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October 19–22, 2020 | analytica October 19–21, 2020 | analytica *conference* **Editorial**

Crisis-proof!



Holger Garbs, Editor Life Sciences

In times of Corona, refugee chaos and sabre-rattling, it is difficult to spread optimism. Depending on one's basic philosophical convictions, crises either bring out the good (Jean-Jacques Rousseau) or the bad (Thomas Hobbes) in people. In the past few days, news have been dominated by reports of panic buying in supermarkets and panic selling on the stock markets. At European borders, people are shooting with tear gas, soon they will be closed completely anyway. Prudent reactions in times of crisis might look different. What sort of times!

The biotech and medtech sector is also not unaffected by all this. In very practical terms, for example, the analytica trade fair in Munich (and with it also Finance Days organised by GoingPublic Media AG) has been postponed from April to October. Due to that we are unfortunately unable to hand out our hot off the press edition of "Financing Life Sciences" at short notice. But hand contact is currently not in anyway. By the way, it is unclear how life science companies are currently getting to their cash cows in view of the ban on entry into the USA for Europeans.

Nevertheless, on the following pages we analyse the current challenges and future prospects of the financing situation for biotech, medtech etc. for you. We give advice on how to improve the financial ecosystem (p. 10), highlight the advantages of cooperation between start-ups and corporates (p. 14), as well as the opportunities for German biotech start-ups in the USA (p. 26). China is more interesting than ever, also for German and European investors (p. 28). We present you exciting case studies (pp. 38 and 40), and what is actually the situation regarding life science IPOs this year (pp. 44 and 46)?

We need innovations. And we need capital to finance them. This does not work with panic. So let us continue to believe in the good and stay calm. In these times more than ever!

We wish you an exciting read.

Holgen Garbs

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Open end

Despite the good figures, the atmosphere on the German biotechnology market is rather glum. But should it be?

The financing of life sciences companies is still a constant, almost eternal issue, or at least it feels like one. Even though foreign venture capital funds are increasing their presence on the market, domestic funds are keeping their cards close to their chests, while other, new factors are also just looming on the horizon. **By Holger Garbs**

t first glance, the figures from the past year put the financing situation of German life sciences companies in a rather positive light. According to the figures published by the sector association BIO Deutschland, German companies being active in biotechnology, medical technology or similar sectors managed to collect a total of EUR 858 million in 2019, EUR 525 million of which came from venture capital investments and the other EUR 333 million from IPOs. The problem? More than EUR 186 million of these come from just two IPOs, namely BioNTech, a Mainzbased specialist company for the development of immunotherapies, as well as CENTOGENE, a company specialising in the diagnostics of rare diseases. Both IPOs took place on the New York Nasdaq, which rekindled the debate surrounding the diminishing relevance of the local stock exchanges (Deutsche Börse Frankfurt and the multinational Euronext).

A glum atmosphere despite the good figures?

Figures are one thing – what people make of them is a different story. This can be seen in the recent survey of the biotechnology sector in Germany published by BIO Deutschland. In the survey, the association claims that about 90% of the companies asked rated their company's current and foreseeable situation as "good to favourable or satisfactory to unchanged". About half of the entrepreneurs who participated in the survey also plan to increase their R&D expenditure, which is always a good sign. But where there is light, there are also shadows: only 20% of respondents answered that they expect an im-



provement of the political climate in Germany this year. BIO Deutschland referred to this result as a "glum atmosphere" in the sector.

But why so glum? There are, after all, also positive developments to be seen, even in the political arena. For instance, the fiscal concessions for research have come into force by now, and the German Federal Government resolved on the targets and guidelines for its bioeconomy strategy in January of this year. The dialogue platform "Industrial Bioeconomy" has also shown that it is very active. As a matter of fact, the very declaration of the "Bioeconomy Science Year" by the German Federal Government brought both the challenges as well as the opportunities to achieve a more sustainable economy into focus; and it is here that the life sciences can also make their own unique contribution.

A lack of tradition and understanding

So what is the catch? Presumably (again) in the area of financing. This may be due to the fact that there are still hardly any venture capital funds in Germany which have taken it upon themselves to specialise exclusively in life sciences and in the very cost-intensive field of medication development. Potential financiers are "put off" not only by the immensely high costs of research and development activities, which can amount to several million euros before a new medication can be successfully introduced into the market. This is

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also exacerbated by the long development periods and the high risk of failure. Nevertheless, this area remains a dynamic one. For instance, the red, pharmaceutical aspect of biotechnology is not limited to the improvement of effectiveness of therapies in personalised medicine; the white, industrial biotechnology can be used to optimise industrial processes; green biotechnology can be leveraged to adapt agriculture to the new conditions created by climate change. In this context, the sequencing and the editing of human genome are seen as the greatest advancements in the field. Other trends can be observed in the fields of analytics, diagnostics and cancer treatments. Through the increasing level of digitalisation and the use of artificial intelligence, whole industry sectors are beginning to meld together, which creates new opportunities. But due to Germany's slow progress towards digitalisation in comparison to other countries they will not be discussed here further.

Germany has so far failed to establish a tradition (and probably also an understanding) of investing in life sciences. This popular opinion has also branded pharmaceutical companies as "greedy swindlers", even though the reality is that many innovative medications now available on the market offer a treatment for illnesses previously considered incurable, such as hepatitis C. Overall, investing in pharmaceutical enterprises or biotechnology is considered to be unwisely. Another example of this from the field of plant protection is the torpedoing of the Bayer/Monsanto merger and the ban on the use of glyphosate, a substance classified as non-harmful for humans by numerous EU institutions. One exception to this did emerge a few years ago as a sort of by-product of digitalisation, when fitness apps and other aids and devices for electronic medicine suddenly became attractive and viable investment options; Berlin in particular became a hot-spot for the digital health scene. The focus here was on B2C business for a long time, though. In the meantime, global players such as Amazon, Google and Apple, but also "big pharma" players such as Roche, Sanofi and others, have shown their interest in innovation from the field of digitalised medicine.

Digitalisation alone is no way to develop a new medication, and the long and cost-intensive development periods mean that, especially in the first decade of their existence, life sciences companies do not make any profits. So how can an entrepreneur be expected to start a large business that does not generate any revenue when it is founded? Ultimately, this can only work with an immense level of trust and a lot of capital from specialised investors. The wheels and structures of the great, big financial world are slow and cumbersome, especially when compared to the smaller venture scene. Established FOFs can provide some help here, and the fact that larger investors, such as the KfW banking group, but also some insurers, have once again started to act as fund investors and thus invest more in growth sectors like life sciences indirectly, is to be seen as major progress. Health insurance companies are also showing increasing interest in life sciences innovations, providing start-ups with help and support, and not only to get them through the arduous bureaucracy of approval procedures. But the call for more institutional investors in life sciences refuses to fade away. For example, it has long been called for enabling insurers to invest in riskintensive assets like venture capital at a certain percentage rate. Specialised FOFs could provide an added incentive for such investors, as the limited scope of a venture capital fund may represent an obstacle for institutional investors. It is indeed a step in the right direction that the European Investment Fund is now the biggest investor of most European venture funds, but this should not be the rule.

Conclusion

It is not easy to find a new, positive trend in the financing of innovative life sciences ideas year after year. The field of financing also has its long-term cycles, which themselves cannot be altered by decisions such as research requirements or bioeconomy strategies in the short term. This could also be due to something completely different, key word "corona". The stock markets are plummeting, businesses all over the world are falling victim to considerable losses in revenue. The frictions at the borders of Europe, compounded with a renewed influx of refugees, will probably also be on top of the agenda for the foreseeable future. The direct and indirect repercussions of this are, sadly, still unclear; leaving the end of this story wide open.

"We moved up our start-up with a neat idea."

We promote what's moving North Rhine-Westphalia.

Tanja Nickel and Katharina Obladen, founders of UVIS, disinfect escalator handrails with UVC light. The start-up benefits from the NRW.BANK's early stage financing, which supports entrepreneurs in North Rhine-Westphalia with a wide range of development products. Moreover, the state development bank acts as an intermediary between companies and business angels, making them the ideal partner for private investors in search of new business opportunities.



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To improve the financial ecosystem

We need "opportunity capital" to finance innovation

When it comes to key areas of innovation financing, Germany exhibits structural weaknesses. Germany does indeed offer a variety of different tools and programmes that provide direct federal or state financial support. Whether it comes in the form of tax incentives for research and development or in the form of tax-funded government grants, this support offers businesses a variety of opportunities to flourish. But small and mediums sized enterprises (SME) are burdened in particular by the lack of clarity in the government support programmes at the state, national and EU levels. Germany's venture capital market is unfortunately small, both in an international comparison and in relation to Germany's economic strength. **By Prof. Dr Dirk Honold, Oliver Schacht, Ph.D., and Dr Jan Schmidt-Brand**



he German government has therefore introduced various funding instruments in order to make Germany more attractive for venture capital investments. The measures that support the early start-up stage can, for the most part, be assessed as positive. Measures targeting the later start-up and growth stage, however, put research-intensive biotechnology companies at a disadvantage, because such companies have high capital requirements over a long period of time. What is still missing are risk-taking funding instruments that are capable of attracting larger volumes of primarily private capital for innovation financing.

From R&D to the market

The swift commercial exploitation of research findings is an important pillar of a society's innovative capacity. Breakthrough innovations must become marketable in a globally competitive time frame. New start-up companies in the United States and China, for instance, are able to successfully translate their research findings into marketable products in a significantly shorter period of time in comparison with their German counterparts. In particular when it comes to markets that are heavily regulated by the government, the barriers to market entry are high, which means higher risks for investors.

How do others do it?

Unlike in Anglo-American countries, Europe lacks for the most part a functioning innovation financing ecosystem which stems from a shortage of equity capital available for development and growth financing. The paradigm-shifting business models of companies such as Amazon, Facebook, Google and Tesla, and in the biotechnology sector Amgen, Biogen, bluebird bio, Genentech, Gilead, Kite and others, are inconceivable in the absence of large sums of private venture capital for development financing. Such companies are financed through private equity (also known as venture capital, VC) provided by investors who become partners or co-founders of the company. The only possible way to level the playing field is by creating a more favourable environment for venture capital and/or for initial public offerings (IPOs) in early stages of company development.



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BIODEUTSCHLAND Introduction

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In Germany and Europe, there is indeed a huge amount of capital and assets looking for investment possibilities.

What should we do?

In Europe, pension systems are usually financed on a pay-as-you-go basis, which means a key source of capital accumulation is missing, unlike, e.g., in the United States, where this very source of capital accumulation provides the foundation for a very productive venture capital financing ecosystem. Such an ecosystem involves traditional venture capital in the early stage and institutional investors that invest in innovative development through listed companies. These forms of financing open up the possibility for active VC investors to recoup their investment and make a profit through cross-over rounds into early-stage IPOs, and enable growth companies to be financed through the stock market up to market readiness or market penetration. In Germany and Europe there is indeed a huge amount of capital and assets looking for investment possibilities, e.g. insurers, pension funds and private individuals. They all could contribute to innovative capacity by providing substantial inflows of capital.

Provide incentives to invest in VC

Government support is needed in order to make private investment in venture capital more attractive. Suitable measures could, for example, convert private assets

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Government support is needed in order to make private investment in venture capital more attractive. into venture capital. The financial assets of private households totalled almost EUR 6 trillion at the end of the first quarter of 2018. One possible approach could be to establish a legal framework for German/European capital-collecting institutions to invest in venture capital. This relates both to investments in private companies via VC funds and investments in listed companies by institutional investors. In the post-2008 era, however, funds are in many cases prohibited from investing in such classes of venture capital. Another option is the introduction of tax incentives, especially ones that allow private investors to offset capital losses against other income or to exempt future profits when they invest in the VC asset class. Such incentives should apply to both the VC segment (pre-IPO) and investment via the stock market (development and growth financing). In addition, the "INVEST - Venture Capital Grant" programme should be expanded to create more incentives for VC investment.

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If we want the German biotech sector to stay internationally competitive, we urgently need to revitalise and reshape the financial ecosystem.

Create "capital-accumulating institutions"

Besides incentives to invest in venture capital, which we prefer to call "opportunity capital" (to counteract the emphasis on risk implied by the more traditional term), suitable capital-accumulating institutions should be created. The core idea is that the high level of economic cash flow in Germany is utilised to shape – and thus safeguard – the future. It will be implemented to support young, innovative companies through the following models: Innovation Norway (income from natural gas and oil sales), Australia's Future Fund (accumulation of trade surpluses), US health insurance companies, CalPERS in California (the pension fund of the state's public employees, which manages USD 300–400 billion), TIAA (US pension fund for teachers and professors), Swiss Entrepreneurs Foundation (foundation supporting young companies) and the Dansk Vækstkapital fund in Denmark.

Alongside the size of the fund and the generated risk reducing diversification, it would be possible to provide government support or guarantees like those seen in the Danish fund model in order to provide market participants with a better tie-in with previous structures.

Establishment of a "Germany/ Europe Future Fund"

A third and important approach is the establishment of a "Germany/Europe Future Fund" as a third pillar of pension provision. In order to supplement the payas-you-go system consisting of employee and employer contributions as well as the low-yielding second pillar of self-provision (based on contributions to the Riester pension scheme and similar instruments), a third pillar with a stronger orientation to capital markets could be established. The aim would be to pool assets from voluntary employer/employee-financed programmes in an innovation fund that invests in a broad range of new technology areas, either by taking a private equity stake in start-up companies or by investing in the development and growth financing of mature listed companies. It would, for example, be conceivable to place occupational pension schemes on an even broader basis and allow them to make such investments. An appropriate diversification in different sectors and companies would ensure a sound risk versus opportunity profile. Such a possibility has already been realised in the United States by pension funds for public employees and other groups.

If we want the German biotech sector to stay internationally competitive, we urgently need to revitalise and reshape the financial ecosystem. This will only work if we manage to provide more venture capital. In order to do so, we propose to make new sources of funds available. Otherwise, government support (and tax money) are wasted if promising start-ups financed with subsidies go elsewhere to grow and thrive.

A gap with causes

German life science companies must raise more money abroad

The fact that Germany's life science industry is doing very well in European comparison is due to a few big deals. The latest venture capital research by FCF Life Sciences shows a much different and quite disillusioning picture. **By Dr Mathias Schott and Sebastian Sommer**



Source: PitchBook as of 14.01.2020, FCF Equity Research

o doubt, life science is currently booming: 2019 has been the best year for European venture capital funding for the past two decades with a total deal volume of EUR 3.3 billion, and the number of deals has never been higher.

The upward trend's continuity is particularly remarkable: Apart from a correction in 2017, the deal volume has steadily increased every year since 2011. Moreover, the funding volumes of the past eight years have all been above the average of EUR 1.29 billion of the last nineteen years.

Germany's special driver

The analysis from a regional perspective provides more insight regarding the source of the growth. At EUR 4.4 billion, UK life science companies account, by far, for the largest share of European deal volumes over the last five years. Despite a remarkable increase in the number of UK deals in recent years, the funding volume has decreased at the same time, indicating that investors are increasingly targeting British seedand early-stage companies with a more attractive risk-return profile.

Germany tells a different story. Europe's biggest economy has recorded a total deal volume of EUR 1.5 billion over the past five years, a third of the volume that UK life science companies have raised. A closer look reveals that two deals from the Mainz-based oncology specialist BioNTech – with an aggregated deal volume of approx. EUR 500 million – account for a third of Germany's life science deal volume, making it a special driver for Germany. In five years, Germany was not able to achieve the same level of deal activity as the UK in 2019 alone.

A different picture without BioNTech

As positive as this may be – without the EUR 288 million BioNTech deal in 2019, a different picture of the German life science sector emerges: Germany's share in total deal volumes would drop from 20% to 7%; the average deal volumes would decrease from EUR 28.4 million to EUR 9.7 million. At the same time, not a single German deal

would be ranked among the top ten, while UK and Switzerland each have three such deals and even smaller economies such as the Netherlands have at least one.

The shortage of life science funding in Germany is further illustrated by the fact that a deal volume of EUR 10 million would have already been sufficient to reach the top ten ranking in 2019.

However, the fact that BioNTech's success story puts the German life science market in good light in an international comparison should not be disregarded. As early as 2018, a BioNTech deal worth EUR 222 million had already brought Germany up in the rankings as the top deal. BioNTech is a special driver for Germany but distorts the picture to some extent.

USA far ahead

An analysis of the fundraising activity in Europe might reveal first symptoms of the problem. It is true that European life science investors have been able to increase their fundraising activities and raise about 60% more capital in 2019 (EUR 3.9 billion) than in 2018 (EUR 2.4 billion) –



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a trend that is in line with the increase in European deals and volumes.

However, there is still a considerable amount of catching up to do compared to the USA. US funds are more active and have been able to collect significantly more money than in previous years, also recording a new high in 2019 with EUR 13.8 billion raised.

Europe, and Germany in particular, appear more hesitant compared to the USA: German investors accounted for just 10% of fundraising in Europe over the past five years. US investors, on the other hand, raised four times more than their European counterparts during this period and 35 times more than German investors. The specific funds and drivers behind the European vintage 2019 funds may only be impressive at first glance. After all, the top five of these funds raised a total of EUR 2.2 billion out of around EUR 3.9 billion. Moreover, six of the ten largest funds raised in 2019 originate from the UK and France; Germany - with Wellington Partners and a volume of EUR 210 million - ranks at the 7th place.

In line with the fundraising activities, the most active investor hubs also originate from the UK (London, Cambridge and Oxford) and France (Paris) while German hubs are not represented in the top ten. Munich only ranks at 11th place with



Source: PitchBook as of 14.01.2020, FCF Equity Research

approximately EUR 108 million invested in 2019. Again, the comparison with the USA is illuminating: In the USA, the fund volumes of the top five vintage 2019 funds are significantly higher (EUR 5.4 billion), the investors collect around three times as much as their European counterparts. An era of funds of more than "one billion US dollars" has long since begun.

Europe's dependency on the USA

Analysing the origin of VC investments shows that in recent years, significantly more capital has come from foreign investors. In 2019, the share of such "cross-border volumes" amounted to 63% in Europe, underpinning the fact that life science companies are simply becoming increasingly dependent

on foreign capital. Especially in later rounds – in which funding requirements become larger –, cross-border investors have become increasingly

> important in European deals. Within Europe, the UK and France are setting the tone as the major crossborder investors. In 2019, Germany ranked second in Europe thanks to Fresenius' EUR 60 million Unicyte deal. Not counting this deal, however, Germany falls behind as in the previous years. In short, Germany is not a relevant cross-border investor and plays only a minor role within Europe.

The biggest and unchallenged contributor, however, is the USA

With EUR 683 million invested capital in 2019, the US leads the top ten ranking. Throughout the last five

Fig. 3: European Biotechnology & Pharmaceuticals Analysis in 2019 by Country excl. BioNTech Deals

All Countries – Average Deal Volumes in 2019 by country



Source: PitchBook as of 14.01.2020, FCF Equity Research

years, US investors were responsible for around 50% of the cross-border volumes in the top ten ranking in each year. In other words, the European life science industry is heavily dependent on US investors.

Within Germany, a weak home bias of German investors is a major cause of the problem. While British and French life science companies have drawn 50% to 60% of the capital raised from domestic investors in the last five years, 66% to 84% of the invested capital was put in domestic companies by British and French investors in this period. Such home-biased investment activities support the domestic market.

In contrast, German life science companies have only obtained 25% of the capital raised over the last five years from domestic investors, and only 54% of the invested capital was put in domestic companies by German investors during this period.

It is a paradox that is causing problems for the life science sector in Germany: German investors invest more abroad than the UK and France; at the same time, German companies must raise more money abroad, and most likely in the USA.

Start-ups and corporate partners

A relationship of hope and challenge

According to a recently published study by Wayra, the accelerator programme set up by Telefónica, major corporations founded 264 new venture capital businesses in 2018. This leads to the clear conclusion that corporations are increasingly turning to start-ups to boost their innovation capabilities. They are increasingly setting up accelerator-like structures which assist external projects with know-how, financing and infrastructure. They can be found in all sectors with varying set-ups. But, they have one thing in common: enthusiasm for start-ups, their innovative strength, culture and agility. **By Dr Anke Caßing and Dr Martin Pfister**



marketing support to young entrepreneurs. Even though corporations have a hugely successful sales organisation at their disposal, their sales approaches are often not intended to bring disruptive products to the market. Early adaptors must be addressed, and customers need to be supported in establishing new applications. Customers of large corporations



Source: HTGF

t High-Tech Gründerfonds, we are seeing the increasing interest of corporations in the start-up scene, too. The third fund has attracted investments from 32 corporations (LPs). Some of these have their own corporate venture capital (CVC) arm, whilst the startup activities of others originate from the top management or are coordinated by BD. In addition, we are seeing a multitude of collaborations, licensing agreements, investments and M&A. All have huge potential. However, where two cultures meet, there will be different expectations and misunderstandings.

A big corporation – truly your best customer?

Many start-ups see a customer-supplier relationship with an established business

as their proof of market, especially when it offers recurring revenues. However, according to the Wayra study, start-up founders are often disappointed by large corporations. Although no specific reasons are given, experience has shown that culprits are long decision-making processes or unpaid preliminary qualification studies. For the start-up, the corporation might look like a black box once a product offer is sent in; when and which feedback will be given is hard to predict. To ensure its chances, the start-up needs to have a product champion in the corporation driving the decision process and turning successfully tested products into something purchased regularly.

According to the Wayra study, corporate investors also fall short of expectations when it comes to the sales and

ABOUT THE AUTHORS

Dr Anke Caßing holds a doctorate in biology and studied economics. Before becoming an investment manager, she developed the product portfolios of international life science companies, ensuring their future growth. At **High-Tech Gründerfonds**, she is responsible for ten early-stage investments in biotech and medical technology.

Dr Martin Pfister studied medicine and pharmacy at the University of Greifswald and New York University and received his Ph.D. in immunology at the University of Leipzig. Dr Pfister is co-founder of two successful start-ups in the field of diagnostics and market intelligence (exit 2018). He manages a portfolio of twelve biotech, medtech and digital health companies at **High-Tech Gründerfonds** and is a member of the board in three growth companies. expect free product trials, which start-ups would not need to give. This fact can reduce initial start-up revenues substantially.

However, we see that start-ups benefit significantly when it comes to joint developments (R&D), production and process optimisation. What is happening in the mid-cap sector is also interesting: more and more companies, not normally familiar with the start-up ecosystem, are opening up. Lean decision-making processes often make up for any lack of dedicated structures, such as a venture capital team. In this setting, everything must work out: supporting potential start-up partners is often closely tied to their own target markets, and their enthusiasm quickly disappears when they are confronted with too many uncertainties.

Investments by corporations – a "bear hug"?

Recent developments in the corporate venture arena have resulted in more funds in fund investments and more money flowing directly into start-ups with many corporations investing early in the start-up's life cycle. With their specific internal know-how, they are more confident than a financial investor that certain risks will be resolved in due time. These early investments are highly welcome because they help to bridge the early valley of death which many start-ups face. However, early investments also require many years of patience until the returns materialise.

German companies are particularly active: according to the Wayra study, about one quarter of all European deals involved German corporations. In High-Tech Gründerfonds' portfolio, our industry LPs have participated in 141 financing rounds, while overall, we have seen 1,500 follow-up financing rounds (cf. graph). There typically is a strategic element in CVC investments. This is usually taken care of by the corporate venture worker securing internal commitment before pursuing the potential investment any further. That can be advantageous - as long as the CVC acts like a "financial" investor, which is the case more and more often. Winning over a major corporate partner is great for the reputation of a start-up. Nevertheless, institutional VCs take a critical view on specific rights for strategic investors. They may not restrict flexibility in the exit process. For instance, there should be no specific one-sided veto rights. Any right of first refusal should be limited with a tight temporal element allowing the start-up to explore alternative options. Call options already negotiated with the corporate investment should include a drag-along clause requiring the strategic investor to sell their stake with no strings attached when sums are offered that significantly exceed the amount agreed for the call option.

The opinions expressed here are those of an investor and based on the HTGF portfolio. What is true for good management is even more important for any exchange between start-ups and major corporations: open and frank exchange about expectations, and aligning all parties with the common ultimate goal: the exit.

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"The IPO took BioNTech onto the international stage"

Interview with Dr Sierk Pötting, BioNTech SE, and Michael Motschmann, MIG Verwaltungs AG

BioNTech was essentially founded on a "green field" in 2008, with an initial investment of about EUR 150 million. Following two further rounds of financing in 2018 and 2019 and a successful IPO at the Nasdaq in October 2019, the company currently reports a market capitalisation of about EUR 8 billion. By the end of 2019, BioNTech employed 1,300 people.



Dr Sierk Pötting (le.): "The IPO was a logical consequence of our capital needs."

Plattform Life Sciences: Your declared goal is individualising cancer treatment. How far have you come?

Pötting: By now, ten of our 20 product candidates are at the clinical trial stage. The next target is moving the first product candidate into phase III this year. We are making good progress.

Can you remember your first steps in 2008? Would you be able to outline where the idea BioNTech came from and what the first steps were?

Motschmann: We had met the researcher couple Ugur Sahin and Özlem Türeci earlier in 2006 during the financing for Ganymed. After the Strüngmann family office and the MIG funds were invested in Ganymed, we continued talks with Ugur Sahin about other business and product ideas. A presentation by Ugur Sahin, now CEO, on innovative technology and platform approaches in oncology given to the Strüngmann family was the starting shot for the founding of the BioNTech AG. Based on a business plan, Thomas and Andreas Strüngmann, together with the MIG funds, provided the company with a 90:10 ratio of an initial financing of EUR 150 million. The underlying condition was the introduction of, amongst other things, technologies and patents in coordination with university partners.

How did you come to join the company, Dr Pötting?

Pötting: I met Ugur Sahin in 2007, before the company was founded, and he asked if I would like to become the CEO of the company he was intending to found. However, even though my heart really is in such projects, I was still looking to expand my personal toolbox at that time. I am a physicist, I was working for McKinsey, and my last project there was the Hexal-Sandoz merger in 2005. Afterwards, I worked for Sandoz-Novartis in Holzkirchen and the USA. In 2013, the chairman of the BioNTech supervisory board, Helmut Jeggle, contacted me again. The timing was right and I accepted immediately. At that time, BioNTech had about 320 employees.

What can entrepreneurs learn from BioNTech's success story?

Motschmann: The success of BioNTech is based on a mixture of organic knowledge and buy-and-build. We took the opportunity to acquire parts of the company that were available at the right time which we would otherwise have had to develop. For example, we acquired EUFETS GmbH located in Idar-Oberstein in 2009, allowing us to engage in in-house production. Furthermore, we purchased Berlin-based JPT – Jerini Peptide Technologies, which was immensely important for the diagnostics division. It is not mandatory to develop units yourself that are available at a good or even attractive price. On the



ABOUT THE INTERVIEWEES

Dr Sierk Pötting has been Chief Financial Officer (CFO) of **BioNTech SE** since 2014. **Michael Motschmann** has been a member of the supervisory board of BioNTech SE since 2008 and is a board member of **MIG Verwaltungs AG** that has been investing into BioNTech through the MIG funds 7, 8, and 9 since 2008. other hand, this requires a certain amount of financial backing that many young companies do not have.

Pötting: We had a visionary founder with an incredibly long-term strategic plan. Thanks to his experience with Ganymed, he knew that he would need an investor with long-lasting intentions for his new project. He created this basis with the family office Strüngmann and the MIG funds. He had confidence in his plan and initiated the right steps and acquisitions at the right time.

Motschmann: Moreover, Helmut Jeggle from the family office Strüngmann considerably contributed his know-how and vast network to the strategy at a very early stage. He was chairman of the supervisory board from the first day on and is also a founding investor. His contributions to the strategy were significant, and he was always available as a sparring partner for the team. The company developed a clear financial plan. Even though EUR 150 million is a large amount of money, it will run out eventually. One of the important decisions was finding the right partners at the right time.

How difficult was it to find partners being a relatively unknown company?

Pötting: When our platforms had reached a certain level of maturity in 2014, the search for partners started. Prior to that, we were in somewhat of a "stealth mode". We did not have a website, and occasionally sent out a press release, after an acquisition for example. We closed the first collaboration deal - a TCR Discovery programme - with Eli Lilly in 2014. That was our break-through. Shortly after, we started a collaboration with Genmab for bi-specific antibodies, and in the same year with Sanofi for messenger RNA. The largest platform deal was the one with Genentech in 2016 for just over EUR 300 million. With the exception of Eli Lilly, all these co-operations were cost sharing/profit sharing deals, i.e. not licence agreements, and almost all of them were 50/50 deals. We definitely wanted to remain an equal partner because we believed in our technology - and that has not changed. Our collaborators in the pharmaceutical industry are assisting us in clinical development - they are true partnerships. There are, however, many more product candidates that we develop independently.



How far open were the doors of investors in 2016? Some of the deals were tickets worth a three-figure million amount, were they not?

Pötting: The stepping stone was the Genentech partnering deal. It made us part of the right league and we became more visible on the US market. After that, we were in-demand and the challenge was to convince potential investors in a series of talks, or in other words to engage in investor education and investor relations. It was especially important to new investors that the Strüngmann family remained to be clearly committed to the company. On the other hand, it was important to us that the investors had a long-term interest in advancing the products to the point at which they can be marketed, that their mind-set matched ours, and that they are productive and constructive cooperation partners.

Motschmann: We wanted to still have the option of entering the capital markets at a later stage. During the phase of contacting and managing investors, board member Sean Marett, technically co-heading Business Development, contributed considerably. All – back then three – board members really did a superb job.

What are the lessons learned for you as an initial investor and original supervisory board member?

Motschmann: In light-hearted words I would say: Make brilliant investment decisions with genius people. But it is actually not that simple. Biotechnology requires an immense amount of time and capital. That is why dreams of a visionary like Ugur Sahin can only be turned into reality with the freedom of action as a visionary investor. You can only achieve that as a team, it's impossible to do by yourself. A smaller investor, just like the MIG funds, gets the opportunity to shape the success story by becoming part of the project. But we cannot finance the company from top to bottom like a large family office can, because we neither have the necessary capital nor do our statutes allow us to invest in listed companies, for example. Moreover, we are a venture capital investor that invests into earlier, less capitalintense stages. We, Athos and MIG, once sold Ganymed as a whole as the capital requirements of later clinical development stages would have just become exorbitant.

Success is not created on a drawing board but is the result of hard work and making the correct case-related decisions. What were matters the company management and the consortium of investors always agreed on, what caused the most major discussions?

Pötting: The most decisive discussions were held in the supervisory board, the strategic body. Until three years ago, both our supervisory board and management board had three members each. We discussed growth, investor basis, strategy, and, if required, implemented decisions quickly. For example, when we discussed the purchase of a production company,

the decision was made almost immediately. We bought, restructured, and integrated the company and thus were able to treat our first own patient in our first clinical trial an estimated one or two years earlier than would have been the case if we had to use an external service provider.

Motschmann: There is no blueprint for biotech companies. The decisions that must be made are highly individualised. Everyone on the supervisory board, meaning Christoph Huber, Helmut Jeggle, and myself, can contribute something in different areas. Dr Ulrich Wandschneider has been supplementing the supervisory board for three years now.

Pötting: Many questions arise for the first time. For example, in our case it was the filling of vaccines. Needless to say, we are talking to all large bottle filling companies, but if you are talking about quantities of 20 millilitres, 90% of suppliers are ruled out. These may seem like trivial and already answered questions, but you need to address these again if you are looking to introduce entirely new treatment approaches to the market.

Looking back, what were the most important milestones for the company?

Motschmann: There is, of course, the seed financing of EUR 150 million, giving us the security and peace of mind to develop a company under the radar and to appear once you are able to satisfy expectations. Further milestones were the early vertical strategy, scientific validation through partnerships, and the first Nature publication. Those were followed by BioNTech signing seven collaboration agreements with big pharma, a series A round and an IPO. And in each clinical study, the first patient is always a major milestone.



The IPO in the USA took place in autumn 2019. How satisfied have you been with share price developments since then?

Pötting: The IPO was a logical consequence of our capital needs. Eleven studies and ten product candidates in clinical trials create an immense need for capital. The IPO in the USA brought BioNTech onto the international stage and significantly increased our brand awareness. **Motschmann:** The market dictates the

share prices, and is to be assessed by analysts. We are satisfied with the direction the company is heading. But it certainly is special to see a company listed on the market at this evaluation, eleven years after it was founded. This is also true for Germany as a business location, as we not only have our headquarters in Mainz, but also sites in Munich, Idar-Oberstein, Berlin, and now also in Halle. Additionally, we have a small office in San Diego.



Met for a stimulating discussion: Karin Hofelich (GoingPublic Media AG), Michael Motschmann (MIG Verwaltungs AG), Dr Sierk Pötting (BioNTech SE) and Mathias Renz (GoingPublic Media AG).

How have investors of the MIG funds been benefiting from the success of BioNTech so far?

Motschmann: By having a high increase in value of our investments! For us, BioNTech is a great success story. There is hardly anything comparable in the financing of European biotechs. It is my task as member of the supervisory board to serve the shareholders and to support the development of the company. The decisions as to when investors will benefit from MIG funds are made by other people within MIG AG at a later point. I assume that some investors of the MIG funds have also invested into other companies via the stock market on the back of the enthusiasm for the company and its vision.

The share price has more than doubled since the IPO. What further potential is there for investors?

Motschmann: We definitely have to refer you to analysts at this point. We cannot and must not comment on share prices. But I can tell you that we continue to believe in the company and the enormous potential it has. I am convinced that BioNTech has the potential to become a leading company in the oncology sector.

Dr Pötting, Mr Motschmann, thank you for the interesting interview.

The interview was conducted by Mathias Renz.



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Start-ups at the analytica 2020: See and be seen

Innovative life sciences start-ups ready to present their new developments at the analytica trade fair taking place from 19 to 22 October 2020 in Munich

For start-ups, the contact to customers, other manufacturers or investors can be equated to their life's blood. Trade fairs are a particularly good way to build up and maintain a vital business contact network. The analytica trade fair gives young companies from the fields of medical technology, analytics, software and biotechnology an opportunity to present themselves in the framework of its "start-up hour", set up by GoingPublic Media AG. **By Susanne Grödl**



S tart-ups often use trade fairs as a marketing instrument. Young entrepreneurs use them to enter the market and make important contacts. Despite modern connectivity and media,

START-UP HOUR TIMES AT THE ANALYTICA, BIOTECH FORUM, IN HALL A3: Tuesday, 20 October,

from 3 p.m. to 4 p.m. **Wednesday**, 21 October, from 1 p.m. to 2 p.m. **Thursday**, 22 October, from 1:05 p.m. to 2:05 p.m. You can find more information at www.analytica.de/en/supporting-program/ focus-days-events/finance-days/ establishing long-lasting connections and creating trust still requires face-to-face interaction. This also applies to analytica, the world's leading trade fair for laboratory technology, analysis and biotechnology, which will take place from Monday, 19 October to Thursday, 22 October at the Munich Fair Grounds. The fair offers young companies a chance to present their specific products, services and applications to a broad and international specialised audience. This gathering of the biggest names and brightest minds in the industry ensures that these start-ups do not waste their efforts on idle chatter.

Many experts taking part in trade fairs do not only look for established and familiar companies, but also consciously look for personal contact with new, hitherto unkown business ideas and especially the people behind them. Quite often, start-ups have a completely different and more visionary way of tackling current problems, which can also help mediumsized enterprises or even huge corporations to overcome their own innovation deficits. Especially the larger corporations are always interested in innovative solutions they could combine with their product portfolio.

It is not unusual for long-standing, fruitful and also strategic partnerships to have started from a simple handshake at a trade fair. The chance to acquire patents is another reason for established companies



ABOUT THE AUTHOR

Susanne Grödl is project manager of the analytica trade fairs at **Messe München GmbH**. In this position, she is responsible for the leading international trade fair analytica in Munich and the leading regional trade fairs in China, India, Vietnam and South Africa. and corporations to spot and compete for the favour of start-ups at trade fairs.

Start-ups present the breadth of life sciences

16 founders of young companies offering very different product portfolios have already registered for the start-up area at analytica 2020. Most of them are going to present digital solutions dealing with software development. Further technologies presented include sensor and measuring technology as well as robotics and quick testing. The companies participating in the event are: Atriva Therapeutics, CamSens, certus molecular diagnostic, Enformatic Systems, EpiQMAx, FAccTs, Flow Robotics, INCYTON, Instant NanoBiosensors, Interherence, KML Vision, Lapstep, Lumatix Biotech, LumiSep, neXcube and VisionHealth.

These start-ups will have space to set up small booths at the trade fair, as well as the opportunity to present their solutions in their own demo-points. Here they can either give presentations on screens or bring along physical exhibits for trade visitors. Every start-up exhibiting will get the chance to present its own specific products, applications and ideas to investors, to capture their imagination and to make that first, vital contact.

Finance Days put companies and investors under one roof

The Finance Days organised by GoingPublic Media AG are a forum for discussing various current trends in financing life science start-ups. Investors give short, introductory talks as well as keynote lec-



tures and take part in panel discussions. As financing medtech or biotech start-ups is always one of the major barriers to develop and launch an innovative agent or technology to the market, this format might help to get connected.

Following the "kick-off" session on the second day of analytica (Tuesday), keynotes alternate with various panels and round-table discussions, featuring prominent representatives from industry on Wednesday and Thursday. Highlighted topics will include:

- "Venture capital & co.: Current financing trends in the biotechnology sector"
- "Pharma and biotech: New financing models for life sciences companies in their early days"
- "The stock exchange and IPOs a piece of cake?"
- "China Opportunities and challenges for life sciences companies"



In addition, on all three days young companies can present themselves and give an elevator pitch in a so called "start-up hour". Within ten-minute time slots, the selected start-ups can present their products and portfolios - in an as concise and memorable way as possible - to convey their most important unique selling points to the audience. GoingPublic, with the help of a distinguished jury, will then choose the best start-ups and award them with a "seal of approval" as a testament to their excellence. The events of Wednesday will conclude with a networking reception to take place in the evening.

Advantages for investors

Not only life science investors, but also investors from other, adjacent industry segments, such as high-tech, mechanical engineering or IT, have been benefiting from this event over the last years. It's a great opportunity to get to know new and innovative start-ups without time-consuming and needless discussions with a focus on the essentials. The organisers of the event have made an effort to consciously promote the personal contact and exchange between companies and investors. The start-up hour will take place every day starting Tuesday. It will give investors an additional overview and opportunity to make comparisons among the young companies presenting their portfolios in elevator pitches. If desired, the investors will also have the opportunity to have more intensive one-onone talks.

Portrait of the investor: Bayern Kapital GmbH

An interview with Andreas Huber, Senior Investment Manager at Bayern Kapital



Plattform Life Sciences: Who is Bayern Kapital and what companies does the firm finance?

Huber: Bayern Kapital is a public venture capital company founded by the Free State of Bavaria in 1995. As a typical co-investor, Bayern Kapital - in association with additional partners - invests in young, innovative (R&D-focused) high-tech companies and start-ups in Bavaria. This means that we have a geographical rather than a technological focus, even though most of our portfolio consists of IT, internet and software as well life science companies (including medtech). Since the foundation of Bayern Kapital, we have invested over EUR 300 million in more than 270 companies. Currently, Bayern Kapital manages more than EUR 385 million. Of the more than 70 companies in our portfolio, one third are life science start-ups.

Regarding life science and biotechnology: On which trends should investors be keeping their eyes in the current market situation? Currently, one of the most interesting areas is digitalisation because it affects almost every aspect of the economy and every industry, including life science and healthcare. This could also usher in some disruptive trends, e.g. artificial intelligence (AI). Generally speaking, the digitalisation of the whole healthcare system is urgently required, but this comes with many challenges. These can be, among others, in data security, data privacy and reimbursement. For this, regulatory initiatives like the DVG (Digitales Versorgungsgesetz) could prove to be a positive stimulus. Furthermore, we are seeing breakthroughs in cell and gene therapies (caused by new vectors, new CRISPR-variants, etc.) and in immunoncology (as seen with Kymriah). Pharmaceutical companies, for their part, are more focused on orphan drugs, but even oldschool technologies like radiopharmaceuticals are also experiencing a renaissance of sorts. We also expect a rising demand for anti-infectives, vaccines, particularly in the context of COVID-19/ Coronavirus, and antibiotics. In the medtech field, robotics and 3D printing are further examples of interesting areas.

To put the question differently: What hopes did not materialise?

Among many others, the area of neurodegenerative diseases, especially Alzheimer's disease, has seen a lot of failures, despite increasing demand. But as you can see with the example of gene therapies, after a long period of stagnation there is now a revival of interest.

Bayern Kapital mainly finances young companies. How have the founders developed in the past years with regard to market knowledge, management skills, etc.?

We see a clear improvement. Nowadays, teams are more complementary in their skills; the business plans are more professional, there is more focus on the business case. However, there are still the occasional "techie team" out there, for whom the aspect of commercialisation remains a



ABOUT THE INTERVIEWEE

Andreas Huber is Scientific Director Life Science and Senior Investment Manager at **Bayern Kapital**. His background is in biology, which he studied at the Technical University of Munich (TUM) and the Ludwig Maximilian University of Munich (LMU). Additionally, he obtained a degree in Business Administration and Economics. Prior to joining Bayern Kapital he worked as an analyst for a Munich-based venture capital company and as business development manager with a medtech software start-up. challenge. Bayern Kapital tries to connect these teams with coaches or experts in the field to address these deficits.

With what investors does Bayern Kapital collaborate on a regular basis and how have financing rounds changed in the past years? Has, for example, the collaboration with family offices, corporate VCs or foreign investors intensified?

As a public investor, Bayern Kapital works with many kinds of financial investors: VCs, business angels, family offices and sometimes also CVCs, as long as they are reputable as well as experienced in investing in start-ups and provided that they have enough "firepower" to go through several financing rounds. As a typical co-investor, Bayern Kapital always cooperates with a matching private investor (also within the framework of a larger consortium). An extensive network and good cooperation are key elements of our business, though Bayern Kapital is in itself an independent entity and makes decisions accordingly.

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Could you please give two examples for successful investments from recent years? Examples from different LS segments would be also welcomed.

advanceCor, a drug developer in the field of cardiovascular diseases, has successfully completed a clinical phase II trial. The founders are serial entrepreneurs and were successful with their previous project. Immunic, a drug developer for autoimmune diseases, is listed on Nasdaq. Some of their compounds are already in (advanced) clinical development stages. In the area of digitalisation: Cunesoft, a document management software developer for regulatory and approval processes in the pharmaceutical sector, has been sold with a high ROI to a major software development company. Molecular diagnostics developer GNA Biosolutions successfully closed a EUR 13.5 million financing round involving US investors.

How can start-ups looking for capital best capture your attention? Would sending you a business plan by post be enough?

At Bayern Kapital, we do this rather pragmatically. Just send us – preferably by e-mail – a current, informative business plan with detailed financial planning. Do not forget to answer the question "How much money is needed for what?"

Mr Huber, thank you for your time and the lovely talk!

The interview was conducted by Holger Garbs.

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Common basic values and renewal

Portrait of the investor: Andera Partners

Being the successor of Edmond de Rothschild Investment Partners, Andera Partners has been investing in life science companies in Europe and the USA since 2001. The management team combines the fascination for science, medicine, entrepreneurship and economic feasibility. **By Holger Garbs**

ndera Partners has its origins in the private equity and venture capital company Edmond de Rothschild Investment Partners, founded in 2001. As part of a management buyout (MBO), the management team of the firm took over the shares of the majority shareholder, Edmond de Rothschild group, in April 2018, simultaneously renaming the company "Andera Partners". The initial letters "And" stand for common basic values and coordination, and the end letters "era" for renewal. Andera Partners currently manages more than EUR 2 billion in the field of life science (BioDiscovery), growth capital (Winch Capital for mid caps and Cabestan Capital for small caps) and mezzanine capital (ActoMezz), the latter three groups investing agnostically in all industry sectors in EU French-speaking countries.

BioDiscovery is completely life science focused in the EU and US, and their funds are managed by a team of twelve investment professionals, including economists, finance experts, scientists, and medical doctors, all with relevant and deep industry experience. When building the team, great attention was given to the international background of the individual members, as life science is an international business. In total, the Andera Partners' BioDiscovery funds have so far invested in 74 compa-

SHORT PROFILE OF ANDERA PARTNERS Established: 2001 Head office: Paris

Investment focus BioDiscovery: Early-

stage and later-stage financing in biotechnology and medical technology in Europe and the US

Total number of past and current BioDiscovery portfolio companies: 74 Internet: www.anderapartners.com nies. 18 companies were accompanied to an IPO; 18 went through a transaction with strategic partners. 33 companies are currently active in the BioDiscovery portfolio.

The BioDiscovery funds family is led by four partners, one of whom is Olivier Litzka. Before joining the VC industry in 2000, he worked as a molecular biologist and in a consulting firm. "With Andera Partners, we have created a platform our investors can feel comfortable with to invest their money. Life sciences are seen by them as a very interesting but also complicated field. It is all the more important to create and maintain mutual trust, and demonstrate that this is a 'financeable sector' which can generate returns for them on a regular basis."

Along the entire preclinical and clinical phases

Andera invests two thirds of its money in biotech companies and one third in medical technology companies. An investment generally requires a proof of concept of the drug candidate or device prototype in an animal model. This enables series A to series C financings and results either in an IPO or a trade sale of the respective portfolio companies. "We can accompany start-ups through the pre-clinical and clinical development phases up to proof of concept in humans, sometimes well beyond", explains Olivier Litzka. The Andera Partners' BioDiscovery funds invest both in Europe and the USA. "Besides our main focus on Europe, we also invest in US companies because a) there are interesting investment opportunities, and b) we benefit from our network of US VCs and crossover investors who in turn invest in our European portfolio companies and provide us with excellent access to the Nasdaq stock exchange", emphasises Litzka.



New fund in fundraising

Andera is currently investing from its EUR 344 million BioDiscovery 5 fund. The Bio-Discovery 5 portfolio, with 20 investments made, is nearly built in the meantime. But the team has kept a significant amount of cash reserves from this fund for the investee companies. "We are currently fundraising for our next fund", says Litzka. Accordingly, the new fund is planned to reach a volume of EUR 400 million to 500 million. "The recent large fundraisings all over Europe reflect the validation of the life science market of the past ten years", says Litzka. "There have been many innovations and many positive changes for patients coming out of the biotech and medtech space, for example drugs in the area of cancer therapy, anti-viral therapies, or orphan diseases but also devices to treat heart valve diseases and chronic conditions." For its future investments, the BioDiscovery team will follow important investment trends when deciding on a commitment but will also look at the whole range of indications with high medical need.

Andera Partners is headquartered in Paris and the whole team is located there. However, given the importance of the German life sciences market, a presence in Germany is currently under consideration.





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Building bridges

German biotech start-ups' quest for success

The German biotech start-up ecosystem benefits from strong and well-funded academic research and substantial technical know-how. Seed capital is generally available but once start-ups are ready to grow, funding opportunities are harder to come by. With these limitations in sight, German entrepreneurs often turn towards the US, yet need to be aware of challenges and address them head-on. **By Stefan B. Beerhalter and Charlie Cameron**



hen looking at VC financing trends, it may seem that overall funding for German biotech start-ups has grown – but a closer look at the numbers reveals that this "growth" is a result of very few companies' big fundraising rounds¹. While seed funding is available, start-ups often struggle with securing larger follow-on rounds from German or European investors. Without access to significant capital, these start-ups cannot grow and compete on a global level; therefore, many start-ups look for alternative funding sources and oftentimes turn to the US.

Should German biotechs turn to US investors?

There are good reasons to tap into US capital. Not only is the mindset more risk-

tolerant, there are also more specialised biotech investors who are well-equipped to assess the risks and identify potential value. Most importantly, VC funds in the US tend to be bigger and can provide larger follow-on rounds.

Another advantage is that US investors provide more than just financial resources. They also support portfolio companies with access to their industry networks, help with recruiting top talent, and provide valuable strategic advice. It is therefore not surprising that VCs and angel investors are the primary source of funding for approx. 50% of US biotech start-ups² and that specialised US biotech VCs are the main investors in global Series A and B rounds (-40%)³.

What are the challenges?

However, it can be difficult for international start-ups to raise funds from US VCs. Many VCs are hesitant to invest in non-US entities and will usually require the creation of a US parent entity (topco) to mitigate risks arising from differing laws and regulations, potential currency exchange losses, and geographical distance to the CEO. Other perceived risks include a lack of thorough understanding of market rules as well as limited access to relevant stakeholders in the US In addition, US investors have access to deal-flow locally and do not have to look far for exciting investment opportunities.

Lastly, US investors are also aware of some of the challenges within the German ecosystem and tend to be concerned about company growth and viable exit scenarios. Lower M&A values and hurdles for IPOs make these investments less



ABOUT THE AUTHORS

Stefan B. Beerhalter, Vice President, **German Accelerator Life Sciences**, leads German Accelerator Life Sciences' activities in Germany. An entrepreneurial healthcare industry veteran, he has 25+ years of experience investing in and commercialising innovative technologies.

Charlie Cameron, Co-Founder HUB Angels Investment Group, has 25+ years of business development, investing, and management consulting experience in 40+ countries. He works closely with **German Accelerator Life Sciences** as mentor and advisor.

¹⁾ EY Deutscher Biotechnologie Report 2019 2) 2020 Global Startup Outlook, Silicon Valley Bank

³⁾ Bay Bridge Bio: 1H 2019 Biopharma VC & Startup Report

attractive, unless start-ups find workarounds such as creating a US topco. This "Delaware flip" provides an investible vehicle for US investors. However, German tax authorities categorize this transaction as an exit and impose a 27% tax on the valuation of the company. Most investors do not want to pay this "exit tax".

German start-ups' attractiveness to US Investors

Despite the risks and challenges, German start-ups are still appealing to US investors. Germany is known for strong basic and applied research and cutting-edge technologies. German start-ups also tend to have attractive valuations, driving a perception of these investments as potentially "good deals". Moreover, German start-ups often work on technologies outside of hot topic areas in the US, which can generate additional interest.

An example of a German success story in the US is InGeneron, a clinical stage company developing regenerative cell therapies based on the patient's own stem

"

German start-ups are still appealing to US investors.

cells with a focus on musculoskeletal conditions. In 2016/17, the company participated in German Accelerator's Cambridgebased life sciences programme to refine their go-to-market strategy with the support of the programme's expert mentors. InGeneron developed strong ties with Sanford Health, a major integrated health system, collaborating on clinical trials. When InGeneron was looking to raise their Series D in 2017, Sanford was immediately interested and provided the lion's share of the USD 20 million round, which was expanded by another USD 23 million in 2019 to advance several cell therapy programs into the clinic. Besides the strong ties to Sanford, the early creation of a US topco made this successful fundraising round possible.

Accelerating Germany's potential

Germany heavily invests in basic research, R&D, and early-stage start-ups. To further this potential, a call to the government is growing louder to change regulations to make investments more attractive and enable German VCs to raise more money, e.g. by allowing pension funds and insurance companies to invest in venture capital. A first step could be the "Zukunftsfonds", a German government initiative with a planned initial volume of EUR 1 billion, partially funded by pension funds and insurance companies, to provide more capital to German VCs . In addition, adjustments to the framework are being discussed that would make it easier and more attractive for US VCs to invest, such as removing the "exit tax".

By improving the framework and actively fostering a thriving ecosystem, Germany can further accelerate startups' success. In addition, programmes like German Accelerator can build bridges to the US and de-risk investments in German biotech start-ups for US investors.

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"China is a highly attractive field of activities for investors"

An interview with Dr Jan zur Hausen, EC Healthcare Fund



Plattform Life Sciences: Dr zur Hausen, you are currently in the process of raising a new venture fund which intends to specialise in healthcare investments in Europe and China. What's the current state of affairs?

zur Hausen: We have just started fundraising for a VC fund which is focused on investing in companies, technologies and assets in the healthcare field across Europe which are also of interest to the Chinese market. The next step will be establishing joint ventures of these portfolio companies in China which will develop the corresponding assets locally and then bring them to market. The areas we are covering in the healthcare sector include therapeutic agents, diagnostic products and medical engineering but also digital approaches. The target volume of the fund is EUR 150 million.

Why are you so optimistic that you will be able to achieve your intended target volume?

On the one hand, the interest of European healthcare companies in the Chinese market is greater than ever, and on the other hand, an awareness that massive investment in the healthcare sector is required to ensure proper healthcare for the population in the long run has been raised in China, even at a government level. The Corona virus outbreak and its handling is one sign of many that there is a fundamental need for action in this area in China. Therefore, I believe that it is a highly attractive field of activities for investors.

China is becoming increasingly interesting to investors in the healthcare sector. What's the reason for this?

Naturally, the size of the market in China with 1.4 billion citizens alone is a resounding point; in addition, there are the demographic development, the growing wealth and the dramatically increasing numbers of disease indices in recent years, such as e.g. cancer, diabetes, obesity and cardiovascular diseases, of course. Many areas such as e.g. nursing and rehabilitation are still absolutely underdeveloped in China and urgently require new structures to ensure that comprehensive healthcare can be guaranteed in the future. This problem has been recognised on a national level, and the framework conditions are being organised accordingly to get the necessary changes off the ground.

But aren't investments in China associated with very particular challenges? What are those, if we're just thinking of regulatory obstacles?

Yes, there are numerous challenges. First, EC Healthcare will invest primarily in European companies which will then expand into China. However, we consider it to be absolutely crucial to accompany these companies on a local level. In this regard, it comes into play that two of our partners of the fund are operating from China. In addition, we have the option of utilising existing networks and infrastructures since we are cooperating closely with the largest Chinese pharmaceutical company, Sinopharm Group, and the investment firm Sinopharm Capital. One of EC Healthcare's partners is the former CFO of the Sinopharm Group and current CEO of Sinopharm Capital, which enables us to leverage these historically grown relationships for the benefit of our future portfolio companies. As far as I know, we are the only investors that are able to access such existing structures in China, which is a significant competitive advantage.

On a regulatory level, the Chinese FDA has moved significantly closer to inter-



ABOUT THE INTERVIEWEE

Dr Jan zur Hausen is Partner of the **EC Healthcare Fund** focusing on investments in Europe and China. Furthermore, he is Managing Director of Bergmann zur Hausen & Cie. GmbH.

"

The Corona virus outbreak and its handling is one sign of many that there is a fundamental need for action in this healthcare area in China.

national standards in the last few years, which means that e.g. data taken from clinical studies may now also be used for approvals in other countries. A lot has happened with regard to patent law in China as well, which makes it more attractive to foreign companies to become active on a local level.

How is your situation with regard to cooperation with local partners?

Our partners in Germany and China have established networks in the Chinese government on a national, province and city level and have already successfully founded platforms on which we will set up the European companies in which we have invested. For example, they may then get fast track approvals for their company and products in China, they will receive support in recruiting human resources and will be plugged into our existing sales networks. Our team represents decades of experience in cross-border investments in Europe and China and has expert knowledge in IPOs, JVs and M&A in China and Hong Kong.

And how do you intend to identify suitable start-ups in China?

Our objective is identifying projects interesting to the Chinese market in Europe which will then settle in China with our support, i.e., we will not identify start-ups as investment objects in China. The upside of the established joint ventures will then flow into the parent companies in Europe after a successful sale or IPO in China. At the same time, we will also foster the development of the portfolio companies in Europe so that the performance of EC Healthcare will benefit from the development of the companies both in China and in Europe.

Are strategic partnerships between European or German healthcare startups and their Chinese counterparts due to your activities imaginable?

Naturally, this is one of many aspects we are considering. On the one hand, the JVs in China will benefit from the know-how of their parent companies in Europe; on the other hand, a strong integration of these companies in local networks in the form of partnerships and collaboration with Chinese counterparts is essential to allow successful execution of the projects, of course.

Dr zur Hausen, thank you for the interesting conversation.

The interview was conducted by Holger Garbs.

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Is it only about numbers?

The impact of liquidation preference clauses in exit transactions

Venture capital investment and shareholders' agreements contain a more or less standardised catalogue of provisions in terms of the distribution of economic opportunities and risks between founders and investors. Liquidation preferences are a customary part of this catalogue. However, both founders and investors tend to underestimate the specific mechanics and effects as regards the different models and characteristics of liquidation preference clauses. **By Dr Bernhard Noreisch and Jan-Phillip Kunz**



nvestors and founders usually pursue the same goal: a spectacular exit of their unicorn – founders and investors are in alignment, the higher the value, the better the exit. Given that, it would seem a surprising scenario if one or the other did not want to achieve the highest possible purchase price. This article intends to focus on interest alignment in the context of exit transactions and how different models of liquidation preferences may affect this.

Liquidation or exit preference provisions govern how (future) proceeds are to be distributed between the shareholders in a liquidation and/or exit event. The most relevant exit events are (i) the sale of the majority of the shares in the company (share deal) and (ii) the sale or licence deal regarding the majority of the company's assets (asset deal).

At first sight, liquidation preferences are especially important in cases in which a company is sold for less than the amount of capital invested by an investor (downside protection). "Last in – first out" is an undisputed principle in VC financing, and thereby, the last invested amounts will be distributed with first rank and preference over all other investments of other investors and the pro-rata distribution to all shareholders. However, going beyond the concept of downside protection, the specific structure of liquidation preference clauses has different impacts with regard to interest alignment and thereby creates surprisingly disincentivising effects.

Liquidation preference types

In a nutshell, there are two models (each with specific subtypes) that make up what is customarily referred to as liquidation preferences:

In case of a **participating liquidation preference**, the investor as holder of preferred shares has the right to first recover



ABOUT THE AUTHORS

Dr Bernhard Noreisch, LL.M., Partner, and Jan-Phillip Kunz, LL.M. are lawyers in the Munich office of LUTZ | ABEL Rechtsanwalts PartG mbB. Both are specialised in venture capital and M&A transactions and offer comprehensive legal advice to investors, start-ups and founders.



their full investment (sometimes plus minimum interest or even a multiple on the investment amount) and, in addition, participate in the pro-rata distribution of the remaining exit proceeds. This kind of liquidation preference is, of course, most favourable for the investor. In a low-return scenario, the investor protects their downside, and at a higher return, the participating liquidation preference serves as an upside kicker for them. In consequence, in no scenario will the holders of common shares be able to catch up to the investor's head start. From a founder's perspective, this feels like a double-dip and is not very promising.

The subtype of a **capped participating** preference attempts to alleviate this effect. After repayment of the investment, the holders of preferred shares participate in the pro-rata distribution only to the point in which they have received a defined multiple on their investment. The exceeding amount will then only be distributed between the holders of common shares. Evidently, this model restricts the upside potential of the investor. Therefore, the investor will demand to have the right to convert their preferred shares into common shares, which they most certainly will do as soon as their proceeds in case of a pure pro-rata distribution exceed the defined multiple on the investment. This solution also produces a problem of misalignment. Once the investor has reached the cap and until - in case of conversion into common shares - their pro-rata participation in the exit proceeds would exceed this cap, the investor has no interest in increasing the exit value of the target company (dead zone).

The **non-participating liquidation preference** is more founder friendly and, due to the current market situation, the most common model. First, the investor gets their money back; thereafter, they will not participate in the pro-rata distribution of proceeds until their liquidation preference has been fully caught up. Then all shareholders participate pari passu in the further pro-rata distribution. Applying this model, the effect of the liquidation preference is reduced to the investor's downside protection. But then again, a dead zone exists where the investor is not interested in a higher exit value, i.e. after the investor has received their preference amount and while the holders of common shares enjoy the catch-up.

Such effects become even more complicated when several rounds of financing with different investors have to be considered.

Liquidation preference with interest alignment

Aware of the described effects in daily practice, the parties involved increasingly look for a concept that reduces inconsistencies and misalignment of interest in terms of achieving the highest possible exit price. A suitable way to deal with this is to apply a fade-out mechanism: First, the investor recovers their investment (downside protection). Thereafter, they fully participate in the pro-rata distribution (participating zone), but only up to a certain threshold, e.g. until the investor has reached a certain multiple on their investment. After that, the investor's prorata share will be linearly reduced until a second threshold is reached (fade-out Upon reaching this second zone). threshold, the investor's preference amount will be completely caught up, resulting in total in a non-participating liquidation preference. The determination of the two thresholds is freely negotiable and will only have an effect on the acceleration and degree of the fade-out. The advantage of this model is that investors and founders will have - at any time - an aligned interest in a higher exit price and that there are no dead zones.

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Expert survey among life science investors

A survey of the situation in the life science finance market

What is the mood among life science investors? How do they see the current financing situation in the biotech and medtech sector? What prospects do they have for the future? We asked industry representatives these and other questions. The current mood and the outlook for future developments are seen as average. There are no significant upward or downward excesses. Trade sales are still preferred to IPOs – in the latter case, Nasdag ranks at the very top as a stock exchange. In addition to other VC funds, foreign investors are becoming increasingly important as co-investors in financing rounds. By Nicole Unger and Holger Garbs





Starting from very cheap (1) over stable (5) to very expensive (9)



2. What deal flow do you expect for the ongoing year?



starting from strongly decreasing (1) over stable (5) to strongly increasing (9)

Illustration: © barbulat – stock.adobe.com

3. How to evaluate the regulatory and legal framework for investments in the life science sector for the rest of the year 2020?





starting from strongly deteriorated (1) over stable (5) to strongly improved (9)

4. In which life science technologies are you planning to invest in the future?



5. How do you rate the exit strategies in the ongoing year?



starting from strongly deteriorated (1) over stable (5) to strongly improved (9)

6. In case of an IPO: Which stock exchange do you see as relevant?



THE FOLLOWING INVESTORS ANSWERED THE SURVEY

- 1. ARIX Bioscience
- 2. BayBG
- 3. Creathor Ventures
- 4. SHS Gesellschaft für
- Beteiligungsmanagement
- 5. TVM Life Science Manamgent
- 6. Andera Partners
- 7. Bayern Kapital
- 8. IBB Beteiligungsgesellschaft
- 9. bmp Beteiligungsmanagement
- 10. Sobera Capital 11. Kurma Partners

Financing

7. Who are your favourite co-investors?



8. How, in your view, is the financing situation in Germany's life science sector going to be changed within the next 24 months?





starting from strongly detoriated (1) over stable (5) to strongly improved (9)

9. How do you expect the interest of LPs for the asset class venture capital in the life science sector to progress?





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Early-stage financing – ten years of successful disruption

A column by Dr Hubert Birner, Managing Partner, TVM Capital Life Science

he rethinking of the investment model in our industry began when the "pharmaceutical ecosystem" which framed our investment process began to transform, even before the financial meltdown in 2008. The pharmaceutical business model underwent major reconstruction, ultimately demanding much higher capital efficiency from venture firms like us. At the same time, the biotech sector experienced major pressure from capital markets and was not anymore rewarded for the development of broad product pipelines. Anyone who then fundraised for biotech investments, especially when it came to earlystage drug development, had to align the investment model to comply to the new trinity of investor expectation:

- Increased capital efficiency,
- reduced time to liquidity, and
- improved asset quality.

The need to manage drug development in a significantly more cost-effective setup was fuelled by the expected patent cliff at big pharmaceutical players which significantly would affect overall sales.

Disruption on the horizon

In the light of the industry transformation, we started to define a novel, projectfocused strategic approach to develop single assets, combining our key investment skills and our operational network with pharmaceutical development expertise, financial resources and commercial/market insights. We succeeded in doing so when we entered a strategic partnership with Eli Lilly and Company and its operationally independent R&D group Chorus to work with our project-focused assets and apply a lean approach to generating high-quality clinical proof of concept data with a more flexible virtual development model. After this proof of concept is attained, others can pursue full regulatory development based on the knowledge gained in this accelerated and focused development strategy.

Value creation in the light of the new investment paradigm

We create value according to the abovementioned three main guidelines by adding the experience of partners, with our innovative value proposition, and a highly differentiated and segmented investment strategy. Our investment approach is also very interesting for founders, entrepreneurs and management teams, as it provides a clear exit path with highly predictable equity outcomes based on a stringent timeline and clear milestone events for everyone involved.

Proof of investment concept

A significant part of our investment activity in the last years went into projectfocused assets; another represented more traditional, later-stage venture capital investments. Both investment sleeves have been very successful to date, best exemplified by AurKa Pharma, which we exited after a holding period of roughly two years but with exceptional progress in the pre-clinical proof of concept.

The future is bright

When we started to execute on our new investment model concentrating on project-focused, single assets, we were quite convinced to be on the right track to meet the new trinity of investor expectations – however, as usual, the devil is in the detail, and our business is a complex one. Looking back now, we can safely say that we can check all the boxes that determine our success:

- Is Big Pharma really buying back single-assets? – Yes, it is.
- Is USD 15–20 million enough to get an asset to proof of concept? Yes, it is.
- Is the model interesting for founders, entrepreneurs and management teams? Absolutely, yes.

Currently, our professional life is very happy indeed – until the next industry transformation demands the agility necessary for change. We will be ready!



ABOUT THE AUTHOR

Dr Hubert Birner is a Managing Partner at TVM Capital Life Science, Munich and Montreal. Prior to his current tenure, he was Head of Business Development Europe and Director of Marketing for Germany at Zeneca Agrochemicals. Dr Birner joined Zeneca from McKinsey & Company's European Health Care and Pharmaceutical practice. Before starting his professional career in business, he earned substantial academic merits, including a position as Assistant Professor for biochemistry at the Ludwig Maximilian University (LMU), following his summa cum laude doctoral degree in biochemistry at LMU; his doctoral thesis was honoured with the Hoffmann-La Roche prize for outstanding basic research in metabolic diseases. Dr Birner also holds an MBA from Harvard Business School. www.tvm-lifescience.com

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Who is Who in Life Sciences

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Memberships in networks/associations

We are member and/or partner of numerous networks and organizations. We also organize the HTGF Family Day, the High-Tech Partnering Conference (HTPC), the Private Investor Circle and various Pitch Days.



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Profiles



ITM Isotopen Technologien München AG is a privately held biotechnology and radiopharmaceutical group of companies dedicated to the development, production and global supply of targeted diagnostic and therapeutic radiopharmaceuticals and radionuclides for use in cancer treatment. ITM has established the GMP manufacturing and a robust global supply network for a new generation of targeted cancer diagnostics and therapies. Furthermore, ITM is developing a proprietary portfolio and growing pipeline of targeted treatments in various stages of clinical development. ITM's main objectives, together with its scientific, medical and industrial collaboration partners worldwide, are to significantly improve outcomes and quality of life for cancer patients while at the same time improving health economics through a new generation of Targeted Radionuclide Therapies in Precision Oncology.

ITM Isotopen Technologien München AG

Field of activity

Precision Medicine, Precision Oncology, Targeted Radionuclide Therapy / PRRT

Products/Services

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Memberships in networks/associations

Bio^M Biotech Cluster Development GmbH, BIO Deutschland e.V., ENETS European Neuroendocrine Tumor Society, INCA International Neuroendocrine Cancer Alliance, The Carcinoid Cancer Foundation, Inc. (Patient Organization)



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Date of incorporation/number of employees 2004/220





SIRION's mission is to help expedite gene, cell and immunotherapies with its ability to design cutting edge AAV-, Lentivirus-, and Adenovirus-based technologies. Cost and affordability for patients has become a big challenge for SIRION and the industry as a whole.

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SIRION BIOTECH GmbH

Field of Activity

Custom vector design and supply for a new generation of therapeutics (gene- and cell therapies, CAR-T cell therapies).

Ownership structure and financing

7 non-executive investors with largely financial bias, 2 executives. The company fully owns SIRION Biotech International Inc. in Cambridge, MA and holds stock in InProTher ApS at the Novo Nordisk Bioinnovation Institute COBIS in Copenhagen.

Partners

SIRION has broad and deep insights into development priorities. The company is leveraging these insights for its own investment strategy in selected pre-clinical indication areas.

Technology

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Products/Services

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Unique selling point

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Memberships in networks/associations

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Web address www.sirion-biotech.com

Date of incorporation/number of employees 2007 / 40

Other

The Transduction Company – Engineers of viral vectors for transformative gene and cell-therapies.



Dieter Lingelbach (COO) Dr Christian Thirion (CTO)

Talk to a physician from wherever you are

KRY: A story of a Swedish telemedicine app capturing Europe

The company KRY was founded in 2015 by Fredrik Jung Abbou, Joachim Hedenius, Johannes Schildt and Josefin Landgård due to Johannes suffering from a recurring throat problem. He required frequent GP appointments but found it impossible to get one at a convenient time that fit around his schedule. In fact, he found himself proactively booking appointments even when he was well. **By Nicole Unger**

s this should not be the answer to everything, the four friends decided in a pub night that there must be a better way: KRY was born. The word KRY, which means "healthy" in Swedish, pursues the idea of having the option to talk to a physician from wherever you are by phone with the help of an app which also makes it possible to



Johannes Schildt, KRY

write prescriptions or sick notes. As the need for this service was clearly visible outside Sweden as well, the company scaled up quickly to show presence in Norway in 2017, in France and the UK in 2018 and Germany in 2019.

EUR 227 million acquired in total

In Germany, telemedicine and especially the treatment via video consultation were not conceivable until the approval of the widely known e-health law by the German Medical Association in 2018. Even though many benefits had been obvious earlier, skepticism of doctors treating patients

SHORT PROFILE KRY (ALSO KNOWN AS LIVI) Headquarters: Nyköping, Sweden CEO: Johannes Schildt Sectors: Telemedicine/E-health Investors: Ontario Teachers' Pension Plan, Index Ventures, Creandum and Project A Number of employees/countries: 300/5 Founding date: 2015, Sweden Website: www.kry.de / www.kry.se/en/



virtually still prevailed, and changing the German mindset took time. So far, only private insurances are covering the expenses completely – but KRY plans to obtain the certification from the National Association of Statutory Health Insurance Physicians within the second quarter of 2020.

With the new fund of EUR 140 million raised at the beginning of 2020, KRY acquired EUR 227 million in total since its founding in 2015. The young company plans to use this money "to expand into new

markets across Europe, bringing the benefits of its technology to millions more patients across the continent", says Dr Daniel Schneider, General Manager Germany, KRY Deutschland. Despite having to deal with competitors



Dr Daniel Schneider, KRY Deutschland

in every market KRY is operating in, the company is convinced that "its application is outstanding and provides a unique service in Europe. Their experience of 1.5 million consultations globally via the KRY app makes the company stand out in comparison to several telemedicine providers."

Telemedicine enjoys a boom

Especially in times of coronavirus disease, telemedicine enjoys a boom in general as patients are afraid of entering a doctor's waiting room and physicians as well as health authorities ask patients to stay at home to lower the infection risk. Besides, there are also patients with different previous illnesses who have to expect a much more serious course in the case of infection. It's not only for this reason that KRY seems to have found the perfect timing to offer its service in Germany and to convince the last doubters that the advantages cannot be dismissed.



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It is all about the quality of medical decisions

Smart4Diagnostics GmbH: Intelligent containers for human blood samples

The idea behind the founding of the company came from years of practical experience gathered by the four founders of Smart4Diagnostics, who had worked with human blood samples long before they started their own business – be it in the laboratory, in a hospital environment, in the context of regulatory approvals or in IT. At some point, they came to the realisation that a huge leap forward is possible here which would benefit everyone. **By Holger Garbs**

molecular biologist, an IT specialist, a doctor and a scholar of the humanities coming together to start a company is a bit out of the ordinary. "This just makes agility and design thinking a part of our very DNA, and many of those things that people seem to hail as the 'new way of entrepreneurship' are a matter of course in our company", says Hans Maria Heyn.

Biological correctness should be preserved

More than 70% of all medical decisions are based on diagnostic results, most of which are mainly obtained from blood samples. These blood samples are extremely sensitive to environmental conditions. This means that the quality of human blood samples can deteriorate due to external factors during handling, transport and storage. As a result, laboratory results may be technically correct, but no longer provide an accurate biological representation of the patient's health.

International scientific studies have shown that at least 4.7% of all human blood samples undergo such a significant, and undetected, deterioration in quality between the patient and the lab that these blood samples no longer correspond to the state of the patient at the time of the analysis. In addition, up to 25% of all

SHORT PROFILE OF SMART4DIAGNOSTICS GMBH Founded: 2018 Corporate headquarters: Munich Sector: Digital health Employees: 9 Website: www.smart4diagnostics.com



human blood samples deteriorate undetectedly in quality with possible effects on the biological correctness of the analytical measurement outcome. As things stand today, these changes cannot be detected due to incomplete and analogue sample monitoring.

Data "fingerprint" for human blood samples

Smart4Diagnostics (S4DX) is developing the world's first data "fingerprint" for human blood samples. "What this means is that we monitor the quality of blood samples between the sampling from the patient and the analysis in the lab. This enables the lab to extend its promise of quality up to the sampling," explains Hans Maria Heyn. The laboratory market is highly technological, automated and digitalised. S4DX's aim is to establish a new data standard for every single blood sample; in Germany, this would mean 700 million times per year. The company is looking to guarantee seamless, optimal quality from the sampling to the analysis. "This gives the patient the security that their sample could be used correctly, the laboratory can better optimise its processes and a new regulatory standard can be defined", asserts Heyn. At the same time, this will allow a range of new innovations in personalised medicine to be rolled out.

Financing by EIT Health

Using both hardware and software, S4DX generates and aggregates individual data points to a "digital human sample fingerprint" for every blood sample. "Our first quality check allows us to make sure directly after the sample is taken that it meets the highest standards set by the laboratory and those of the tests to be made, with their ever-increasing complexity", explains Heyn. At the moment, S4DX is starting with its first early adopters in Germany and other EU countries, and the CE-certified rollout is planned for autumn this year. S4DX has enjoyed financial support from both private as well as public sources. In the summer of 2018, the company managed to secure financing in the amount of EUR 2 million from EIT Health. "With UnternehmerTUM, EIT Health and the European Investment Bank on our side, we are in a fine position indeed institutionally", concludes Heyn.

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Creating unique equity stories

Meeting the standards of US capital markets

When asked how to win over investors, Simon Moroney (then CEO of MorphoSys) stated in a 2019 interview that "investors want to see data".¹ Of course, a biotech seeking new sources of funding must show convincing preclinical and, if available, clinical data. This, however, is a necessary but not sufficient prerequisite to ensure successful funding. Investors need to not only be convinced of the science, but they also wish to understand a drug's commercial potential and value in order to make informed decisions. **By Dr Joachim Greuel, Dr Kerstin Bode-Greuel and Thomas Loeser**



biotech company that creates a unique and evidence-based equity story has a clear advantage over others. Building a unique equity story typically follows a well-structured approach describing

- the targeted disease,
- standard of care and medical need,
- science and intellectual property,
- the target product profile and anticipated drug pricing,
- the development plan,
- epidemiology,
- competitive landscape and expected market share,
- sales potential, and
- asset value and expected value evolution.

Describing the targeted disease

The description of the disease will enable the reader to appreciate its severity and will indicate how a patient's quality of life is impaired by it. This part may elaborate on the causes of disease, its pathogenesis, how it is diagnosed, and relevant patient (sub)populations.

Standard of care and medical need

Several treatment regimens may already exist. If existing therapies are not curative or have safety or tolerability issues, there is an "unmet medical need"², and the company needs to describe to what extent and in which way such unmet medical need is addressed by the asset to which the equity story refers.

Science and intellectual property

Ideally, the science underlying the innovation is particularly suited to satisfy the unmet need. Rational arguments, available evidence, and patent applications as well as patents already granted should be described.

The target product profile and anticipated drug pricing

The target product profile (TPP) is an essential element of the equity story. It forms the basis for the development plan and the commercial assessment. It typically covers the indication and anticipated label, patient (sub)population, the drug's targeted efficacy, safety and tolerability profile, effectiveness in comparison with established therapies, formulation, route and frequency of administration, and price. For a first estimate, prices of already marketed standard therapies may be considered as well as pharmacoeconomics and cost-effectiveness calculations in comparison with selected comparators.

Epidemiology

Patients eligible for treatment according to the TPP are either derived from incidence or prevalence, depending on the characteristics of the disease and therapy. While incidence measures the frequency at which a disease is diagnosed in a given time period, prevalence measures the proportion of cases in a population at a given point in time. The terms should not be confused with each other, as strikingly different population forecasts may result.

Competitive landscape and expected market share

A drug's competitive environment is sometimes neglected in business plans. Other therapies in development that could displace the drug being developed may get ignored. A first estimate may evaluate how many new drugs could enter the market before and shortly after the drug developed by the company asking for funds, ideally based on known attrition rates. A detailed assessment of each competing drug's mechanism of action will lead to more reliable market share estimates.

Sales potential

A drug's sales potential is not only a function of patient number, price and market share; it also depends on diagnostic as well as treatment rate and compliance. These attributes can have a significant impact on



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¹⁾ Investoren wollen Daten sehen, CHEManager 5/2019 2) Rick A.Vreman et al., Unmet Medical Need: An Introduction to Definitions and Stakeholder Perceptions, Value in Health, Volume 22, Issue 11, November 2019, Pages 1275–1282

the sales forecast. For example, compliance with treatments for asymptomatic conditions such as hypertension is only around $50\%^3$. Even if such limitations apply, investors may be encouraged to proceed based on the more credible equity story.

The development plan

A development plan must be realistic, both in terms of costs and timelines. While there is always uncertainty, development plans are often so strict that it cannot be realistically expected that timelines and budgets could be met. This may signal to investors a lack of understanding of the complexities of drug development and should be avoided.

Asset value and expected value evolution

The equity story is closed by demonstrating asset value and value evolution. Asset value is typically expressed as "expected NPV" and can further be substantiated by showing valuations of comparable assets derived from published transactions or market values of public companies; the latter potentially requiring adjustments to exclude size effects.

The expected value evolution of an asset is an important element because it indicates to what extent the value of the asset will increase if development milestones are reached. Analysts can calculate the return investors may expect in the event development proceeds successfully.

The equity story – again

The European biotech sector is seeing an increasing number of investment-seeking companies that compete for funding from a declining number of investors. Therefore, it is crucial for a company to differentiate itself from the pack from day one, also in front of US and Asian investors. A unique and compelling equity story is required to approach institutional investors, analysts, financial/social media, and other stakeholders. Credibility, visibility, and sustainability are vital KPIs for European biotech companies, as they need to compete with the much larger US deal flow. Equity stories that include the elements described above would meet the professional standards of US capital markets.

Based on the authors' experience, evidence-based equity stories building on comprehensive research and consistent assumptions are crucial for successful fund raising. In the "early days" of European biotech ventures, they laid the ground for the commitment of the first major institutional US investor, Alta Partners from San Francisco, with Jean Deleage (first investor in Genentech) as a key supporter, to invest in Germany.

Highly successful companies, both public (e.g., Evotec AG) and private (e.g., SIRION BIOTECH GmbH) create their equity stories by applying a similar approach to the one presented here. The recent Nasdaq-IPO of BioNTech provides a great example of how German biotech companies can win the attention of US capital markets with such equity stories and achieve highly attractive valuations.

3) M. Loghman-Adham, Medication noncompliance in patients with chronic disease: issues in dialysis and renal transplantation, Am J Manag Care (2003), 9(2):155–71.

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Life science IPOs in 2020

An IPO is, as well as many other things, a question of professional preparation and the selection of advisors and partners

About 20 years ago, Germany was a leader in biotechnology. Gradually, the center of this industry has shifted more and more to the USA. The reasons for this development are manifold. For one thing, biotechnological research has often been met with mistrust in both society and in politics. On the other hand, data play a major role in this type of research. While the use of data has been increasingly restricted, especially in Germany, it has been recognised in the USA that data is the most important raw material of the new century. That is why the large data-based platforms such as Facebook or Amazon did not originate in Germany or Europe, but in the USA – and with Alibaba, for example, most recently also in China, where the use of data is even more freely possible. **By Klaus Rainer Kirchhoff**



The Nasdag saw 60 IPOs of life science companies in 2019

n this market environment, it has become increasingly difficult for young biotech companies to secure funding for their research in Europe, while in the USA, venture companies have made bold and daring investments of large sums of money into this field. As a result, the IPOs of biotech companies have increasingly shifted to the Nasdaq. The Danish company Genmab, whose IPO I was able to accompany to the Neuer Markt segment of the Frankfurt Stock Exchange in 2000 and which was delisted from Frankfurt in 2002, is now valued at more than EUR 14 billion on Nasdaq after a successful IPO. This development would probably not have been possible without the funds from the IPO at the time (around EUR 200 million). Today, the company generates sales of around EUR 720 million and enjoys a profit of EUR 290 million.

After the collapse of the technology stock markets, the German stock market, with its thoroughness (and the overall German tendency to throw out the baby with the bathwater), made the mistake of shutting down the Neuer Markt, which was designed to finance new, researchintensive emerging technology companies. The Nasdaq, on the other hand, which experienced a crash very similar to that of the Neuer Markt at the time, was able to recover and reposition itself. This is why it is now the most successful technology exchange, while Deutsche Börse could not recapture the level of success previously obtained in the positioning of a segment as was the case with the Neuer Markt. If the regulations had been changed back then with the experience of the crash of the Neuer Markt, the latter would probably be an important technology exchange today.

While there was no IPO of a life science company on Deutsche Börse in 2019, Euronext recorded five IPOs, whereas the Nasdaq saw 60 IPOs of life science companies during this period. If we look at the performance of these companies since the IPO, we get a very differentiated picture. On average, life science IPOs on Euronext lost around 23%. The largest company in this segment is Uniphar PLC with a market capitalisation of EUR 380 million.

Biotech and biomedical companies, though overshadowed by so-called unicorns such as Uber Technologies Inc. with its USD 8.1 billion IPO in May, account for 60 of the 185 listings on US exchanges this year. In 2019, twelve Nasdaq life science IPOs had an issue volume of more than USD 200 million, the biggest of which being Avantor Inc. with USD 2.9 billion. Their performance was much more encou-



ABOUT THE AUTHOR

Average return

0%

-22.6%

+48.9%

Klaus R. Kirchhoff is one of the leading and most experienced consultants in the capital market with 72 IPOs and 400 IR mandates over the last 20 years. He is the founder and CEO of **Kirchhoff Consult AG**.

Sources: deutsche-boerse-cash-market.com, euronext.com, biopharmcatalyst.com, own calculations; average return is
calculated as mean performance of share prices since IPO, based on the issue price.

0

5

60

Total issue volume

USD 0.2 billion

USD 13f.7 billion

USD 0

Fig. 1: International comparison of life science IPOs

Life Science IPOs 2019

Exchange

Euronext

Nasdag

Deutsche Börse



raging with an average value of 62.6%. For all 60 life science IPOs, the performance was 48.9%.

So, on to Nasdaq?

One highly-respected German biotech company did have a Nasdaq IPO in 2019. BioNTech managed to raise USD 150 million, or 10 million ADSs at a price per ADS (corresponding to the share) of USD 15. Considering that the company had a target issue volume of USD 250 million, i.e. 13.5 million ADS in a price range of USD 18 to USD 20, the IPO on the Nasdaq was at least mixed success. It is pleasing to see that the price of the ADS has performed very well since then (+122.9%). It should be noted that BioNTech will probably be fully financed for three to four years with the proceeds from the IPO. Normally, biotech companies are only fully financed for two to three years, younger and smaller companies for even shorter periods. Smaller companies at an earlier stage will find it very difficult to have a successful IPO on the Nasdaq in this environment. Not to mention the high listing and follow-up costs as well as the considerable legal risks that board members in the USA are exposed to.

A number of companies in the life science industry are now back on the IPO watch list (https:/goingpublic.de/ goingpublic-watchlist). Some companies are already on the market with their plans, with Deutsche Börse being the targeted marketplace for these companies. Last autumn, DiaMonTech AG had planned their IPO in Frankfurt. DiaMonTech AG is a medical technology company that specialises in the development, design, and sale of products for medical diagnostics. The patented photothermal detection technology based on infrared lasers enables the precise measurement of relevant blood parameters. The first application is a non-invasive blood glucose measurement, which enables an accurate and fast non-invasive blood glucose measurement without the patient experiencing any pain.

When I first met with the founder of the company, he was thinking more about a financing round and not about an IPO. But then, it was decided to prepare the company for an IPO and then approach banks as well as investors with a convincing



equity story to see if an IPO was possible at this early stage. After all, time is money for a technology such as that implemented by the company in the prototype and whose effectiveness has been confirmed in clinical tests. The one who goes to market first with a reliable non-invasive solution has the "golden ticket" (according to a potential investor), and the proceeds from an IPO can be used to bring the product to market quite quickly. Since the feedback of the investors visited in London and Frankfurt was very positive, the company decided to go public. Up to time in which this decision was made, the costs were very limited (mainly costs for the IPO consultant). As the partners brought on board (bank, lawyers, auditors) were also very price-conscious when they entered the deal, the risk in the event of failure was also manageable. In autumn, at the time of the IPO, most IPOs worldwide were cancelled. DiaMonTech also had to postpone their IPO, although many investors were looking for an ambitious valuation. As the company was able to successfully conclude another financing round parallel to the IPO process, it is sufficiently financed to continue to pursue its strategy and to catch up on the IPO later. The example of DiaMonTech shows that a successful IPO does not necessarily depend on the stock exchange, but above all on professional preparation.

For a biotech company, it is absolutely necessary for the equity story to meet certain requirements. For example, a clinical phase is a must, although some companies still in the preclinical phase did manage to have a successful IPO. In addition, the liquidity of the shares is a major prerequisite for success. Investors must see the opportunity to sell the shares later. Finally, the most important prerequisite for a successful IPO is management, and by this I mean the respective CEOs and CFOs.

Concerning the market place, the costs of an IPO and the follow-up obligations associated with a stock exchange listing, I would honestly advise smaller companies against getting involved in an adventure on the US market. It is more a question of professional preparation and the selection of advisors and partners, especially the bank, than the marketplace you choose. European banks also have access to investors in the USA, not only US banks.

On the move

The long-list of IPO candidates keeps growing as investors' risk appetite is on the wane

Although global stock markets enjoyed a strong run since the end of the financial crisis, primary markets in Europe and, in particular, Germany never fully recovered. Only 108 IPOs took place in Frankfurt during the past ten years. Eliminate 20 Chinese and a host of other non-domestic issuers and you end up counting five to six real German IPOs per annum – way below the true potential of Europe's economic power house. Will we see a cross-border IPO wave of German issuers? **By Falko Bozicevic**

omparing Germany's primary markets with neighbour Switzerland makes the point even clearer: With its population merely one tenth as large, the alpine republic counts almost as many IPOs as Germany. However, it is the same type of companies investors on both sides of the border like to invest in. IPOs like Siemens Healthineers or Stadler Rail are perfect prototypes of what investors want - established market leaders with sizeable and growing revenues as well as strong earnings growth potential. Moreover, after the exceptionally enduring bull market, institutional as well as private investors at least in Europe - generally prefer dividend-paying stocks. In light of ever lower interest rates, in many cases even negative ones, investors are actively seeking income from their investments. This kind of environment favours IPOs of profitable family businesses, equity carve-outs of large conglomerates or well-established and profitable leaders in their respective fields. TeamViewer in Germany and SoftwareONE in Switzerland are recent examples of successful companies going public.

DiaMonTech IPO delayed

In the life sciences industry, market conditions are no different. Profitable medtech companies like Siemens Healthineers are embraced by investors whereas innovative younger companies struggle to become desired within the public market. DiaMonTech, for example, had to delay their IPO last November, officially due to



market conditions. However, the company sought only up to EUR 68 million to finance the launch of their first product. Diabetes patients would henceforth be able to measure their blood glucose level noninvasively and in a fully digital way – terminating the need for the hitherto significantly more bloody procedures. Though this technology will be highly appreciated by patients, it is, so far, not valued by investors: Most likely, DiaMonTech will give the IPO a second chance this year.

Swiss healthcare IPOs with mixed experience

Switzerland saw two successful medtech IPOs in the past two years. But due to overpricing, Medartis as well as Medacta shares experienced, after a brief run-up period, hefty drops of their share prices in the aftermarket. Biotech, though, has become a completely different game: Although the Polyphor IPO in 2018 was initially successful, the stock tanked afterwards when the lead product candidate failed to deliver the hoped-for results and the development effort was then discontinued altogether.

Cross-border IPOs gain in importance

Several Swiss biotech companies in recent years went public on Nasdaq in the US or, to a lesser extent, on Euronext in Paris. Whether it is ObsEva or CRISPR Therapeutics, they were all seeking specialised



investors able to understand and value their respective technologies and business perspectives. In 2019, German biotech firm BioNTech followed suit in accessing the deep and broad pool of experienced American life sciences investors. After tripling in market value within five months, the by far largest German biotech company with a market cap of USD 8.4 billion is now quoted not on the Frankfurt Stock Exchange or another European exchange but on Nasdaq in New York.

Jennewein Biotechnologie announces IPO in Frankfurt

Though the recent history of successful German biotech IPOs is thin, new companies are emerging that put their trust in the strength of their home market. Jennewein Biotechnologie, based in the former capital Bonn, is such an example: Founded in 2005, the industrial biotech company has quickly become an innovator in the field of human milk-oligosaccharides (HMO), which are primarily used in infant food. Jennewein goes straight to the largest market, China, which accounts for 50+% of the global volume of infant food. By entering China via a joint venture with leading local champion Yili, chances for a successful launch are improved significantly. By summer 2020, Jennewein Biotechnologie plans to go public on the Frankfurt Bourse and raise around EUR 100 million for further expansion.

SIRION BIOTECH states intention to go public

SIRION BIOTECH is another German IPO candidate. The Munich-based company is one of approximately five relevant global specialists in vector technologies and other procedures enabling pharmaceutical companies to develop new medicines more effectively. In particular, neurodegenerative diseases like Parkinson's and Alzheimer's are targets of SIRIONS's research efforts. The company is in partnerships with Denali Therapeutics and Accuela, both in the US, as well as British Orchard Therapeutics. The market size of the industry amounts to several billion USD annually already. Further strong growth is generally expected. SIRION has not yet specified where and when it plans to go public or how much capital it intends

to raise. But CEO Christian O. Thirion stated in February that SIRION will go public. It remains to be seen whether Euronext, Nasdaq or Frankfurt will win this beauty contest of sorts.

Furthermore, Immatics and AiCuris are ranking high on the list of German biotech companies likely to go public. Austrian biotech BIOCRATES is also expected to tap public markets in order to finance their growth.

Otto Bock – medtech market leader may go public

Otto Bock, the world market leader in artificial limbs and still a family business, initially intended to go public in 2017 but postponed this endeavour. Instead, Swedish private equity investor EQT bought a 20% stake. Early in 2019, however, management stressed the intention to bring the healthcare business of well-known Otto Bock onto the stock market in order to get the company to the next level, though not prior to 2020. The revenue of the company founded in 1919 surpasses the EUR 1 billion threshold in 2019 or 2020. The 2018 EBITDA amounted to EUR 170 million. According to analysts, the core company represents a market value of approximately EUR 3.5 billion. Growth trends are strong as people in developed countries get older and those in developing countries have more money to spend on healthcare products. Judging by recent experience in the primary markets of Germany and Switzerland, Otto Bock will most likely be well-received by IPO investors as market leaders with strong margins and growth trends are currently valued higher than companies with less resilience to economic uncertainties and external shocks.

Conclusion

Although primary markets suffer along with secondary markets, life sciences companies may still remain in a sweet spot. Biotech companies are generally valued based on their respective development pipeline and not on overall economic prospects. Even in recent weeks, biotech IPOs in the US turned out well. Medtech companies will most likely continue to be sought in case they offer consistent growth rates and high profit margins largely irrespective of most crises that may occur.



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