

BUSINESS
FINLAND

ORION
PHARMA

EST. 1874
KOLSTER

BIOVIAN

eatris
European Infrastructure
for translational medicine

EY
Building a better
working world

pwc

Tero Piispanen, Turku Science Park Ltd

Finnish biotech year 2018



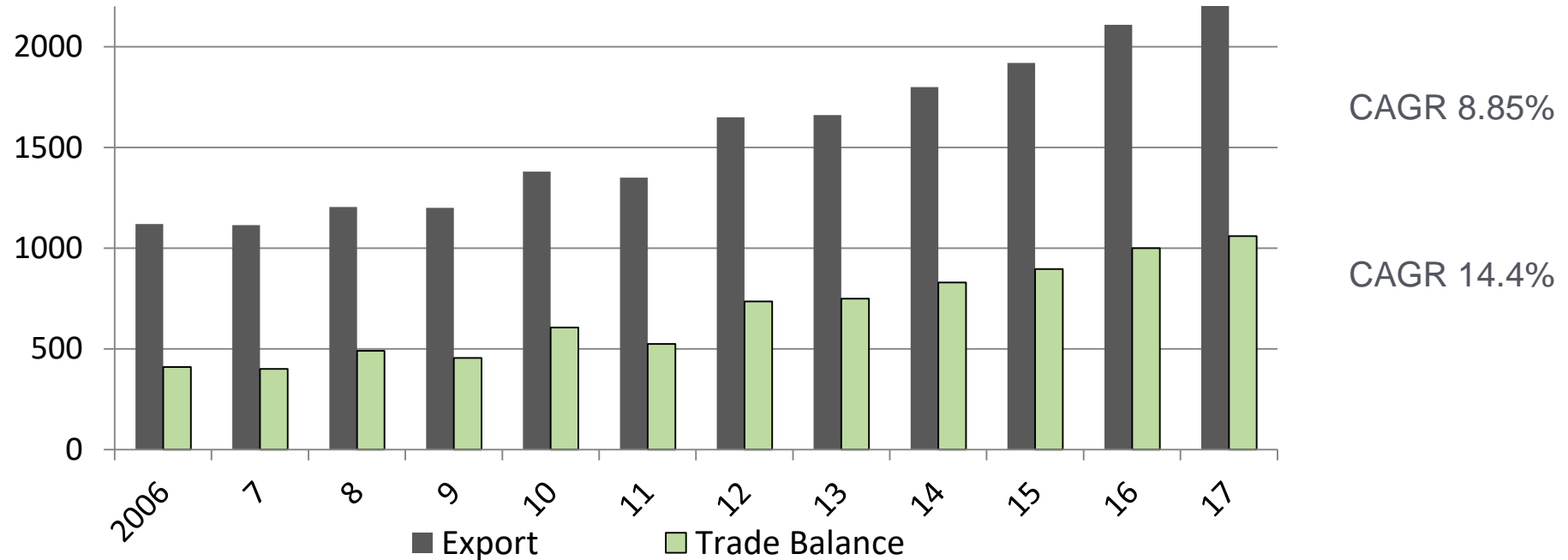
HEALTH
TURKU

TURKU
BUSINESS
REGION

Industry statistics



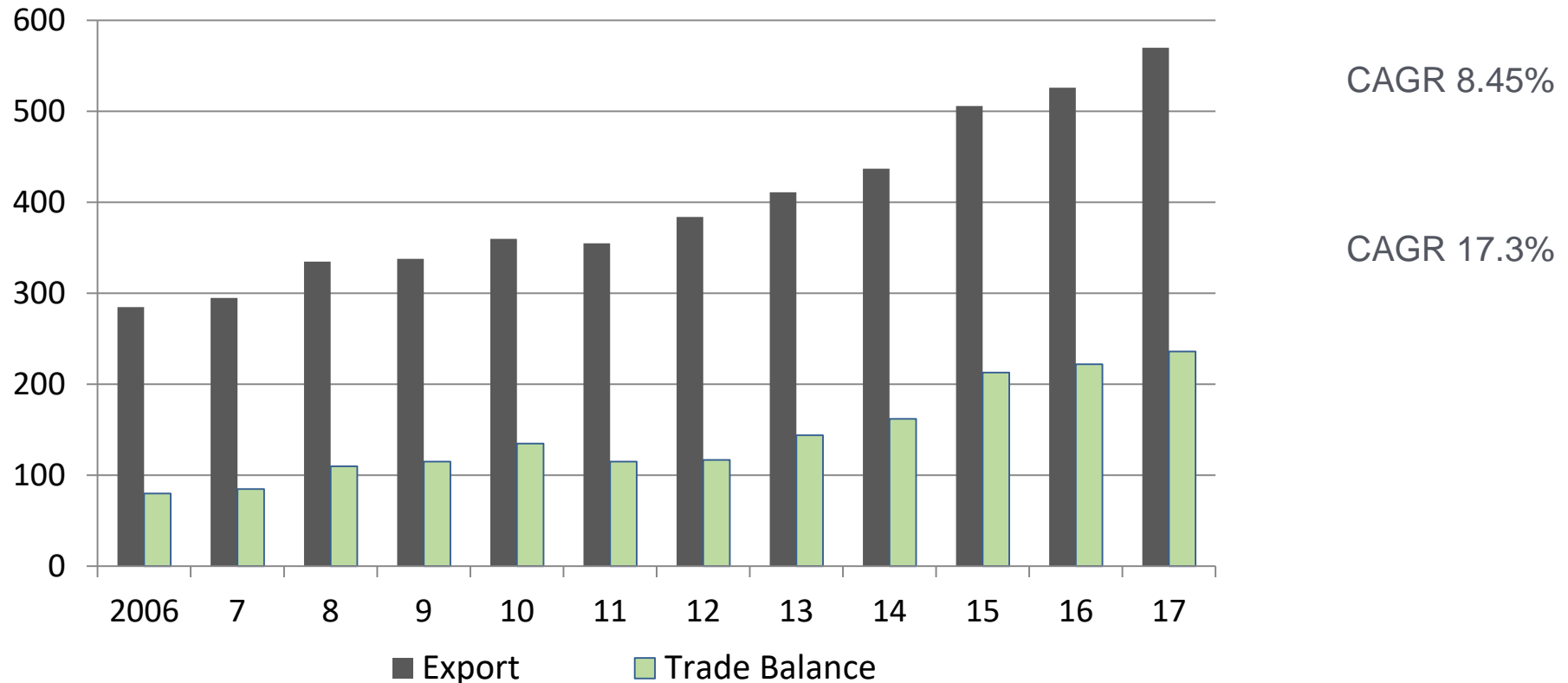
Finnish health technology industry



Source: Healthtech Finland, Pharma Industry Finland

- Finnish health tech export, total: 2,220 M€
- Finnish pharmaceutical export: 1,637 M€

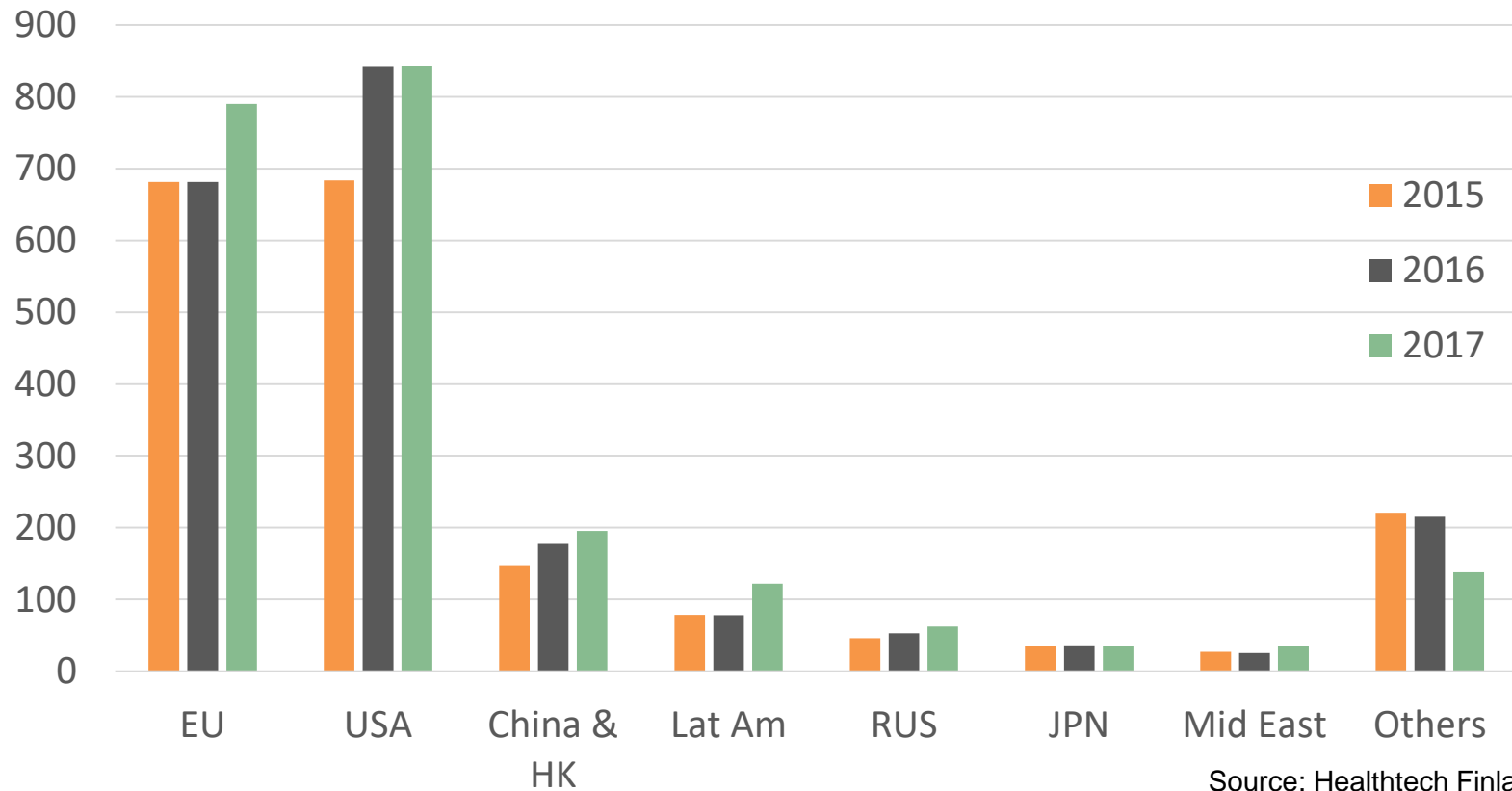
Finnish in vitro diagnostics industry



Source: Healthtech Finland

- China largest export market thanks to strong demand of diagnostic equipment
- export of diagnostic devices 288 M€ (+14,7%) or 50,5% of exports

Finnish health technology exports



- Germany 147 M€ (+6%), France 85 M€, UK 75 M€ (+18%), Sweden 66 M€, Russia 63 M€ (+15%)

Professional startups



12 New companies created since autumn 2017

Capital region

- **GlucModicum** – blood sugar levels measurement
- **TerveDx** – preventive healthcare
- **MvisionAI Oy** – AI in medical imaging
- **Osgenic Oy** – VR simulation, surgery

Turku

- **BioCad Oy** – drug development and manufacturing
- **Aceman Pharma Oy** – drug development
- **Aldogen Oy** – diagnostic kits, oncology
- **Bluezone Oy** – health monitoring systems
- **Qvalidi Oy** – digitalisation in healthcare

Tampere

- **Adaptos Oy** – tailorable bone graft substitute for surgical operations
- **Lean Entries** – digital service for medical device regulations

Oulu

- **Kipuwex Oy** – IoT device for pain assessment

Good results in all categories



Success stories 09/17 - 08/18

Pharma

Orion

- H1/2018 net sales of continuing operations 493 M€, operating profit 140 M€, equity ratio 67%
- sold Orion Diagnostica to Axcel Management A/S for 163 M€
- Fermion's new plant operational in Hanko (30 M€ investment)
- started a Phase III against ALS with orally administered levosimendan (ODM-109)
- started Ph I against prostate cancer (ODM-208)
- launched its 2nd biosimilar Ritemvian[®] (lymphoma), and agreed to distribute 3rd biosimilar (Trastutsumab)
- expands its drug development competence to include also biological drugs
- building a national public-private ecosystem for new modalities and rare diseases

Success stories 09/17 - 08/18

Pharma

Bayer

- Mirena product family sales 1126 M€ in 2017 (+9,2%)
→ *Mirena was Bayer's 3rd biggest drug*
- signs agreement to sell Crop Science businesses to BASF for up to 1,7 billion €
- closes Monsanto acquisition
- LEO Pharma to buy Bayer's global prescription dermatology unit.
Annual turnover in 2017 more than 280 M€.

Success stories 09/17 - 08/18

Deals and Milestones: Drug Development

Forendo Pharma Oy

- lead program FOR-6219, a novel, oral, tissue-specific HSD17B1 inhibitor for the treatment of endometriosis, has commenced a Phase Ia study. The first women participating in the study have been dosed.

DeSiTech Oy

- agrees with KOSDAQ listed C-Tri Co. Ltd, to develop long-acting controlled release formulations, starting with a peptide drug for oncology
- second consecutive positive fiscal year 2017, turnover 1,4 M€

Biovian Oy

- turnover in 2017 raised to 13 M€, profit 4,4 M€ (41,8%)
- Knut Ringbom awarded for the best CEO in Finland 2017 (Kauppalehti Magazine)

Success stories 09/17 - 08/18

Deals and Milestones: Drug Development

Herantis Pharma Oy

- initiated the Phase 2 study to evaluate Lymfactin® gene therapy in the treatment of secondary lymphedema
- received the Nordic Stars Award at the Nordic Life Sciences Days
- the Innovation prize 2018 of Finland's Chemical Industry Federation was awarded to CDNF protein therapy for Parkinson's disease

Pharmatory Oy and Fermion Oy

- have signed collaboration agreement to provide CDMO services for customers' API development projects from preclinical to commercial stages

Success stories 09/17 - 08/18

Deals and Milestones: Drug Development

Aplagon Oy

- announced a development and commercialization agreement with and Cadila Pharmaceuticals Sweden for Aplagon's lead APAC product. APACs are locally acting, potent antithrombotic products, which target blood vessel wall injury.

FIT Biotech Oy

- has initiated a research collaboration with Avacta Group Plc, UK
- UK medical authorities have granted the European HIV Vaccine Alliance (EHVA) the permission to start a Phase I/II clinical trial. FIT Biotech's HIV vaccine candidate FIT-06 is a part of a regimen whose safety and efficacy are tested in the UK.

Success stories 09/17 - 08/18

Deals and Milestones: Diagnostics & Medtech

Nightingale Health Oy

- announced strategic collaboration with **PerkinElmer** to develop novel precision medicine solutions to address the global burden of diseases
- awarded as one of the Most Innovative Biotech SMEs in Europe by EuropaBio

BC Platforms Oy

- provides Big Data driven research solutions to **Amgen Finland** (CV & oncology)
- provides Real World Evidence solutions to **Pfizer Finland** in cardiovascular diseases
- co-operation agreement with **Abomics Oy** to promote a novel pharmacogenetics technology to Healthcare and Life Science customers
- partnered with **Negen Oy** for early risk assessment of common diseases

Success stories 09/17 - 08/18

Deals and Milestones: Diagnostics & Medtech

HyTest Oy

- H1/2018 Revenue 14,4 M€, operating profit 7,5 M€ (52%)
- high growth in China, becoming the #1 market (China 40%, US 33%)

Labrox Oy

- production agreement with a major international partner; instruments now marketed in more than 150 countries. Strong growth in sales and personnel (+10).

Labmaster Oy

- received CE clearance for its Lucia POC system

Nexstim Plc

- launched NBT[®] system for depression

Success stories 09/17 - 08/18

Deals and Milestones: Diagnostics & Medtech

Combinostics Oy

- received 510(k) from the FDA for its image quantification software cNeuro cMRI
- received start-up award at Future X Healthcare organized by Roche

Ginolis Oy

- distribution agreement with Darwin Microfluidics for dispensing pumps

Medicortex Oy

- started the Phase II clinical trial of ProbTBI™ diagnostic kit for (TBI) detection
- agreed with Pro-Lab Diagnostics Inc. (CAN) for registration and sales in CAN and UK

Abomics

- has partnered with European laboratory network LADR (370 hospitals)
- first pharmacogenetic samples have already been delivered

Success stories 09/17 - 08/18

Deals and Milestones: Diagnostics & Medtech

Bittium Oy

- launched the new waterproof Bittium Faros™ ECG device and Bittium FastFix™ patch electrode for ECG measurement
- Bittium Cardiac Navigator™ has received medical device approval in Europe

Finnsusp Oy

- opens a new 1 M€ production line for contact lens solutions and OTC eye drops

Revenio Group Oyj

- was granted a sales permit in China and MEX for the next-gen tonometer, Icare ic100

Planmeca Oy and MetGen Oy

- CTO's Vesa Varjonen and Matti Heikkilä awarded for the CTO's of the year

Money found!



Selected financial news

Evondos Oy

- raised 21,2 M€ from Serendipity Partners (N) to grow internationally its automatic medicine dispensing service

Fimmic Oy

- raised 5 M€ from Ascend Capital and existing investors

Kaiku Health Oy

- raises 4,4 M€ series A financing from Debiopharm and TeSi to accelerate its digital therapeutics/patient monitoring software pipeline

BBS-Bioactive Bone Substitutes Oy

- raised 3,5 M€ and listed in First North (HEL & STO)

Selected financial news

Crowdfunding in Finland in 2017 totaled to 56 M€ (+100%)

Mobidiag Oy

- completed a 4 M€ crowdfunding from Springvest (formerly Kansalaisrahoitus)
- gets 1,5 M€ loan from Business Finland to develop a new sepsis assay

ArcDia International Oy

- completed a 2 M€ crowdfunding from Springvest in a few hours!

Desentum Oy

- raised 2,3 M€ in crowd financing from Springvest to develop allergy vaccine

Askel Healthcare Oy

- raised 0,65 M€ in crowd financing from Invesdor

Selected financial news

Faron Pharmaceuticals Oy

- raised 11,3 M€ in a private placement (Traumakine & Clevegen)

FIT Biotech Oy

- secured min 3 M€ and max 10 M€ convertible loan from Alpha Blue Ocean Group

Forendo Pharma Oy

- received 3 M€ loan from Business Finland to progress the DUAL HSD Inhibitor program, targeting broader gynaecological conditions, into preclinical development
- Raised 4 M€ from Vesalius BioCapital Partners (press release Sept 5th)

Selected financial news

Oura Health Oy

- received 5 M€ funding from Bold Capital Partners (US) and TeSi to scale US market operations of the wellness IOT ring manufacturer

Surgify Medical Oy

- raised 1 M€ from Butterfly Ventures, Cascara Ventures (BE), Merkatura AB and FRIIH GmbH

Disior Oy

- raised 0,6 M€ in seed funding from Maki.vc and others to boost sales of the image analysis software for diagnostics, pre-operative planning and treatment optimization

Selected financial news

Nexstim Plc

- raised 0,96 M€ via a directed issue of new shares to Capricorn Health-tech Fund

Neuro Event Labs Oy

- raised 0,6 M€ from Maki.vc and OmaMedical +1,3 M€ loan from Business Finland

Olfactomics Oy

- received EU's SME Ph I grant
- raised 1 M€ risk funding (undisclosed source)

M&A activity



Selected M&A's

Venture capitalists on the move...

Orion Diagnostica Oy

- was acquired by Axcel Management A/S for 163 M€

Biovian Oy

- majority of shares acquired by Keensight Capital. Biovian receives also a significant investment increase capacities, and to expand internationally.

Medix Biochemica Oy

- majority of shares acquired by DevCo Partners Oy. Aim is to develop Medix Biochemica into a significantly larger player in the In Vitro Diagnostics sector.

Selected M&A's

Bittium Oy

- acquires 17,4 % share of Evismo AG (CH) to expand remote diagnostics service
- acquire's RemoteA Oy's remote diagnostics service platform

KIDE Systems Oy

- was acquired by Topcon Corporation (JPN)

2M-IT Oy

- was formed in the merger of **Medi-IT Oy** and **MedBit Oy**

Optomed Oy

- has acquired **Commit Oy**, a healthcare software solutions company

Selected M&A's

Mehiläinen Oy

- buyout fund CVC Capital acquired majority in Mehiläinen for 1800 M€

Lojer Oy

- acquired the Nordics' largest supplier of acupuncture needles Hegu Svenska Ab
- acquired **Teoteam Oy**'s hospital furniture service unit

Revenio Group Oyj

- acquired the remaining 46,5% of **Oscare Medical Oy**

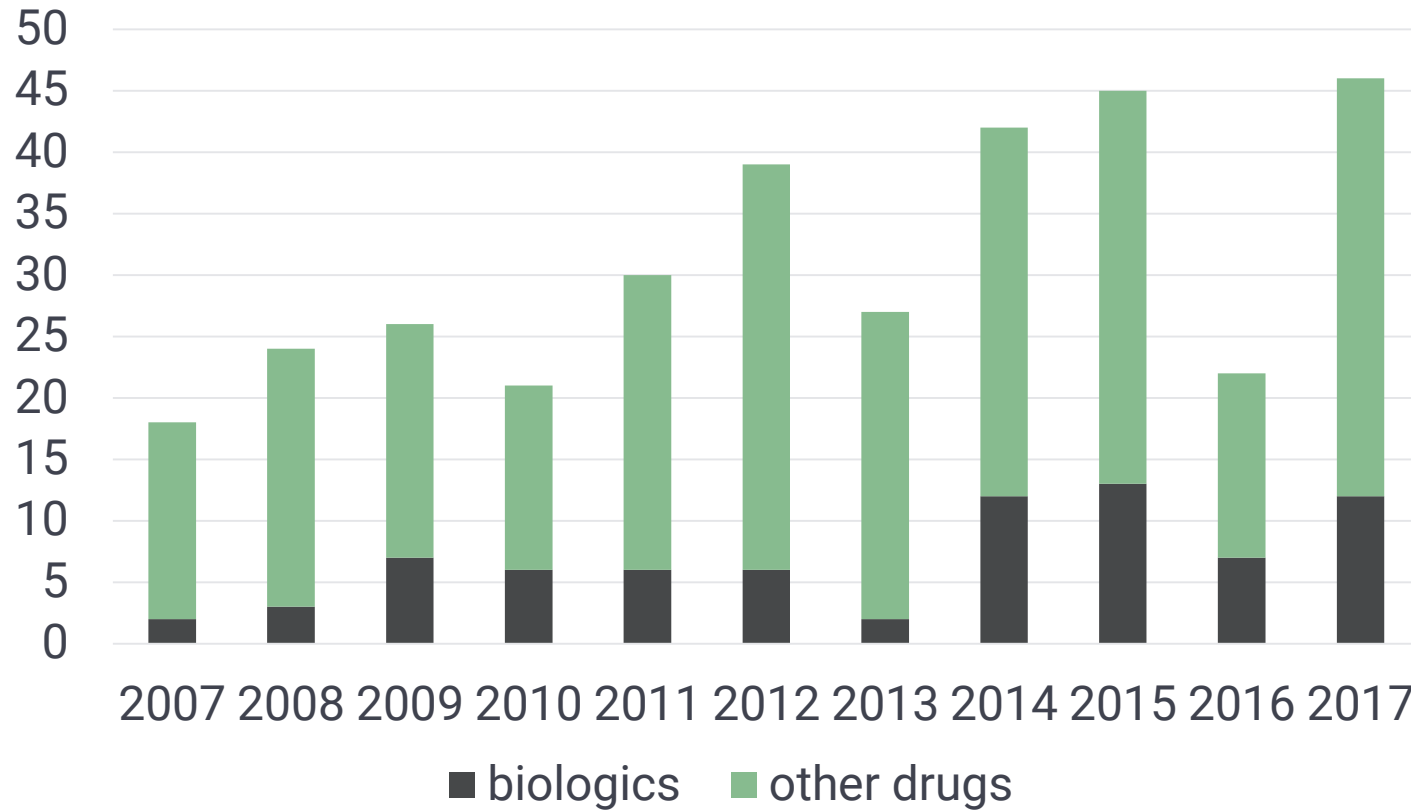
Fast growth vs profitability

Companies	4-Y Growth	Turnover, 1000€	Profitability
Blueprint Genetics	519 %	8069	- -
Medisapiens	428 %	2063	- -
Delsitech	328 %	1364	+
Biovian	293 %	13400	+ +
Labrox	219 %	1865	+ +
BonAlive Biomaterials	128 %	2907	-
Reagena	113 %	2500	+
BCB Medical	96 %	4241	- -
Kaivogen	77 %	2294	+ +
HyTest	59 %	24100	+ +

Technologies collide



FDA drug approvals 2017



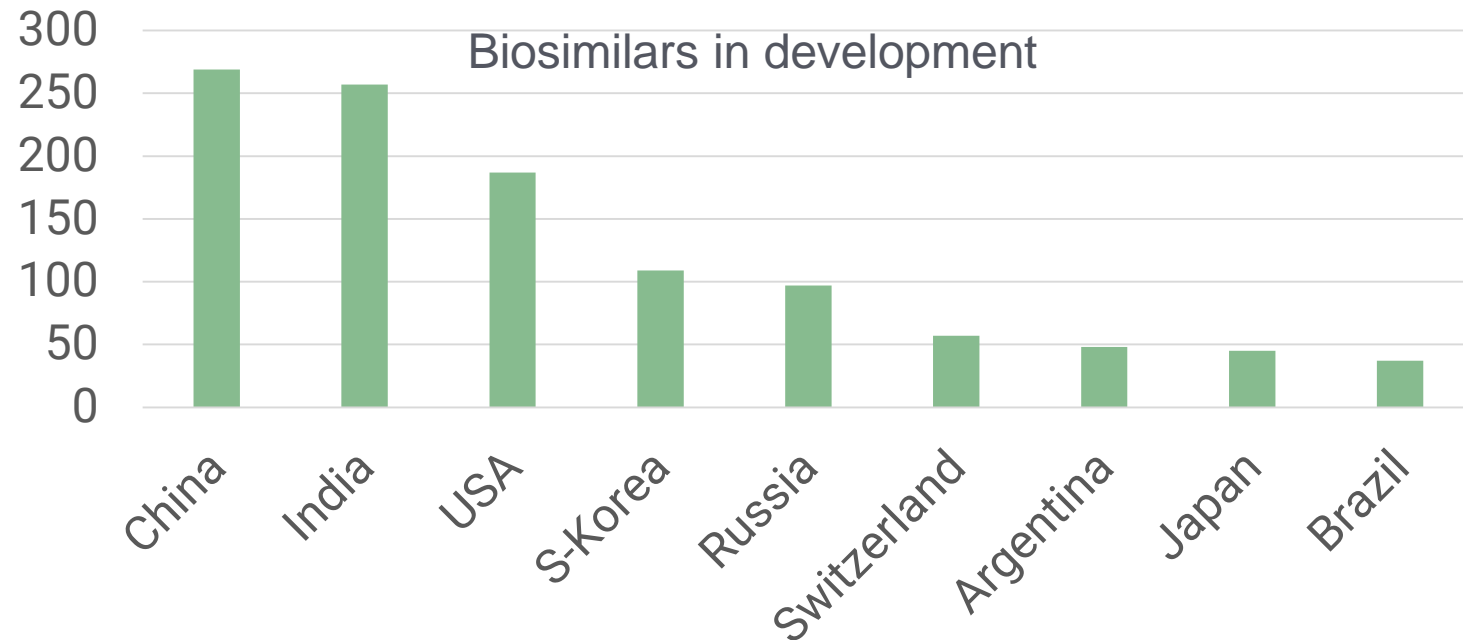
More than 50% increase in generic drug approvals, with a high of 92 generics approved in October 2017.

FDA: New technologies approved, finally

- **FDA**, through the Center for Biologics Evaluation and Research, **has approved gene therapies** for the first time in 2017
 - the 1st, Kymriah from Novartis, is a chimeric antigen receptor (CAR) T-cell immuno-therapy for the treatment of acute lymphoblastic leukemia.
 - the 2nd, Yescarta is also a CAR T-cell therapy, but for the treatment of adult patients with certain B-cell lymphoma (Kite Pharma/Gilead, 12 billion \$)
- in 2017 CDER **approved a tablet with an electronic sensor** that allows the patient to track via smartphone or cloud whether he or she has taken the medication. Abilify (aripiprazole) was first approved for schizophrenia in 2002.

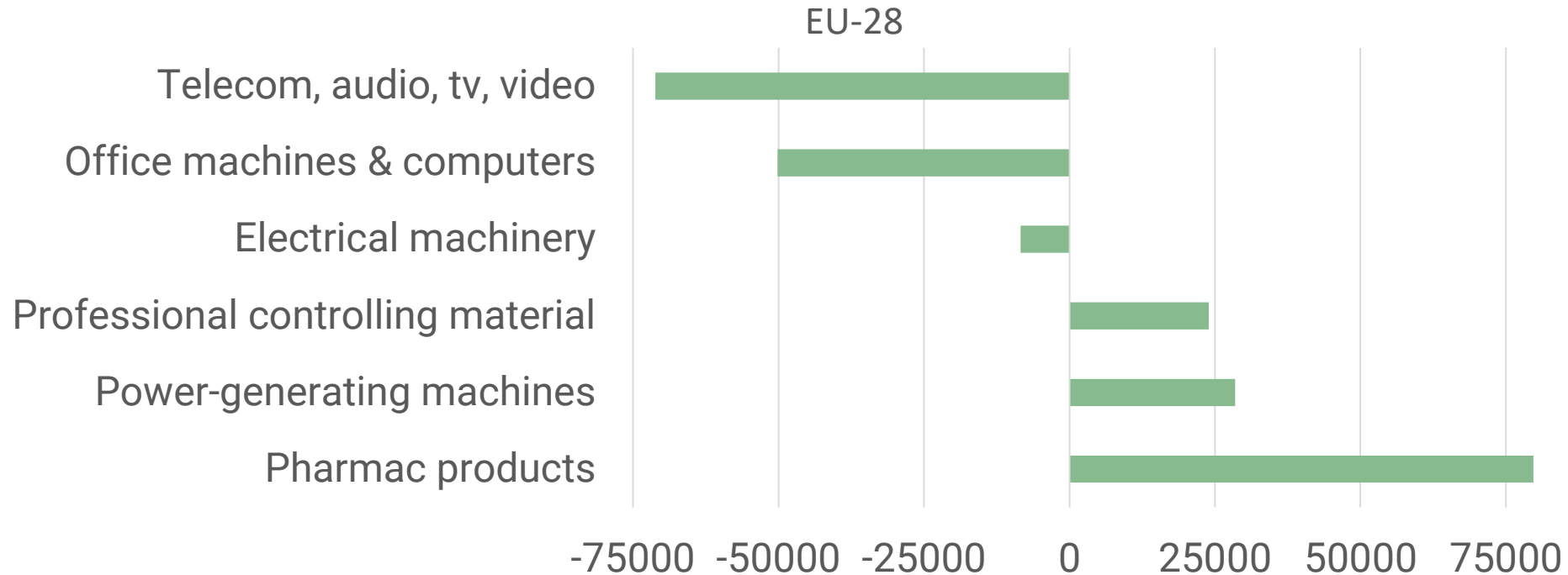
"The use of more expensive and personalized medicine means that hospitals need to evaluate more thoroughly the benefits of them" Petri Virolainen, Turku Univ Central Hospital in Turun Sanomat Sept 5 2018

Biosimilars: China rules



- Biologics are predicted to comprise more than 25% of the pharmaceutical market in 2020.
- China and Asia-Pacific region becoming the frontier market for biosimilars?

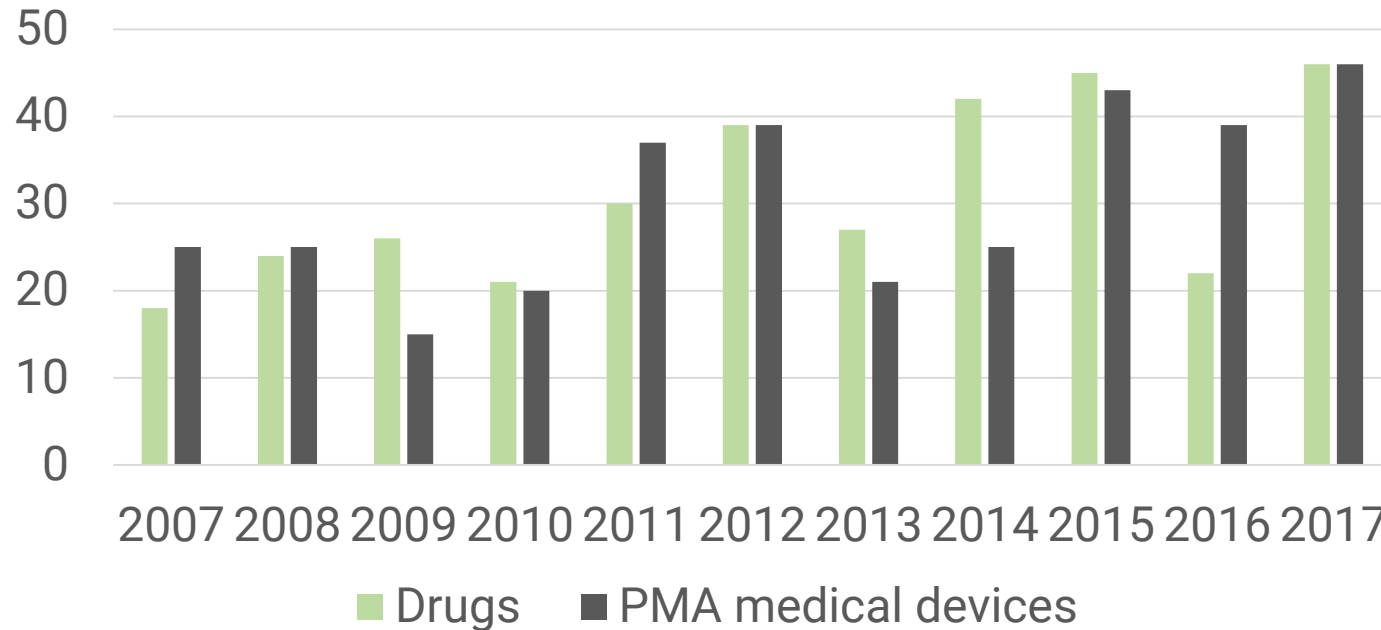
Trade balance of EU's industries



Pharmaceutical industry in Europe

- > employees 745 000
- > investments in R&D 35 000 M€

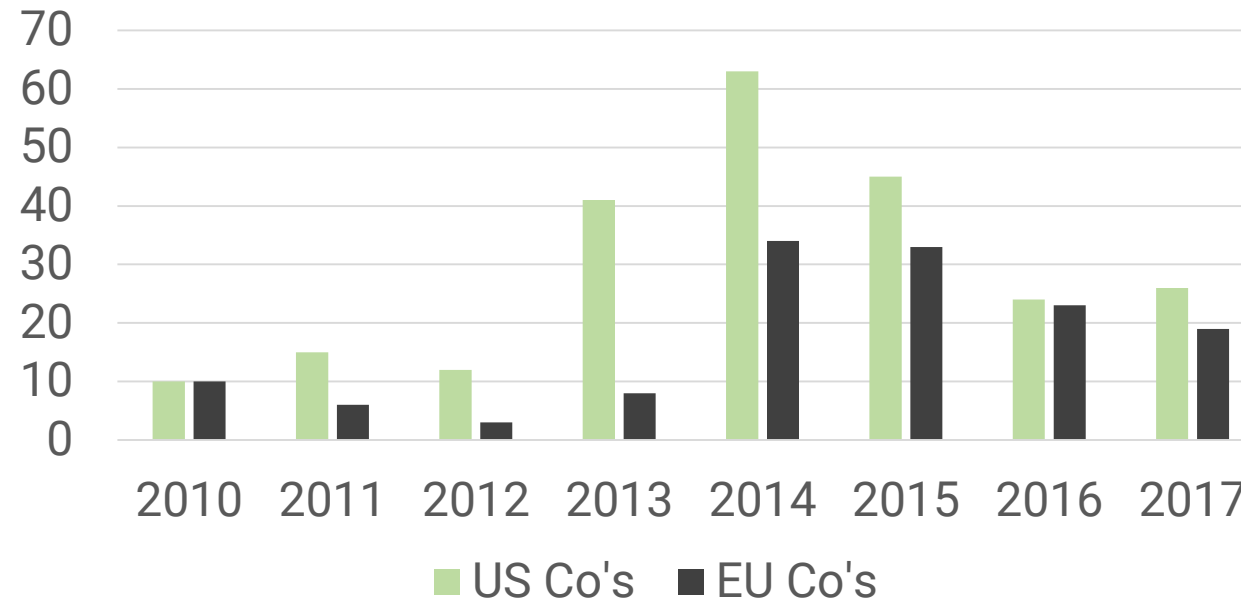
Medical device approval challenging



Class III devices present a potential for serious risk to the health, safety or welfare of the patient.

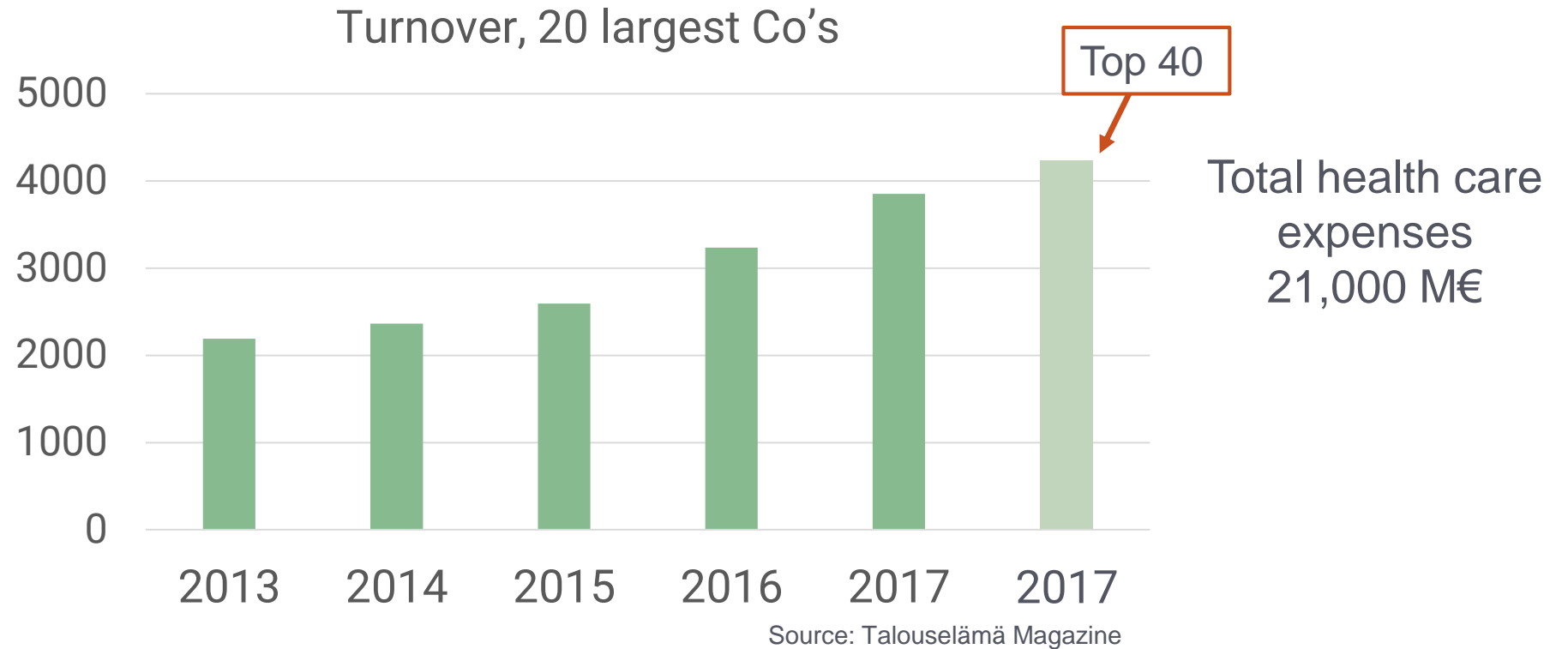
- average cost to bring a medical device onto the market through PMA is 94 M\$ compared to 31 M\$ for the 510(k) process
- 98% - 100% of products are approved, if the FDA files the applications

Number of biotech IPOs 2017



- 19 European biotechs made an IPO, raising totally 815 M€
- 4 out of 19 European biotechs listed in Nasdaq, raising 324 M€

Finnish healthcare business



- Mehiläinen, Terveystalo, Attendo and Pihlajalinna alone almost 2400 M€ turnover
- Fimlab Laboratoriot Oy 102,6 M€

Finnish healthcare business



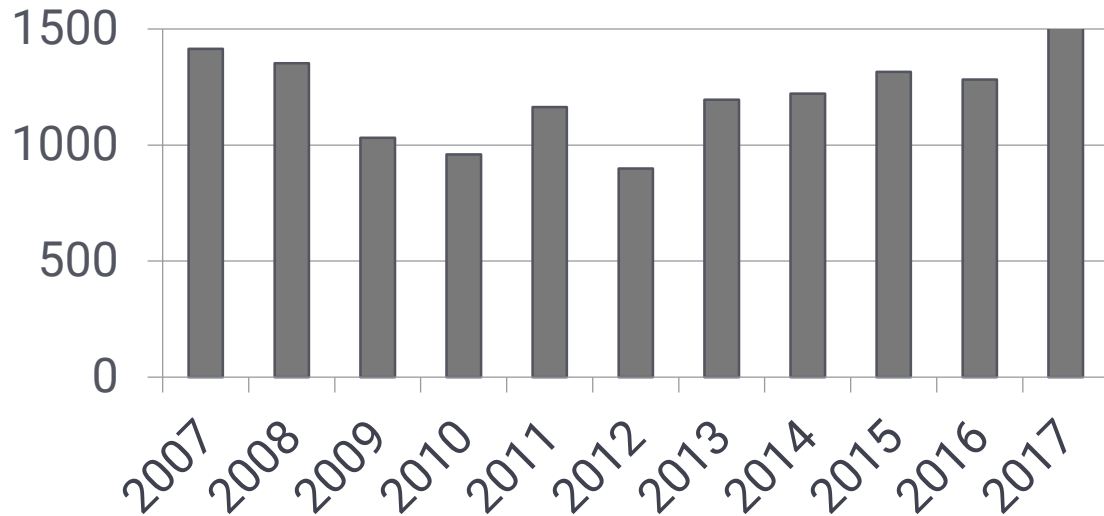
Healthcare Co's investments during past 5 years more than 1400 M€

Watch your neighbors

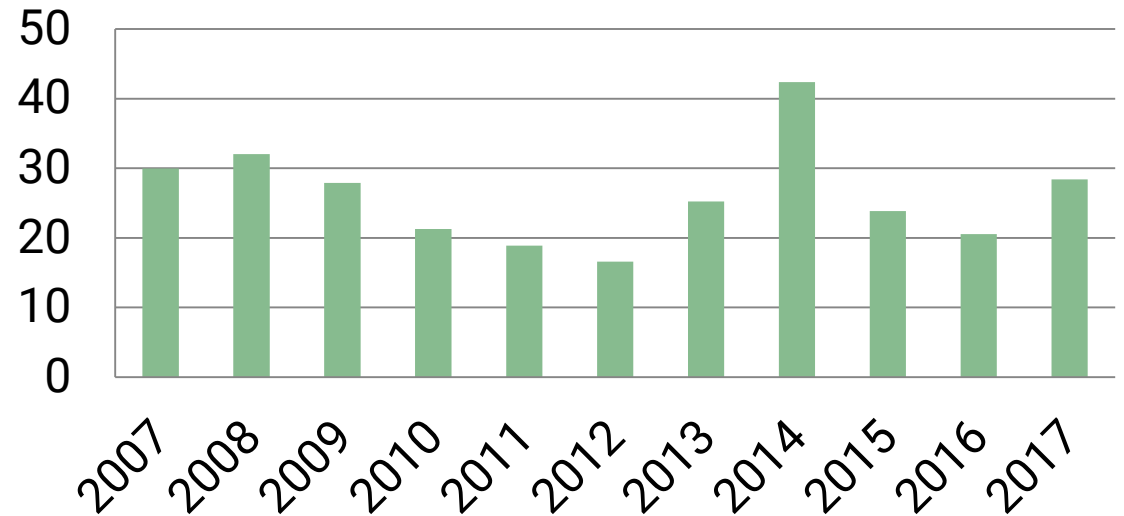


Life sciences venture investments: EU vs Finland

Europe, Million €



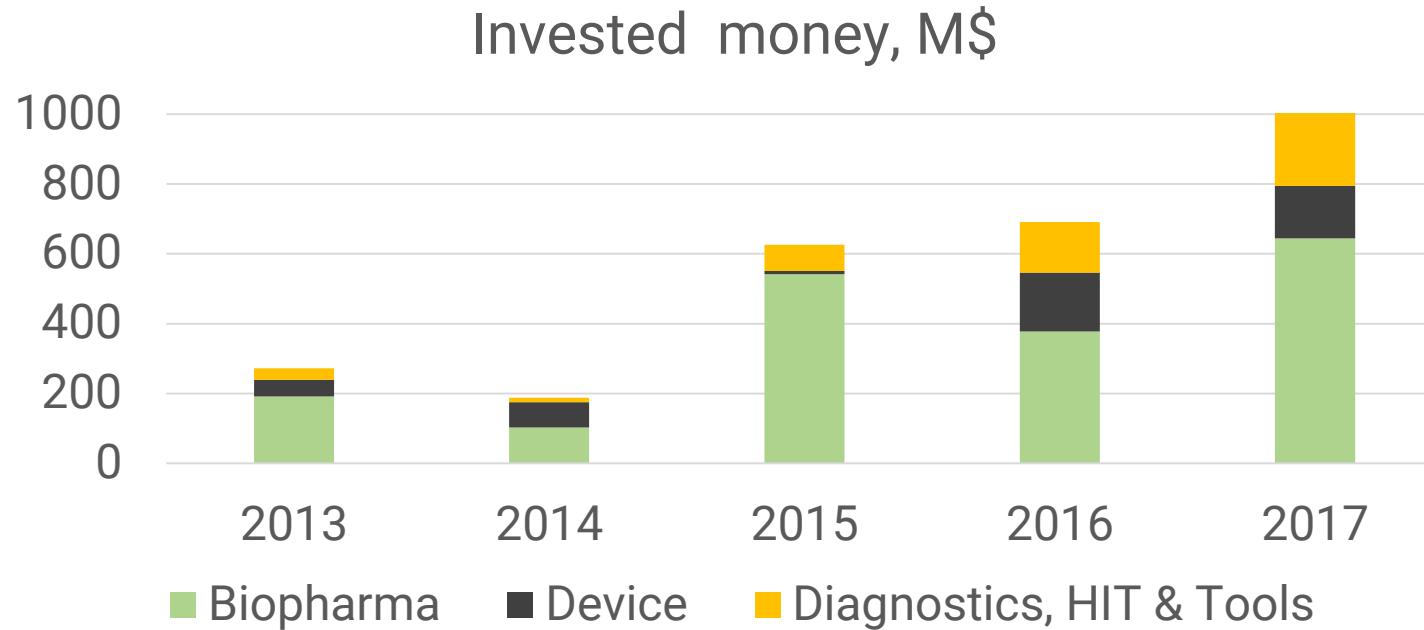
Finland, Million €



Source: Invest Europe, Silicon Valley Bank

- Finland represents 1,88% of EU VC investments in Life Sciences
- US Series A venture financings to biotech 2259 M\$ and to medtech 333 M\$

Series A funding in Europe

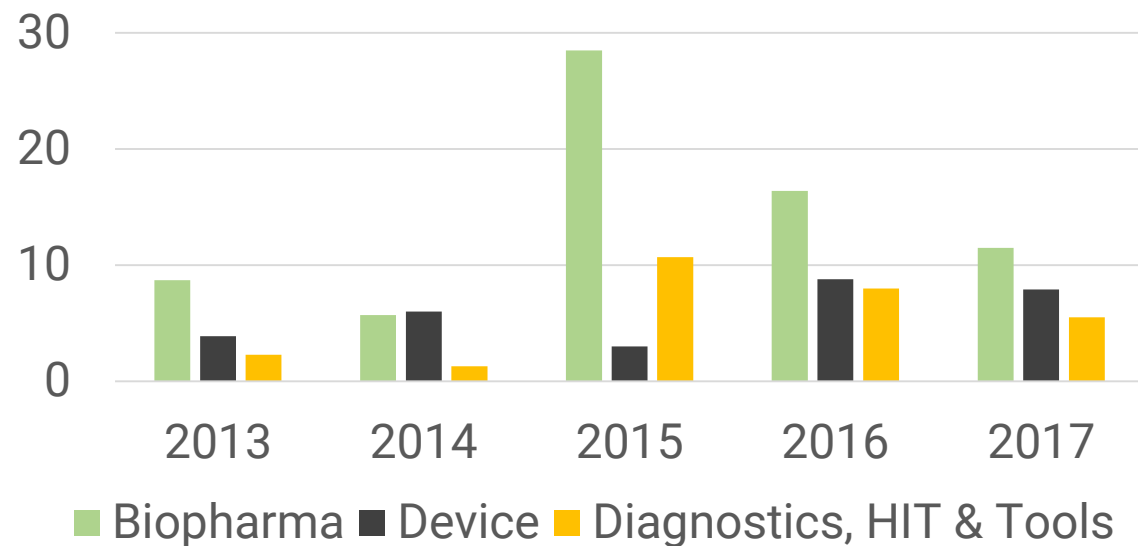


Source: Silicon Valley Bank

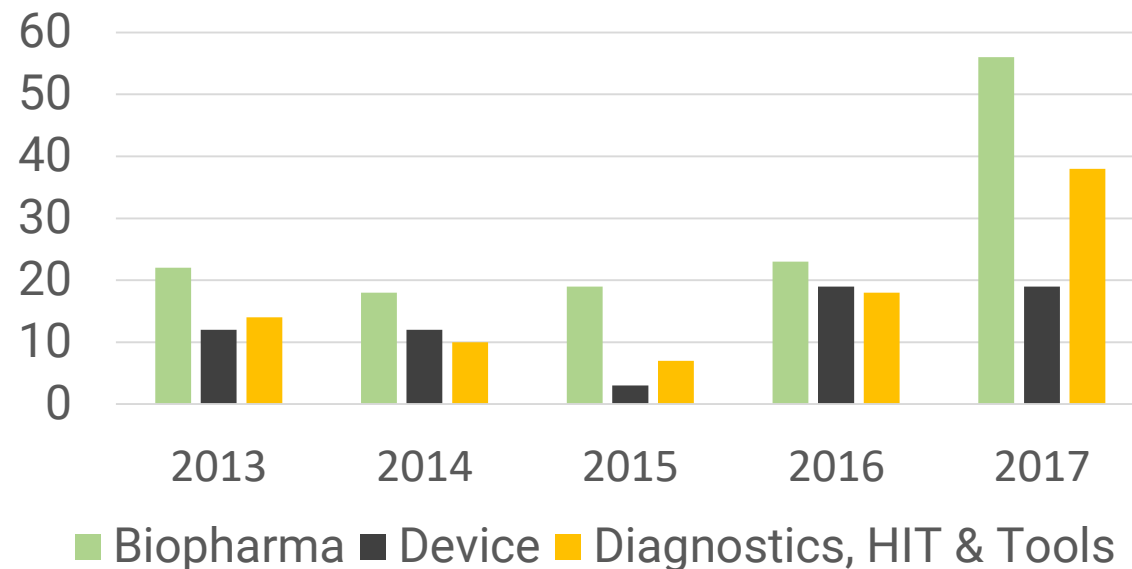
➤ In the USA, H1/2018 sees a surge in Series A: biotech 2632 M\$ and medtech 232 M\$

Series A funding in Europe

Average Funding Size \$M



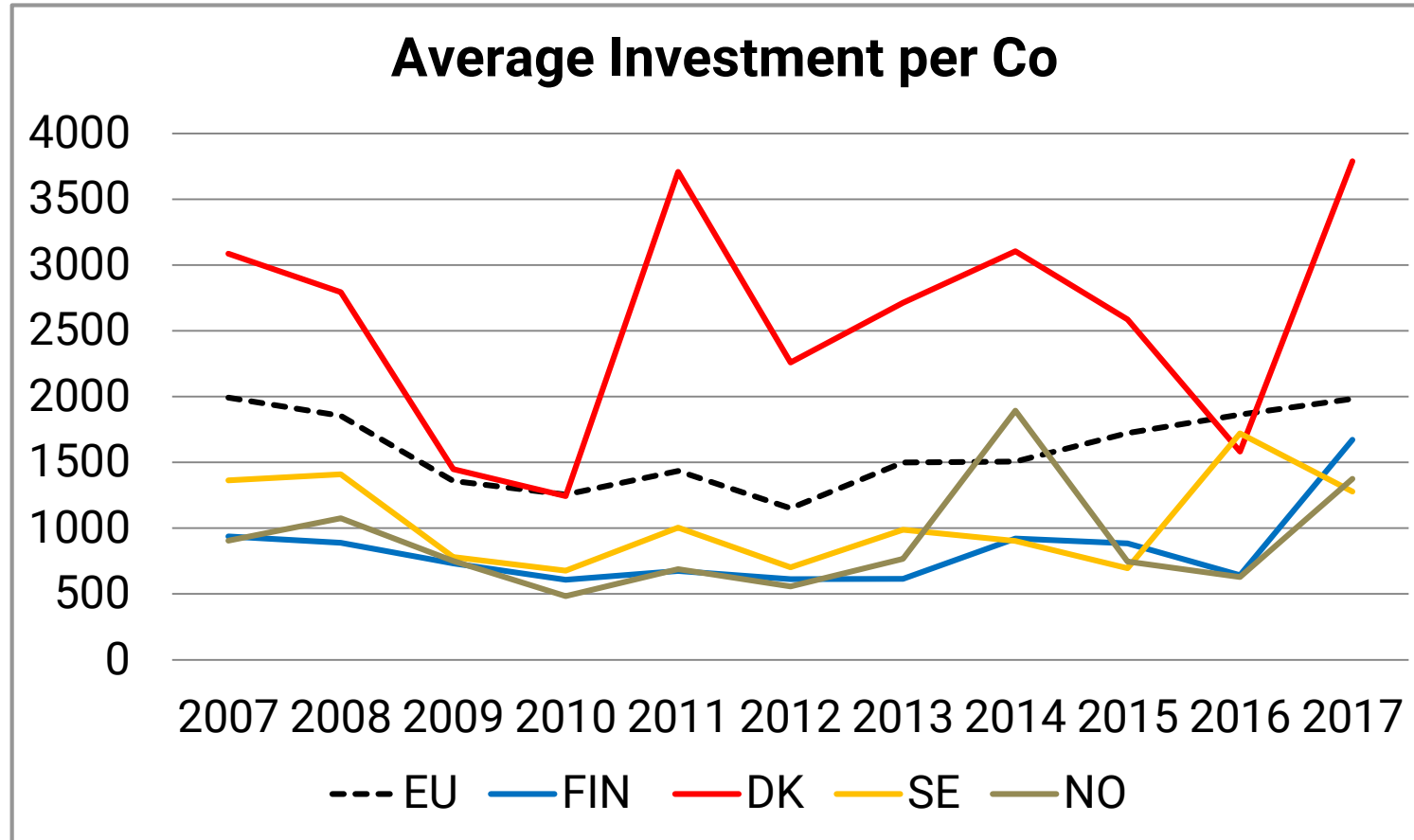
Number of Series A Deals



Source: Silicon Valley Bank

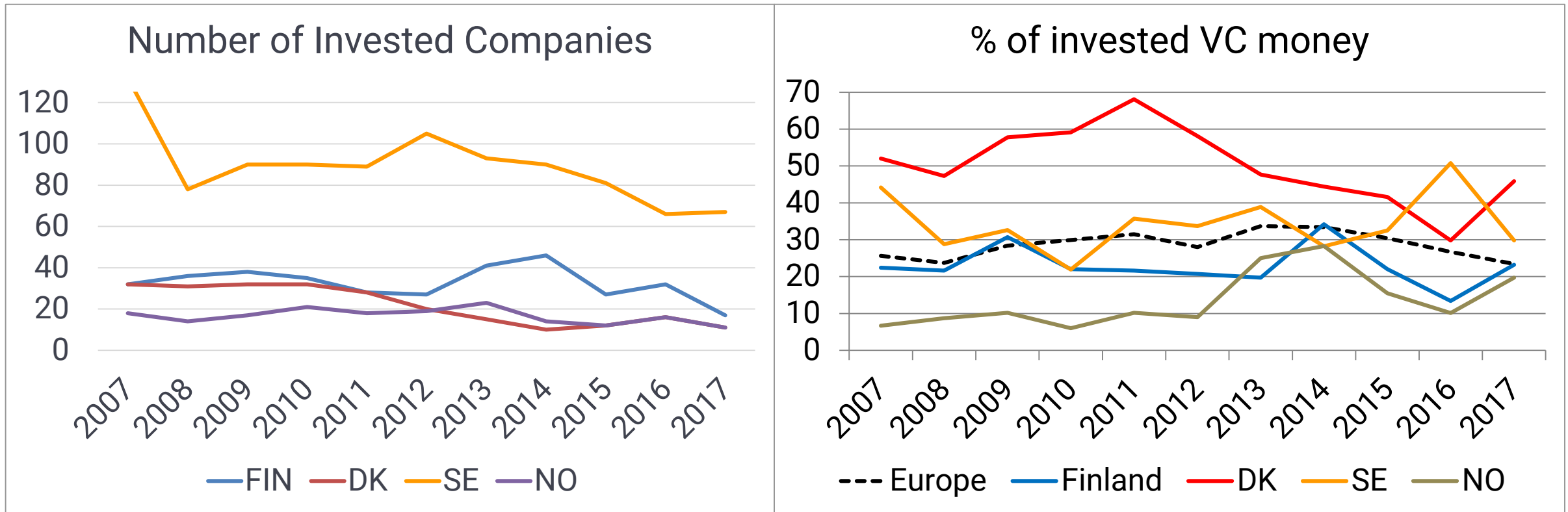
➤ More money, but even more deals → average deals size low

Average investment per company in the Nordics



Source: Invest Europe

What is happening in Denmark?



Source: Invest Europe

Sweden - life science stock market superpower?

Swedish IPOs	Value, M\$
Handicare Group	114,6
BioArctic Neuroscience	81,6
Oncopetides	81,0
BoneSupport	58,3
Isofol Medical	50,1
Xspray Pharma	15,4
IRLAB Therapeutics	13,5
Sedana Medical	11,7
SenzaGen AB	10,5

Medtech
 Biotech

Swedish IPOs	Value, M\$
Promore Pharma	8,9
Surgical science Sweden	8,0
BiServo Technologies	7,5
Biovica International	7,0
Annexin Pharmaceuticals	5,8
Paxman Ab	3,6
hemCheck Sweden	3,5
Integrum	2,0
AcuCort	2,0

Source: EY, Medwatch

➤ In the USA, average IPO size was 81 M€ , in Europe 32,7 M€

See you next year



The poster features a vibrant orange-to-yellow gradient background with faint, concentric circular lines. On the right side, the words "SAVE THE DATE" are written in large, bold, yellow capital letters. On the left side, there is a logo consisting of a white, three-lobed shape with a black outline, accented with red and green. To the left of this logo, the text "LIFE SCIENCE LIVE" is written in black, followed by "2019", "MAY 15-16", "TURKU FAIR CENTRE", and "FINLAND" in smaller black text. At the bottom of the poster, a line of text lists the organizing institutions: "Turku Science Park | University of Turku | Åbo Akademi University | Turku University of Applied Sciences | Turku Fair Centre".

LIFE
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Thank you for your attention

