly.**



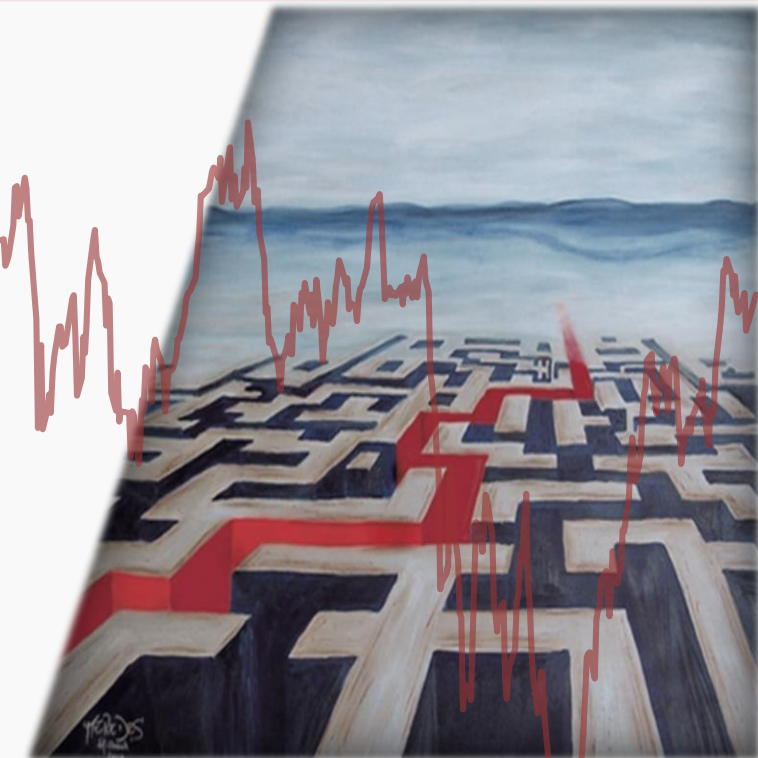
# Further Information

The ARIAD Patent Equity Strategy :  
has been implemented in a **mutual fund** for more than 5 years:

**Monega Innovation** (WKN 532102)

[www.monega.de](http://www.monega.de)

As an institutional investor you can **register for a monthly update**  
on the strategy at [www.ariad.de](http://www.ariad.de) .



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