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Poland – Looking for opportunities in Europe's underfollowed growth engine

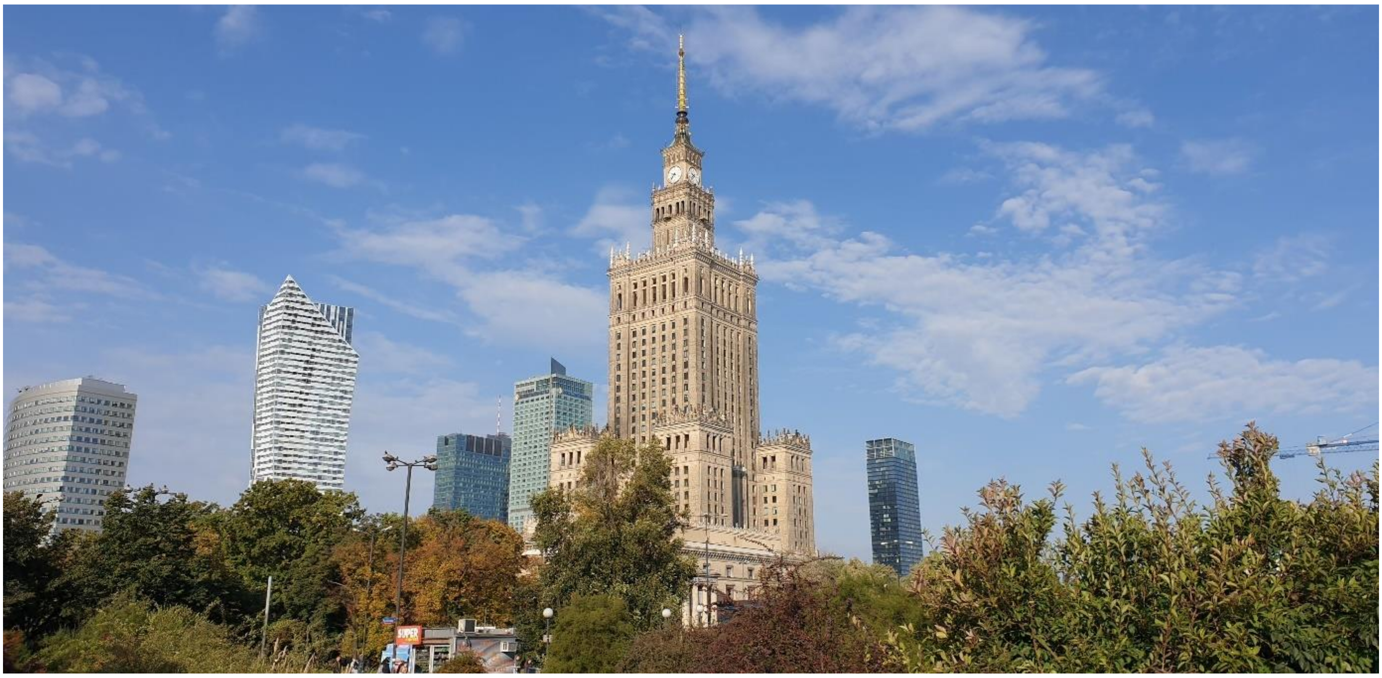

Figure 1: Warsaw's Palace of Culture and Science and Central Europe's largest financial hub in the background.

"The intelligent investor is a realist who sells to optimists and buys from pessimists."- Benjamin Graham

Now that traveling is becoming easier again, **we have embarked on a 2nd field research trip this year**.

This time, **we spent almost a week in Poland's capital city Warsaw** and met with several of our portfolio holdings and potentially interesting investment targets to collect on the ground insights and get a feeling for how the businesses are performing as we leave the pandemic behind.

Our company meetings and site visits included names such as Polski Bank Komórek Macierzystych (PBKM), Asseco South Eastern Europe, Comp, Medicalgorithmics, and OncoArendi.

Even though Germany is sharing a border with Poland, **we think it's not clear to many Germans and probably also other Western Europeans what a dramatically positive change our neighbor country has undergone since the early 1990s**.

Hence, we want to use the chance to **share a couple of insights on Poland's economy and its stock market** as well as **brief profiles on two Polish portfolio holdings** of the Lacuna Global Health Fund: **PBKM and Medicalgorithmics**.

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Background

As the quote at the beginning of the article implies, we as value investors tend to look occasionally for opportunities in industries or markets, which aren't necessarily at their climax in terms of investor sentiment and optimism about the future. If things go well in a certain industry or stock market, investors tend to be willing to pay premium prices for future streams of cash flow producing assets, and on the contrary, they are willing to accept discounts when selling the same assets on rainy days. We do naturally look to capitalize on opportunities arising from the latter. **We have found several such opportunities in Poland over the last 2-3 years and believe that the market does still provide a good hunting ground for attractively valued businesses**, especially in the small- and mid-cap equity market segment.

Now that traveling is becoming easier again, we have embarked on a 2nd field research trip this year, after going to the country of Georgia in July. This time, **we spent almost a week in Poland's capital city Warsaw and met with several of our portfolio investments and potentially interesting targets to collect on the ground insights and get a feeling for how the businesses are performing as we leave the pandemic behind**. Our company meetings and site visits included names such as Polski Bank Komórek Macierzystych (PBKM), Asseco South Eastern Europe, Comp, Medicalgorithmics, and OncoArendi.

We were also positively surprised by Warsaw's cityscape, with lots of new modern buildings being stomped out of the ground and the city center skyline being increasingly dominated by skyscrapers that host Central Europe's dominant economic and financial hub. Even though Germany is sharing a border with Poland, we think it's not clear to many Germans and probably also other Western Europeans what a dramatically positive change our neighbor country has undergone since the early 1990s.

Hence, we want to use the chance to **share a couple of insights on Poland's economy and its stock market as well as brief profiles on two Polish portfolio holdings** of the Lacuna Global Health Fund: **PBKM and Medicalgorithmics**.

Polish Economy and Stock Market – A brief overview

To put things into perspective, **we will outline some headline facts and figures about the Polish economy and its stock market**. For more detailed information about the history and development of Poland's economy and capital market, we recommend looking at the work of [Swen Lorenz] and [Adrian Kowollik].

- After escaping from communism in the late 1980s, Poland has taken an impressive economic development. With a nominal GDP of USD 580bn, **Poland represents the 7th largest economy in the EU and the largest as well as 2nd most populated one within Central and Eastern Europe** (CEE). While **Poland's GDP/Capita has increased by a strong 9x to USD 15,6k** (7,6% CAGR) **between 1990-2020** and ranks post adjusting for PPP even close to countries like Portugal, Slovenia, or Spain, the steadiness of economic growth appears remarkable. **Since the start of the 1990s, Poland has experienced an economic expansion every year except for the pandemic-induced recession in 2020**. [A corresponding analysis from McKinsey] identifies dynamic exports, strong internal demand, productivity improvements, foreign direct investments (FDI), and economic aid through the inflow of EU funds as key components behind the economic growth and improvement of Polish living standards to the level of a middle-income economy. After experiencing a -2,7% GDP contraction in 2020, the **economy is already bouncing back strongly and will according to PAP Biznes deliver >5% growth in both 2021 and 2022**.

From one of the poorest European countries at the start of its post communism-era to an aspiring middle-income nation with the 7th largest economy in the EU and the largest in CEE within only 30 years.

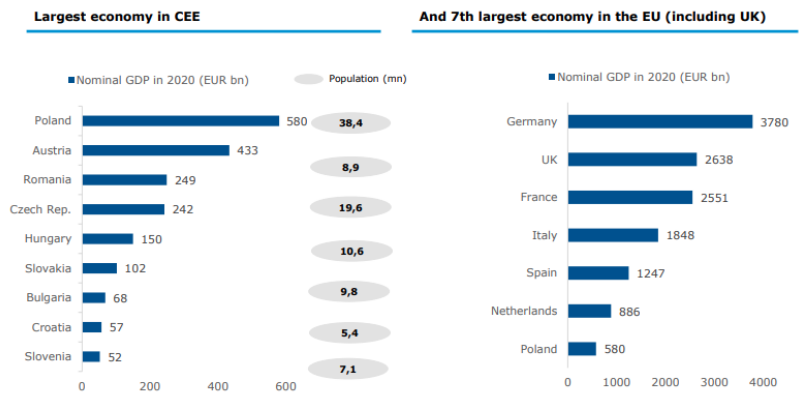


Figure 2: Warsaw Exchange, October 2021 Investor Presentation

- **Poland has a relatively well-developed and large stock market compared to other CEE countries**. This comes from the fact that Polish banks have historically been very conservative corporate lenders and from the Polish VC/PE industry being still quite small and immature, **which ultimately increases the importance of the stock market for the sake of financing**. As of 2Q21, there were **740 listed domestic companies with an aggregate market capitalization of just c. USD 140bn** (Market Cap/GDP of 25%), with 379 companies listed on the GPW main market and 361 listed on the

Due to a long-time underdeveloped VC/PE scene and conservative bank lending practices, Poland's stock market has been an important financing tool for Polish companies historically.

NewConnect market, which represents a less regulated equity market segment for SME companies. The **Polish stock market lived through a boom over the 2001-2007 period - WIG main market index delivering a 6x total return – just before it fell from its June 2007 high boom over the 2001-2007 period** - WIG main market index delivering a 6x total return – just before it **fell from its June 2007 high through February 2009 by >60% and took another 14 years to make a new all-time-high on the back of a strong 30% YTD return in 2021**. Regardless of being neglected and shunned by the broader investor community over the past decade, **Polish companies kept growing their earnings, which led to a compression of broad market valuation towards favorable levels**. Even after experiencing a strong rally from the lows of last year's Covid-19 selloff (WIG is up c. 82%), the Polish equity market does still look attractive to us when comparing the starting valuation to other markets around the world. Using CAPE Ratio as a long-term valuation shortcut (chart below uses inversion), **Polish equities look significantly cheaper than most Developed and Emerging Market pendants, while expected near-term earnings growth doesn't rank significantly below average**. All in all, this should provide a **promising starting point for reasonable absolute and attractive relative long-term returns in a world with inflated asset prices and lower expected long-term returns**. We think that the **small- and mid-cap space is a promising hunting ground for bottom-up stock pickers**, due to lower market efficiency resulting from little Sellside Coverage, lower liquidity, subpar investor communication, and a less-developed local institutional equity investor base. If someone is willing to do a bit more legwork and in the best case willing to go there and see for oneself, a fair bit of attractively priced businesses can be found.

After a boom period in Polish equities between 2001-2007 and a subsequent market collapse during the GFC, it took 14 years for the market to surpass its 2007 all-time high. Weak relative performance led to investors forgetting about the Polish market, while companies kept growing earnings and face multiple compression.

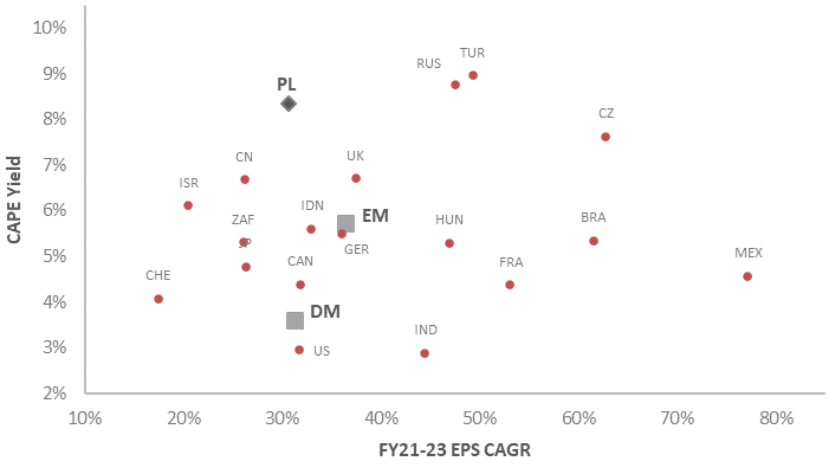


Figure 3: Own image. Data from Citi Research, Worldscope, MSCI, Factset. Data compiled based on companies in MSCI AC World Index.

Polish equities look cheaper than most emerging market peers, while near-term earnings growth doesn't rank remarkably below average.

- We think **two potential catalysts might provide some tailwind** for valuation levels, liquidity and investor interest going forward:
  1) **A Pension System reform led to the introduction of Employee Capital Plans** (PPK), a new system of private long-term pension savings, which is based on contributions from employers, public budget, and employees (optional) – Comparable to UK Workplace

A reform in the pension system could work as a catalyst for a valuation re-rating of Polish equities and improve liquidity.

Pension System. PPK AUM has crossed PLN 5,3bn, and given a scenario in which the participation rate increases from 22% in 2022 to 35% in 2030, **forced buying from PPK should lead to inflows into local equities of about PLN 1,9bn in 2022, PLN 2,5bn in 2023 and more than PLN 3bn from 2025.**

Figure 4: Warsaw Exchange, October 2021 Investor Presentation.

2) **Near zero-bound interest levels in PLN terms** (Benchmark Rate: 0,5%) **should lead to an increasing interest in local equities from individual Polish investors**, which have generally experienced continuous growth in household assets over the last two decades but are **still holding close to 80% of their savings in low (no) yielding assets**. With YoY inflation running at nearly 6% most recently, **individual investors should be inclined to structurally shift their savings exposure directly or indirectly** (through funds) **towards higher yielding assets like equities that can grow real purchasing power over time**. A return of retail investors to the market was already observable in 2020 when they made up for 25% of trading volume on the GPW main market (2015: 12%).

Close to zero-bound interest rate levels and over-conservative savings behavior of Poles with 80% of household savings sitting in low (no) yielding assets, individuals should be inclined to structurally shift their savings towards higher-yielding asset classes like equities in the face of accelerating inflation.

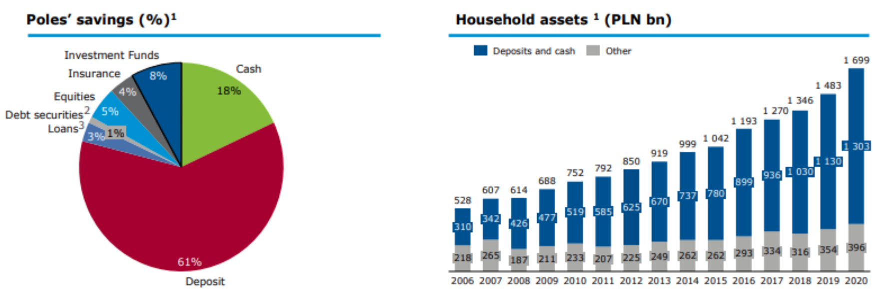


Figure 5: Warsaw Exchange, October 2021 Investor Presentation.

Meet – Ups and Company Visits

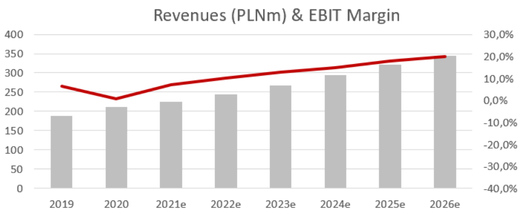
We met with several companies during our stay but **would like to highlight and give a quick overview of two businesses that we hold in the portfolio** of the Lacuna Global Health Fund.

Polski Bank Komórek Macierzystych (PBKM)

PBKM is a long-time holding and one of our largest positions in the fund. Founded in 2002 and headquartered in Warsaw, **PBKM was one of Poland's first stem cell banks**. From 2006 onwards, the company started to expand its footprint beyond the borders of Poland and chose to operate under the FamiCord Group brand.

PBKM´s business can be divided into 2 segments. Classic stem cell banking (91% of Revenue) and Advanced Therapy Medicinal Products (9% of Revenue) Legacy stem cell banking exhibits attractive unit economics, while ATMP provides meaningful potential for incremental earnings growth going forward.

P&L Financials (PLNm)	2019	2020	2021e	2022e	2023e	2024e	2025e	2026e
Growth		12%	6%	9%	9%	10%	9%	8%
Revenue	188	211	224	244	267	294	321	345
EBITA	12,1	1,7	15,7	24,4	34,7	44,1	57,7	69,0
EBITA Margin	6,5%	0,8%	7,0%	10,0%	13,0%	15,0%	18,0%	20,0%
Net Income	13,6	1,9	9,2	15,3	22,6	29,1	38,6	46,5
Net Margin	7,2%	0,9%	4,1%	6,3%	8,4%	9,9%	12,0%	13,5%
EPS	2,60	0,26	0,99	1,64	2,42	3,11	4,14	4,98



Market Cap in PLN	793,8
Enterprise Value in PLN	721,7
EV/Revenue 2022	3,0x
EV/EBITA 2022	29,6x

Lacuna Scoring	
Growth	4/5
Economic Moat	4/5
Management	5/5
Valuation	3/5

Figure 6: Own image. Capital IQ and Lacuna Estimates.

In FY20, PBKM generated PLN 211m in Revenue and PLN 22m in EBITDA, which was derived from 2 operating segments:

1) **Stem Cell Banking** – Revenue PLN 193m, EBITDA PLN 35m

   The collection, preparation, and storage of stem cells from umbilical cord blood (UCB) **and tissue is the company's legacy business**.

   But why does it even make sense to extract stem cells from UCB and then store them via a cryopreservation approach with nitrogen tanks? **We think of it as a means of extra, "worst-case" insurance that privileged parents/grandparents are willing to enter on behalf of a newborn** to improve the odds of survival for the latter should it fall prey to rare and severe conditions like leukemia, lymphoma, cardiac failure, neuronal disorders, auto-immune diseases, immunodeficiency, metabolic or genetic disorders. Cord blood is rich in hematopoietic stem cells (HSC), while cord tissue is rich in mesenchymal stem cells (MSC). **UCB stem cells are a preferred source for transplantation procedures and are used increasingly in such procedures as an alternative to adult stem cells harvested from bone marrow and peripheral blood**.

Continued rapid scientific advancement in the regenerative medicine field and an increasing number of therapeutic approaches based on stem cells, make it likely that the value added from storing UCB derived stem cells with private cord blood banks will grow over time.

While PBKM services both B2B and B2C clients, **B2C banking is the clear earnings driver for the group**. PBKM offers its B2C stem cell banking services via **two different payment models – prepaid and subscription contracts**, with both requiring some form of upfront payment related to collecting and preparing stem cells from the UCB. In the prepaid contracts, the customer pays the storage fees related to a specific storage period of typically 18-25 years upfront. In the subscription contract, the customer pays for the storage of a sample through annual installments. While the prepaid business is favorable from a cash collection standpoint, **a meaningful number of subscription clients introduces more operational stability through the recurring revenue character of storage fees**. Recently, around **36% of PBKM's B2C client base** (c. 130k samples) **was related to subscription contracts, which implies a trailing storage revenue of c. PLN 49m** (EUR 11m, c. 26% of Stem Cell Banking FY20 Sales).

B2C stem cell banking is characterized by significant customer stickiness – in FY20, PBKM saw just 1% of its customer base churning.

What we generally appreciate about the B2C stem cell banking business is **high customer stickiness**. In the case of PBKM, **annual churn in its B2C banking client base amounts to just around 1%**.

2) **Advanced Therapy Medicinal Products (**ATMP) - Revenue PLN 18m, EBITDA PLN -13m.

The company tapped into this business in 2014/2015 period and has developed it from scratch. In this segment, **PBKM is engaged in contract manufacturing of medicinal products for cell/gene therapies** of other Pharma/Biotech players (e.g., the existing contract with NextCell Pharma and soon with Dystrogen) **and in proprietary drug/therapy research related to UCB derived stem cells/tissue usage. Successfully establishing new therapeutic indications could broaden the spectrum of use cases** for cord blood and tissue and thus **might prove beneficial for cord blood banking penetration rates and organic growth** in the legacy business over the long run. Apart from that, **trying to diversify into the fast-growing Contract Development and Manufacturing** (CDMO) s**pace does also sound very reasonable to us**.
Still, the **activities pursued in this segment are early stage** and we expected that continued upfront investment in capacity and R&D **should carry on with putting pressure on operating margins over the next 2-3 years**. The right way to look at it is that the company subsidizes these activities with the quite profitable B2C stem cell banking business for **sowing some seeds that might turn out to be tomorrow's growth engines**

PBKM is engaging in contract manufacturing of medicinal products for cell/gene therapies. While this business line immature and requires upfront investment, we think that diversification into the fast-growing CDMO space makes sense.

Over the past 15 years, **expanding into new markets and being an active consolidator in a fragmented industry enabled PBKM to become Europe's largest cord blood bank and to establish scale- and scope-driven competitive advantages over remaining, significantly smaller competitors**.

The group boasts now a **+38% market share in newly acquired samples** (4x larger than Player #2), **grew its base of stored samples by 20x to 390k** (B2C: 360k), and established its presence across 27 countries (13 through 100% subsidiaries) on the back of 13 own laboratory facilities and cooperation with 1300 hospitals across Europe.

The company took this development under the leadership of one person – CEO Jakub Baran, who is a co-founder, runs the business since 2005 and owns a 4,2% stake in the company. During our stay in Warsaw, we had a meeting with him to discuss the business prospects, capital allocation priorities and to visit PBKM's flagship laboratory facility in Warsaw, the biggest of its kind all over Europe.

#1 Cord blood bank in Europe with significant economies of scale and scope driven competitive advantages over remaining, smaller competitors.

Figure 7: At Warsaw laboratory facility of PBKM with CEO Jakub Baran.

Co-founder Jakub Baran runs the company as CEO since 2005. He's a strong operator and capital allocator with a long-term focus and skin in the game.

Our impression was that Jakub is a very skilled and dedicated operator, who knows the ins and outs of the industry and **follows a very long-term oriented capital allocation approach, in which he is willing to sacrifice short-term profitability for the sake of long-term economic value creation and business growth** – the latter becoming visible in growth investment related current margin compression. **For people like us, who see themselves as co-owners in our investments, investing alongside an experienced, farsighted manager with a value creator mentality and skin in the game is as good as it gets**. His strong track record in terms of execution and capital allocation (in both organic and inorganic initiatives) makes us confident that these investments will deliver an adequate ROI to PBKM shareholders over time.

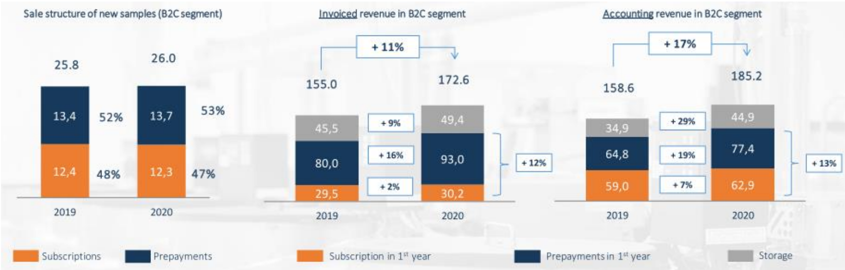
From a valuation perspective, **PBKM trades at 3,2x EV/LTM Revenue vs. a peer group mean of 5,5x EV/LTM Revenue for a sample of other publicly listed stem cell banks** in Europe, North America, and Asia. However, **we think that relative valuation metrics based on trailing fundamentals don't give a reasonable picture about the "attractiveness" of this stock**, **as its earnings power is temporarily impacted through structural developments** that will likely contribute to compounding the intrinsic value of the business at attractive rates over time:

1) **PBKM is investing in S&M and R&D to accelerate the organic growth in the core B2C stem cell banking business and to further build out the ATMP business, with the aspiration to make ATMP the 2nd leg for the company over the medium term**. The CEO thinks that he can be successful in this endeavor due to his access to a skilled and cheap local labor force, which should allow PBKM to operate on the lower end of the cost curve and win business through offering quality services at lower prices than the incumbent Western players. While the company made clear that it wants to position itself in niche areas of the CDMO industry, **looking at mature CDMO players like Lonza gives a sense of the terminal economics this business could achieve once it reaches critical mass** (25-30% EBITDA Margins).

Looking at traditional run-rate valuation metrics can be misleading regarding the attractiveness of PBKM's stock valuation. A phase of growth investment in organic growth initiatives in both B2C banking and ATMP and a temporarily margin-dilutive effect of pivoting the business mix towards a higher share of subscription clients depress the real earnings power of the business.

2) **PBKM aims to grow its subscription B2C stem cell banking business, which puts pressure on margins over the short-term but will improve the long-term operational stability, which should also make the earnings stream more valuable due to a higher degree of recurrence**. Furthermore, the unit economics of storing samples in a subscription approach look highly attractive – We think **PBKM earns >80% EBIT Margins on storage revenue** (literally no associated costs – nitrogen refill and D&A) and there's has been a **very little churn in the past** (what do you want to do with your sample if you stop paying?). **PBKM saw its recurring storage revenue grow by +29% in 2020, while the share of payment through subscription in new business was around 47%**. **On a run-rate level, recurring EBIT related to sample storage should already be in the ballpark of PLN 40m.** Leaving everything else aside, the **stock trades at c. 18x storage EBIT**, and the question is whether this high-margin, steadily growing earnings stream (>10% p.a. in the last years) shouldn't fetch a higher price tag on its own (taking some public market SaaS valuations as yardstick). **PBKM expects that the subscription client base can potentially increase towards 250k over the coming decade**, based on a combination of organic client acquisition through its subscription payment model and from switching existing clients with expiring pre-paid contracts into storage subscription contracts. The churn rate of clients when migrating from an expiring pre-paid contract into subscription appears to be also negligible and we understand from talks with German stem cell bank Vita34, which is in this regard ahead by some years due to being earlier in the business, that they could think of 15% churn in a worst-case scenario. Using the FY20 level of the average net annual subscription paid by a B2C client of PLN 357, **annual subscription revenue could grow towards PLN 90m with recurring EBIT of PLN 72m in the next ten years** (assuming unit economics stay the same). Furthermore, **selling B2C stem cell banking through a subscription approach makes it more accessible to lower-income families**, due to significantly less required upfront spending, and **might positively influence overall penetration rates in Europe from currently less than 2% and thus increase the addressable market.**

Over the next 10 years, PBKM B2C banking subscription client base could grow towards 250k (Increase by 2x). Consequently, annual subscription revenue might approach PLN 90m with recurring EBIT of PLN 72m (vs. total EV of PLN 720m recently).



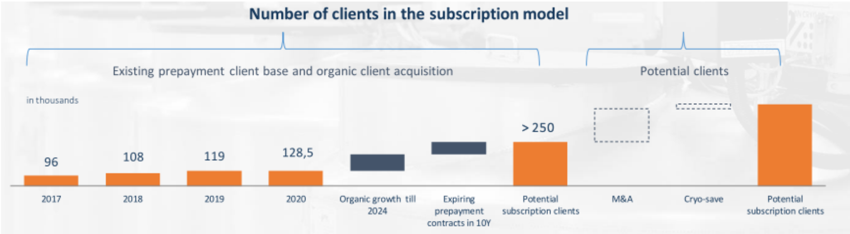


Figure 8: EKF 2021 Presentation.

3) **In May 2021, PBKM and German competitor Vita34 announced a business combination through a share exchange deal, constructed in a way that the combined entity will end up with a German equity market listing**. The share exchange shall be conducted by mid of November 2021 and around that time the merged entity will start trading. On a Pro-forma level, the **combined entity will have revenue of EUR 67m and EBITDA of EUR 11m** (based on FY20 numbers), **which compares to an implied Market Cap and EV of EUR 236m and EUR 217m**. Implying a trailing valuation of 3,3x EV/Revenue and 19,7x EV/EBITDA. While we do think the merger could prove beneficial from a relative valuation standpoint, as the business might now get more institutional interest due to a bigger Market Cap, better liquidity, and improved market access through a German listing, we think it does also make a lot of sense operationally.

PBKM and German competitor Vita34 announced a business combination The combined entity will be the dominant industry player with +45% market share in newly acquired samples and pro-forma financials of EUR 67m in revenue and EUR 11m in EBITDA.

Vita34 is the third-largest player cord blood bank in Europe and provides as the dominant player in the large DACH region a good strategic fit to PBKM, which was so far only little present in the DACH markets (except through the acquisition of small German blood bank Eticur in 2020). Combined, the **group will control >600k stored samples and hold a >45% market share in newly acquired samples in Europe, which makes it the ultimate market leader in Europe and the 3rd largest cord blood bank globally**. One benefit of this merger will be that **both companies don't have to compete for the same client for longer and can rather join forces in terms of growing the overall addressable market through raising awareness for therapies based on cord blood as well as increasing the number of services offered** – Vita, for instance, has been looking to broaden its service offering through introducing a complementary immune cell banking business, which could provide a good cross-selling opportunity based on what first surveys based on Vita clients indicate. On top of that, the **combined entity expects to realize about EUR 3,1m of recurring cost synergies** from optimization of operational processes, improved capacity utilization, better procurement through more bargaining power, and elimination of duplicate costs.

As Vita34 did already show attractivity profitability in the +25% EBITDA margin range and as PBKM's profitability should recover towards more normal levels by historical standards once the current investment program tapers off (>30% in 2017/2018), **we don't see a structural reason why the combined entity's EBITDA margin couldn't increase from trailing 16% level towards 25% over the medium-term**

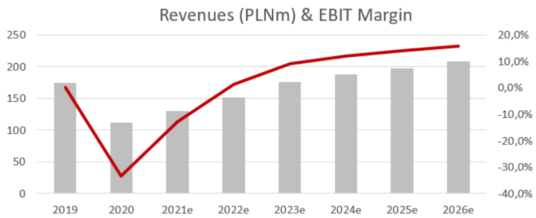
Considering past organic growth trends at PBKM/Vita34 and further leeway to grow inorganically due to the still prevalent fragmentation in Europe's cord blood banking industry, **we think that the company could grow its topline by 7-10% p.a. over the next 5 years**. **Factoring in the potential for margin expansion, the combined entity's EBITDA could double from here** and amount to EUR 23-26m by 2026. Applying a **15x EBITDA multiple on the midpoint would indicate a realizable MOIC of 1,7x over a 5-year time horizon,** which doesn't even factor in any incremental economic value that could arise from successfully commercializing any of the newer ventures in PBKM/Vita34. Hence, **we continue to believe that this investment exhibits a quite favorably skewed return profile and will keep it as a core position in our book going forward**.

Medicalgorithmics

Medicalgorithmics (MDG) **is a Polish company that develops devices and complementary software for the means of ambulatory cardiac monitoring**. This stock is a part of our Microcap basket with a recent Market Cap of USD 20m and Sales of USD 30m in 2020. We built a small position in the stock during late 2019 and early 2020 and the path that this business has taken over the last years couldn't be more different from the other portfolio holding presented above.

Medicalgorithmics (MDG) **is a Polish company that develops devices and complementary software for the means of ambulatory cardiac monitoring.**

P&L Financials (PLNm)	2019	2020	2021e	2022e	2023e	2024e	2025e	2026e
Growth		-36%	16%	17%	16%	6%	6%	5%
Revenue	174	112	130	152	176	187	198	208
EBITA	-0,1	-38	-17	2	16	22	28	32
EBITA Margin	0,0%	-33,6%	-12,8%	1,2%	9,1%	11,9%	14,1%	15,6%
Net Income	-0,3	-28	-14	1	12	17	22	26
Net Margin	-0,2%	-24,8%	-10,6%	0,7%	7,0%	9,3%	11,1%	12,3%
EPS	-0,08	-6,68	-2,71	0,20	2,43	3,41	4,29	5,02



Market Cap in PLN	79,0
Enterprise Value in PLN	107,7
EV/Revenue 2022	0,7x
EV/EBITA 2022	59,0x
Lacuna Scoring	
Growth	3/5
Economic Moat	2/5
Management	3/5
Valuation	5/5

Figure 9: Own image. Capital IQ and Lacuna Estimates.

MDG is essentially a one-product company with its flagship product PocketECG being the main source of revenue. The device is used by over 2000 physicians in North America (US, Canada), Europe (Poland, Scandinavia), and Asia (India, Australia), and just alone in the US, around 70k claims for reimbursement were filed with commercial payors in 2020.

The PocketECG is roughly the size of a smartphone, allows for continuous as well as full-disclosure ECG monitoring, and can record heartbeat data for up to 30 days. The device is a **4-in-1 solution, which means it can seamlessly switch between 4 different ECG monitoring procedures**: Holter Testing, Extended Holter, Event Monitoring, and the prime standard Mobile Cardiac Telemetry (MCT).

Figure 10: Testing the PocketECG system in real-time at MDG's headquarter.

The **key differentiating factor between the different procedures is monitoring duration**, with Holter being performed over 24h-48h and MCT over up to 30 days. It's important to understand that the **diagnostic yield** (% patients diagnosed correctly) **and monitoring duration are positively correlated, which means that MCT has generally the highest success rate of diagnosing conditions such as atrial fibrillation**. Most of the IP behind the PocketECG technology stems from one of the company's co-founders, Dr. Marek Dziubinski, who has a background in software engineering in the field of signal processing and compression algorithms, which has proved synergistic in his endeavor to develop an algorithm for the processing and transmission of heartbeat data. Mr. Dziubinski served as CEO/CTO since the company's inception in 2005 up until mid-2021 and now joined MDG's Board of Directors as Chairman.

MDG has its core business in the US, which makes up for roughly 90% of its revenue, but has been entering other markets outside of the US (OUS) like Canada, Scandinavia, India, and Australia over the last years. **From a money-making perspective, the company applies different business models in the US vs. OUS**.

Although being a Polish company listed on the Warsaw Exchange, MDG's core business is the US ambulatory cardiac monitoring market. In the US market, MDG is the 5th largest player with a 3% market share.

In the US business, MDG operates through its US subsidiary Medi-Lynx. MDG does the manufacturing and R&D part in Poland, ships the devices to the US, and Medi-Lynx takes care of distribution, client acquisition, diagnostic, and generation of final monitoring study reports – **in the US, the company is a full-fledged diagnostic service provider**. Meanwhile >91% of Medi-Lynx business is generated through an In-Network (INN) approach, which means it is mostly generating revenue through collecting fixed, pre-negotiated reimbursement rates from Medicare/Commercial Payors once ECG monitoring procedures on insured lives of those carriers are performed and reimbursement claims get filed. Today, **MDG is the 5th largest player in the US market with a 3% market share**, operating in an industry that was dominated by meaningful consolidation over the past decade, leading to c. **90% market share being controlled by the 5 largest companies**.

In the OUS markets, MDG is mainly generating high-margin recurring subscription revenue as it cooperates with local distribution partners that compensate the company through monthly payments per activated device.

While OUS will continue to grow nicely at +30% rates on the back of further market entries, is margin-accretive, and will play a more important role over time, **performing well on the US market is crucial for now, which was exactly the problem over the last years.**

After boasting fancy multiples of >30x trailing EBITDA on a > USD 300m Market Cap at its peak in 2016/2017, the stock has corrected as much as 95% on the back of deteriorating fundamentals.

MDG was once perceived as an innovative, technology-driven growth company that goes overseas to succeed in the relatively large ambulatory cardiac monitoring market in the US, based on leveraging best-in-class technology. The argument about their technology appears to be still valid though as of today. **Accordingly, it fetched fancy valuation levels of >30x trailing EBITDA and a Market Cap bigger than USD 300m** at a time when it was determined to reach a preliminary operational zenith in 2016/2017.

Since then, the stock came down by 95% and fundamentals have deteriorated with Sales declining by 40% and EBITDA heading from USD 13,6m in 2017 to USD -7,3m in 2020. Someone who takes a superficial perspective on the business performance would likely conclude that the business model must be broken. However, **we think one must pay attention to details to understand the development of MDG's US operations**. Between MDG's entry into the US market in 2010 and today, **MDG had to pivot its business model twice.**

Two business model changes since 2010 and the necessity to transform itself from an Out-of-Network to an In-Network player created a lot of operational instability and stagnation. Now with the repositioning towards In-Network being completed, long-term contracts with all big US commercial payors being closed and the US operations being streamlined, there's light at the end of the tunnel.

In the beginning, MDG sold the PocketECG system in a subscription-style model, in which it cooperated with two local US distribution partners that took care of performing the diagnostic service provider part – back then, **MDG was a cash cow business that grew its topline by 12x in 5 years while sporting +40% net margins**. However, **it saw an arising conflict with one of its local partners, which has led to the company deciding to acquire the other local partner, Medi-Lynx**, in 2016. This deal has **changed the unit economics of the business dramatically**, as the days of earning "easy" money through subscription business were over and the company chose to become vertically integrated, adding more labor-intensive and lower-margin steps of the cardiac monitoring value chain to its service offering. For the next two years, the topline kept growing towards its peak of USD 51m in 2017, while profit margins got diluted by 50%. **Up until 2018, the company operated mainly through an Out-of-Network** (OON) payor model, which means that the c**ompany didn't have fixed, long-term reimbursement contracts with the big US health insurance carriers in place** (except Medicare). Medi-Lynx would in this case bill a patient for the services performed, which allows, on the one hand, to charge higher prices and be more profitable than via an INN payor model, but limits, on the other hand, the total addressable market as a fair share of US primary care physicians and especially enterprise clients like Integrated Delivery Networks (IDNs) wouldn't contract with service providers that operate an OON model. **At that time, it became visible that regulatory changes in terms of Medicare reimbursement guidelines and Federal/State laws would create a hostile environment for OON service providers, which led the company to again initiate a business model transformation towards an INN payor strategy**. In the same year, MDG brought on Peter Pellerito, an experienced senior executive with decades of experience in the North American MedTech industry, as new Medi-Lynx CEO, who was supposed to reshape the US business for the required business transformation and to do the contracting with the large US health insurance carriers.

A switch to INN was equivalent to an extension of the addressable market and more certainty in terms of reimbursement rates, but on the other hand, it was also associated with a hefty haircut on the rates charged in the OON model (originally c. 25-30% reduction was assumed). Lower reimbursement on performed services **was supposed to be offset by cost-cutting and higher growth in monitoring session volume**.

Despite a disastrous FY20 and a slower than expected recovery over FY21, the **company is now fully repositioned**, the **cost structure appears adequate with some more improvement potential** from further investments into technology as well as process automation and the **company plans to ramp up its salesforce by a factor of 2x with the help of extra funding from a planned capital raise of up to 20% of the equity during October/November 2021**.

Leaving a disastrous FY20 behind, the company plans to ramp up its Salesforce by 2x with the help of extra funding from a planned capital raise of up to 20% of the equity during October/November 2021. Extending the Salesforce in combination with improving the sales mix is supposed to bring on the incremental revenue to reintroduce sustainable profitability in the US business.

Increasing US sales reps makes sense in our view, as Medi-Lynx achieves a comparable level of turnover as its closest peer, despite having a sales team that is only half the size – Bearing sales efficiency wouldn't deteriorate meaningfully and expansion into new territories is successful (Medi-Lynx is not even present in US states in the North West and most of the West Coast), **we think this investment could deliver an adequate ROI over time and turn the business cash flow positive by end of 1Q22 or early 2Q22**.

Furthermore, **we think that there are first green shoots that the revamped sales strategy of focusing more exclusively on winning only margin-accretive new business** (high share of MCT & Event monitoring) **and optimizing the business mix to grow average revenue per claim starts to pay off**. Both operating results and business volumes are on a positive trajectory and the business might be already creeping up from through operational performance - 1H21 EBITDA of USD -2,4m vs. USD -3,5m in 1H20, the aggregate volume of 63,6k claims for 9M21 vs. 60,5k for 9M20, and most importantly the volume of profitable monitoring types (MCT, Event, Extended Holter) of 44,5k for 9M21 vs. 36k for 9M20 (+23% YoY). **Medi-Lynx is now also able to go decisively after large enterprise clients** due to the +90% INN coverage and the recently acquired capability to integrate the PocketECG system into Electronic Health Records (EHR) through a partnership with US Healthcare IT system integrator Redox – without broad INN coverage and being able to timely integrate your ECG technology into an EHR, winning over an IDN as a client is hardly possible.

Partnership with Redox and ability to integrate PocketECG system into Electronic Health Records opens large-scale enterprise sales opportunities from winning over Integrated Delivery Network clients.

When we established a position in MDG, we thought of it as an interesting turnaround case, with substantial upside upon successful execution. We must admit that the **business transformation and the return to a self-sustaining operation take longer than we would have anticipated** in the beginning, but **meetings with the management team and diverse board members during the Warsaw trip gave us more confidence** that all key persons involved in running the business do understand the serious situation in which the company finds itself. **Management is focused on driving the business and shareholder value creation and pursues an in our view reasonable strategy** to make sure the company remains a going concern.

What has not waned over time is the substantially positive expected return we can see from here upon stabilization and return to profitable growth in the US business. At current prices, **MDG trades at c. 0,9x Fwd Revenue** (Lacuna Est.), while **comparable private market transactions in the US tend to be closed at a Median EV/Revenue multiple of c. 4x** and with publicly listed US peer iRhythm trading at close to 6x Fwd Revenue. While we believe that a partial discount to US peers is going to remain due to MDG being listed on the Warsaw Exchange, **we think the stock could easily rerate towards levels of 2-2,5x Fwd Revenue once a return to sustainable profitability becomes more visible**. In this case, **we think a potential upside of 120-180% could be realistic over a 2- or 3-year time horizon**. Of course, there are a lot of moving parts in this investment case and a significant degree of execution risk, but we choose to underwrite this higher risk through less aggressive position sizing.

MDG trades at a wide relative valuation discount to both publicly listed peers and private market transactions. We think the stock has significant upside potential if MDGs revenue multiple rerates to just 2-2,5x on the back of improving fundamentals and a credible trajectory to sustainable profitability.

Should it become visible that the operational side of the US business is unfixable, we think that the business could still be put up for sale for a meaningful premium to the current valuation. The proven as well as established Pocket ECG technology (especially as best-in-class MCT device), MDG's vast and diverse library of heartbeat data (collected for >10 years), and already existing client relationships in the US and OUS market should be worth significantly more to a strategic acquirer than MDG's recent Market Cap implies.