INDEPENDENT INVESTMENT REPORT

Subject Company: Kraig Biocraft Laboratories, Inc. (KBLB)

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Analyst: Sascha P. Czerwenka, CFA

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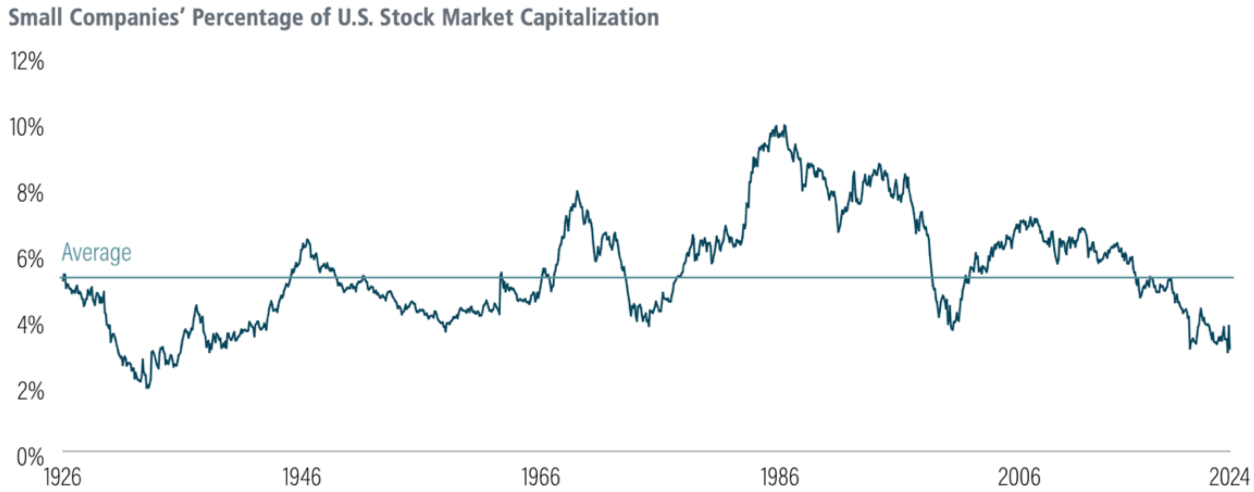
A PRIMER ON SMALL & MICRO-CAP INVESTING

Micro-cap listings, like Kraig Biocraft Laboratories (OTCQB: KBLB), require a different perspective to analyze and value the company. Simply following standard valuation models, where we rely on revenue, earnings, and discounted cash flows to calculate a proper estimated appraisal for a company and in turn, its per share price, won't get us very far. Instead, we need to employ a different approach that assess the inherent risks and the vast opportunities in the field of small- and micro-cap investing.

Before analyzing our subject company in further detail, it is helpful to zoom out and start looking at the facts. According to Neuberger Berman and Jeffries Research[1], an investment management company, around half (44%) of the small-cap businesses in the Russell 2000 Index lost money in 2024. But what does this mean, exactly? Those companies are either still unprofitable or burdened by debt, which causes negative earnings. However, most venture companies rely on heavy investment and funding and simply do not yet report stable profits. That's just how the business works. If you prefer stable earnings and profits, small- and micro-cap stocks are not the right asset class for you. As small- and micro-cap investor, you need to be comfortable with uncertainty and focus on opportunities instead. Hence, the most pressing question for you shifts from whether the business is profitable yet, to the viability of its business model for years or even decades to come.

Following the business model test, we should consider some macro-facts that take the bigger picture into account - such as overall market conditions and valuations, as well as certain geopolitical trends. When we review this data, we see that small- and micro-caps have rarely reached the current historical underinvestment levels. As Chart 1 illustrates, their share of total market capitalization in the U.S. is less than 4%, at the moment, well below its long-term average of 6%. As most investors essentially invest passively in the S&P 500 or the Nasdaq, investments in large-cap stocks have become highly valued and concentrated, whereas other asset classes seem to be overlooked. As soon as the next asset rotation starts, we can expect a more promising outlook for small caps. Why? Firstly, they are reasonably valued and, secondly, small cap investments could be favored by the government as they are less internationally diversified and thus more relevant to the U.S. economy than highly globalized multinationals in the S&P 500 might be.

[1] https://www.nb.com/en/global/insights/insights-a-new-era-for-small-caps



Source: Jefferies Research, Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business; as of May 31, 2024. CRSP® divides company stocks into 10 deciles by market capitalization. Small companies are represented by deciles six to eight. Nothing herein constitutes a prediction or projection of future events or future market behavior. Historical trends do not imply, forecast or guarantee future results. Due to a variety of factors, actual events or market behavior may differ significantly from any views expressed or any historical results. Investing entails risks, including possible loss of principal. **Past performance is no guarantee of future results.**

Chart 1: Market Cap of Small Caps vs. Total U.S. Market, Source: Neuberger Berman report

Following our top-down approach, we can now conclude that the macro-picture for small-caps looks quite promising for the next years. Therefore, we take another step and continue with the portfolio perspective. Here, we need to determine how much an investor should allocate to small- and micro-cap stocks after all. Although facts look promising, we advocate for an allocation of 10% to 15% as part of a well-diversified investment portfolio, which includes various asset classes. The reason behind this seemingly small allocation lies in the inherent riskiness of this asset class. Small and micro-cap stocks tend to be highly sensitive to economic growth, thus you need to balance your investments with more stable assets to ensure long term growth. As an add-on, however, small- and micro caps haven't looked this promising in many years.

The next question deals with passive vs. active investing. Sure, simply buying a small-cap ETF like the Russel 2000 is convenient. However, we believe that an active approach is superior, because otherwise you simply buy a diversified index with a lot of unprofitable companies and the risk becomes that the fund may have too many flawed business models, as you are not aware if the companies in the index are overleveraged and/or in a dying line of business. To address that critical fact, we need to actively look for promising small- and micro-cap investments and create our own diversified investment basket of around 10 companies. By doing so, we achieve a proper diversification, but are still fully aware of the quality and potential of our companies.

Still, this approach isn't without its challenges. It's volatile, often messy, and demands a lot of discipline. Yet, by keeping your individual allocations manageable - say 1% to 1.5% of the total portfolio (max. 15% in total) - you limit the downside while positioning yourself for the kind of asymmetric returns that make this strategy worthwhile. But wait, what does this mean, exactly?

Although we conduct thorough research and avoid investing in dying businesses, you simply need to understand that more than 50% of the small- and micro-cap stocks in your basket will fail within the next five years. That's just how it is – it's like investing in start-ups, when you know that 90% won't survive the next 2-3 years. However, you only need one true success to turn everything around and that's exactly the perspective you need to incorporate as small- and micro-cap investor as well.

The potential payoff lies in understanding that while most small - and micro-caps are priced low for valid reasons - reflecting negative fundamentals or widespread skepticism - success often hinges on identifying what could go right. Catalysts such as strategic partnerships, technological breakthroughs, or new funding can swiftly shift market sentiment. By the time these catalysts materialize, it often feels obvious in hindsight, much like investing in NVIDIA or Apple in their early days. However, at the time those stocks were not priced for perfection, their outlook wasn't that glamourous. Their stock prices were low, showing little momentum or were on a losing streak for a while. That's why most investors simply did not touch them – it was just too risky, too uncertain. The business model was promising, for sure, but for most people, the visible risk factors outweighed the opportunities, by far.

With this perspective in mind, the following pages will dive into the first company which we consider for our small- and micro-cap basket. Thus, we turn our attention to Kraig Biocraft Laboratories and its innovative work in creating a new technology that produces fibers that are tougher and more flexible than Kevlar.

INTRODUCTION TO KRAIG BIOCRAFT (KBLB)

Kraig Biocraft Laboratories, Inc. (Ticker: KBLB or Kraig for short) is a U.S. biotechnology materials company headquartered in Ann Arbor, Michigan and its shares have traded on the OTC since 2008. The company focuses on creating a new kind of fiber that combines ecofriendly traditional silk production with the toughness of spider silk. As a result, this innovative product called spider silk is not only biocompatible, but also more powerful than Kevlar.

Let's take a step back to fully understand the fundamentals of Kraig's work. To grasp the importance of their innovation, it's helpful to start with silk, which is a material that has been around for thousands of years and valued for its softness and strength. Raw and unprocessed silk is a liquid fiber protein produced naturally by silkworms to create a protective cocoon for their pupa. As soon as the fiber hardens, it creates a long strand of silk. Humans began harvesting silk by placing cocoons in warm water to soften the binding proteins, allowing each cocoon to be unrolled and its single strands extracted. These strands are then reeled and twisted together to form soft and shiny threads. Overall, the process of harvesting and producing silk is quite labor- and resource-intensive. As a result, it is positioned as a premium material, with raw silk prices ranging from $60,000 to $95,000 per ton[2]. Silk is mostly used for clothing, linens and home furnishings.

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[2] https://businessanalytiq.com/procurementanalytics/index/raw-silk-price-index/

Spider strands (or silk), on the other hand, are protein fibers spun by spiders to create webs or other structures like nests. Spiders also use their fibers to float through the air. Most of us are aware of that.

What makes spider silk extraordinary is that it combines high tensile strength, extensibility and toughness. Strength refers to how much weight the silk can hold before snapping. For instance, unit for unit, spider silk is stronger than steel, although not quite as strong as Kevlar. But what makes spider silk really special is its toughness, which measures how much energy it can absorb before breaking. Think of toughness as the silk's ability to bend and stretch without snapping under pressure. In this way, spider silk outperforms both steel and Kevlar because it can stretch and bend a lot before it reaches its breakpoint. The graph below illustrates the relationship between strength, toughness, and extensibility.

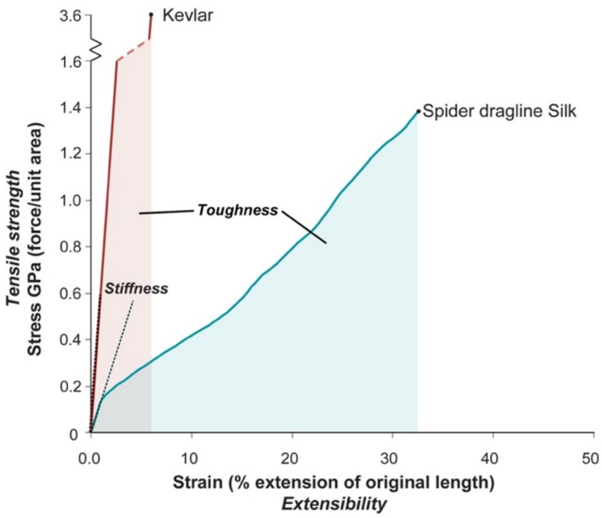

Chart 2: Properties of Spider Silk, Source: https://en.wikipedia.org/wiki/Spider_silk

Since this insight is key, an example might help. Just think about trying to stop a moving car to avoid it falling off a bridge. The most common approach is to use guardrails made of steel. However, steel might snap because it's strong but doesn't stretch much if an impact occurs. Kevlar might hold, but it's rigid and can tear under extreme force. Spider silk, on the other hand, could both stretch and absorb the energy, making it incredibly resilient. This unique combination of strength and elasticity is what makes spider silk so remarkable and versatile.

This is exactly where Kraig's innovation comes into play. By genetically engineering silkworms to produce fibers with spider silk-like properties, they combine the scalable production process of traditional silk with the exceptional qualities of spider threads. The resulting material is spider silk that blends the lightweight nature of silk with the strength and elasticity of spider fibers. It represents a significant leap forward and offers a viable solution to unlock the true potential of spider silk, with applications ranging from advanced textiles to medical devices. For instance, spider silk's biocompatibility makes it a candidate for sutures and implants, while its strength and flexibility could outperform materials like Kevlar in applications such as body armor.

Speaking of Kevlar (aramid fibers), its development by DuPont in the 1960s was also seen as a breakthrough in material science. Famous for its exceptional strength with little weight, aramid fibers found use in protective gear, aerospace components, and industrial equipment. However, its rigidity and high production costs, ranging from $20,000 to $50,000 per ton[3], limit its application in areas where flexibility is critical. Still, the global market for aramid fiber market was valued at approximately $4.5 billion in 2019 and is expected to grow steadily (6.5% CAGR expected until 2027), driven by demand in defense and industrial sectors[4].

In this context, spider silk might emerge as the next big thing when it comes to high-performance materials like Kevlar, carbon fiber or graphene. By addressing the shortcomings of both traditional silk and Kevlar, Kraig's experienced leadership team is positioning their company to make an impact on multiple industries. Unlike Kevlar, which relies on highly concentrated sulfuric acid and generates significant waste, spider silk can be produced from renewable resources like mulberry leaves, fostering the planting of thousands of trees that help stabilize soil, naturally sequester carbon, and provide oxygen. As a biodegradable fiber, silk is fully recyclable, renewable, and sustainable. Those attributes make it an eco-friendly option for companies looking to reduce their environmental footprint.

In the next section, we briefly discuss the management and board members of KBLB to ensure the company is run by highly qualified people with skin in the game.

MANAGEMENT AND BOARD MEMBERS

Kraig Biocraft Laboratories is run by its founder and CEO, Kim K. Thompson, who also serves as Chairman of the Board. With a strong academic foundation in economics and law, Thompson has built Kraig into a leader in biotechnological innovation. Before founding the company in 2006, Thompson's career included leading a California-based law firm specializing in corporate advisory and intellectual property disputes. This experience has been pivotal in guiding Kraig through the complexities of developing and commercializing recombinant spider silk fibers.

Thompson's vision centers on scalable, cost-effective spider silk production through proprietary transgenic silkworm technology. His leadership extends to serving as Chairman of the Scientific Advisory Board, where he has facilitated collaborations with institutions like the University of Notre Dame. This partnership, vital to Kraig's early R&D efforts, has seen Notre Dame take a minority equity stake in the company. Thompson himself holds approximately 19.41% of Kraig's outstanding shares, valued at approximately $20.1 million, underscoring his significant personal investment in the company's success[5]. Supporting Thompson is Jonathan Rice, Chief Operating Officer since 2015. Rice brings extensive experience in defense-related power systems, which aligns with Kraig's aim to enter high-performance markets.

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[3] https://gbtimes.com/how-much-does-kevlar-cost/

[4] https://www.fortunebusinessinsights.com/aramid-fiber-market-102183

[5] https://www.insidermonkey.com/insider-trading/insider/thompson-kimberly-kraig/1837586/

Kraig's Board Members Elect collectively bring decades of expertise in global manufacturing, finance, and corporate governance. Anurag Gupta, with nearly 30 years at the helm of multi-billion-dollar enterprises, fueled growth through acquisitions and strategic initiatives at IHS Markit and Motorola Joint Ventures. Gregory Scheessele, a veteran of the automotive and industrial sectors, adds deep operational and engineering experience from his leadership roles at TMD Friction Holdings and Pall Corporation. Mike Walsh, formerly CFO at NSF International, brings robust financial expertise, having led multiple acquisitions and overseen global finance operations. William DeClerq, founder of Riverview Accounting and Advisory, is an SEC reporting specialist adept at guiding both private and public enterprises. Finally, Kenneth Le contributes extensive international business acumen, having spearheaded large-scale developments in Southeast Asia. Collectively, Mike Walsh and William DeClerq will also serve on Kraig's audit and compensation committees, adding critical oversight as the company advances towards further professionalization.[6]

Together, the leadership team and board elect do not only have vast experience in business and engineering but also own a substantial portion of the company's equity collectively, signaling their vested interest in Kraig's long-term success. In the next section of the report, we take a look at the competition to understand more about the industry and if KBLB's product is truly innovative or not.

COMPETITIVE LANDSCAPE

Kraig Biocraft Labs was born when Thompson studied the many failed attempts to mass produce spider silk and devised a common sense, but technically demanding, solution. Kraig's first successes should have attracted investment banks. However, his breakthroughs happened during the financial crisis and followed Nexia Biotechnologies highly publicized spider goat failures, which burned through an estimated $110 million, including $42.5 million from its IPO. With a proper funding, Kraig should have been able to shave off several years from its commercialization timeline.

Nevertheless, Kraig operates in a highly specialized field with few competitors, each pursuing unique methods to commercialize spider silk. Among these, Bolt Projects (NYSE: BSLK, formerly Bolt Threads) stands out with its use of yeast fermentation to create a spider silk called *B-Silk*. The company, based in California, attracted various funding rounds, including $213 million from Formation 8, Founders Fund, and Innovation Endeavors, as well as Scotland's Baillie Gifford, which valued Bolt at over $700 million, following Kraig's extensive media coverage (televised press conference), which enabled Bolt to expand its product line into areas like beauty ingredients, where their vegan silk platform provides silk polypeptides for cosmetic solutions. While impressive, its primary focus has shifted from spider silk to broader sustainability efforts, raising questions about the scalability and focus of its original mission. The stock price in Chart 3 seems to confirm that picture, because the company has lost most of their value since summer 2024.

[6] https://www.m2compliance.com/hosting/company/KBLB/link_files/2024/12-09-2024/FormS-1A(12-09-2024)Kraigbiocraftlab/FormS-1A.pdf

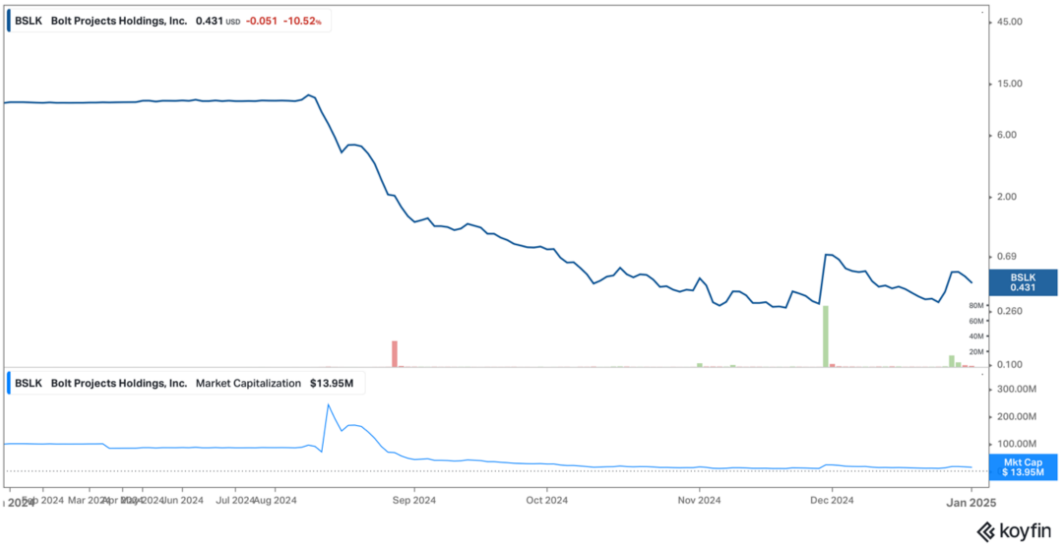

Chart 3: Stock Price Chart of BSLK, Source: Koyfin

The publicly traded company Ginkgo Bioworks Holdings (NYSE: DNA) is also worth noting for their genetic engineering capabilities, though their focus diverges from Kraig's. Ginkgo Bioworks, which has an approximately $630 million market cap and annual revenues exceeding $250 million, leverages its biotech-engineering platform for diverse biomaterials, potentially overlapping with spider silk. The cooperation between Ginkgo Bioworks and Bold Projects was supposed to produce spider silk in 2022, which may have posed a threat to Kraig Biocraft, as it would also open the production and scalability of spider silk by other companies, but they were not able to achieve their goal.

Likewise, Japan's Spiber has taken a different approach with its Brewed Protein, a synthetic spider silk analog created using microbial fermentation, and was able to raise capital following Kraig's peer reviewed breakthroughs. Spiber mainly specializes in creating sustainable fibers for clothing. High-profile collaborations, such as with The North Face, have helped position the company as a leader in innovation. Spiber raised over a $250 million before its planned 2021 spider silk production launch, when it was valued at approximately $1 billion. Spiber has since pivoted from spider silk to Brewed Protein and has raised over $100 million in additional funding, since its pivot.

Against this competitive backdrop, Kraig's strategy to harness genetically modified silkworms presents a distinct approach. By using established silk production infrastructure, Kraig may offer a cost and scalability advantage over competitors relying on microbial fermentation alone. This method not only leverages a proven green production framework, as opposed to fermenting microbes, which is not environmentally friendly, but also aligns with traditional silk farming practices, potentially accelerating adoption and integration. However, the biggest scientific advantage is that the microbe platform used by others is limited by the simple protein sequences that it can handle, as opposed to Kraig successfully encoding entire complex spider silk protein sequences in its specialized silkworms.

While competitors like Bolt Projects and Spiber have gained attention through partnerships and funding, their pivot to other proteins confirms the difficulty involved. Kraig's ability to clear these hurdles establishes it as a leader in this space, but that must now be matched by its efforts in scaling production, securing partnerships, and generating consistent revenue streams. With a market cap of approximately $101 million and limited revenues, so far, the company remains at an early stage, but its main focus on building a scalable production pipeline and targeting more high-end niches positions it well among peers. Whereas the competition specializes mainly in sustainable fibers for clothing or cosmetics, more lucrative and futuristic fields for spider silk are not yet targeted. Therefore, we briefly discuss further applications of spider silk, which could open various markets and opportunities for KBLB.

CURRENT AND FUTURE APPLICATIONS OF SPIDER SILK

As investors in small- and micro caps stocks like Kraig Biocraft Labs, we need to focus on opportunities and not on current issues, as we have highlighted in the first section of this report. However, even the most innovative companies need to tackle an existing market first to sell their products. Otherwise, they might run out of cash before the right time for their revolutionary product arrives. Therefore, we focus first on existing applications for spider silk and then move on to a more forward-looking discussion.

At the moment, spider silk's remarkable qualities open doors in industries with immediate demand for high-performance materials. Technical textiles and undergarments are among the lowest hanging fruit that should command a premium. Compression garments are a must have for multiple sports and even some physical therapy rehabilitation applications, while spider silk's ability to wick away sweat make it ideal for many outdoor activities. Plus, tougher and protective work gear is appealing to many industries.

Another promising area could be high-performance textiles for defense purposes. Being light and incredibly strong, spider silk has potential in producing advanced body armor and protective clothing, offering superior protection while allowing for greater flexibility and comfort. The defense sector, a key market for materials like Kevlar, could find spider silk even more appealing due to its ability to reduce the weight burden on soldiers without compromising safety. For example, the English military published a call to action for spider silk undergarments, which, according to the conventional wisdom, should help protect limbs from IEDs and other explosive shrapnel.

Looking further ahead, spider silk's remarkable properties may open doors to applications that seem futuristic today but could be commonplace by 2030 and beyond. Futurists predict the first humanoid robots might enter the market within the next 5–10 years, while health monitoring devices such as the Apple Watch and Fitbit will likely evolve to offer unprecedented insights into our wellbeing. Spider silk, being lightweight yet ultra-strong, could be integral to constructing next-generation robotics and wearable technology. Its natural fiber-optic qualities may even pave the way for advanced biomonitoring clothing.

Medical applications are another area where the scientific community has devoted significant R&D efforts. Spider silk's biocompatibility and durability make it an ideal material for surgical sutures, ligament repairs, and other procedures, as healthcare providers and manufacturers increasingly seek safer, longer-lasting alternatives.

Moreover, spider silk could replace traditional materials, which are often made of petrochemicals. For example, because weight is essential to aerospace or transportation in general, a spider silk composite could be used to create plane interiors, car seats, or more. All of these products would not only be extremely light and stable, but also biodegradable. A significantly lower fuel consumption and environmental footprint would be the result, making Kraig's product appealing from various perspectives.

The global market for high-performance materials is massive, with estimates for advanced textiles, medical applications, and aerospace components collectively exceeding hundreds of billions of dollars annually. While spider silk is still not available at industrial-scale quantities, Kraig Biocraft Laboratories has made notable improvements in scaling production recently.[7] If they continue on this path, they could position themselves at the forefront of a transformative industry. How this would affect their revenue generation process and in turn, their stock price valuation will be addressed in the following section of this report.

ADDRESSABLE MARKET TRENDS & REVENUE ESTIMATION

Since the pandemic, the global textile and technical fiber markets have experienced significant transformations driven by geopolitical shifts, sustainability concerns and evolving consumer demands. If Kraig Biocraft Laboratories can successfully position and scale its innovative spider silk, it stands to capture a meaningful share of these opportunities. However, with no substantial revenues reported to date, understanding the market dynamics and framing a realistic revenue hypothesis require both careful analysis and forward-looking considerations.

The global technical textile market is projected to grow to $222 billion by 2025, with sub-segments such as performance fibers and luxury textiles leading this expansion.[8] Kraig's revolutionary spider silk could target these high-value niches, offering applications ranging from performance apparel and protective clothing to advanced medical devices. Its unique combination of strength, flexibility, and biocompatibility positions it as a potential game-changer, rivaling established materials like aramid fibers (e.g., Kevlar). Tapping only into 2% of the $4.5 billion aramid fiber market would secure a meaningful revenue share, unlocking opportunities for further R&D investment and production scaling.[9] Generating sustainable revenues while demonstrating double-digit growth rates would also enhance investor appeal, paving the way for future capital raises or debt financing.

But let's get more concrete. The path to revenue generation for Kraig hinges on two immediate strategies:

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[7] https://finance.yahoo.com/news/kraig-biocraft-laboratories-reports-record-120500160.html

[8] https://www.marketsandmarkets.com/Market-Reports/technical-textile-market-1074.html#:~:text=The%20global%20technical%20textile%20market,as%20compared%20to%20traditional%20textiles.

[9] https://www.marketsandmarkets.com/Market-Reports/aramid-fibers-market-112849061.html

1. **Niche Market Entry**: By targeting applications where spider silk's unique properties offer clear advantages (textiles, apparel or lightweight defense fabrics) could ensure a first revenue
2. **Collaborative Ventures:** Joint ventures or licensing agreements with established players in technical textiles or medical industries could provide larger revenue streams while reducing upfront capital needs for further scaling

What revenue potential could Kraig's management unlock by targeting a niche market in 2025? Recent updates show that KBLB has made solid progress in addressing key challenges with scalability and reliability. Last year, the company produced 1,200 pounds (0,55 metric tons) of recombinant spider silk (BAM-1 hybrid). This marked a major breakthrough, surpassing the total output of all previous years combined. This milestone not only demonstrates Kraig's ability to scale production but also to improve processes further by leveraging the knowledge of industry experts like Dr. Nirmal Kumar - a globally recognized sericulture expert from India's CSRTI.

If the company continues refining its hybrid silkworm strains, optimizing production processes, and securing adequate capital over the next years, doubling the output annually until 2029 appears both achievable and necessary to justify its market potential. Given current estimates, Kraig plans to produce between two and five metric tons of spider silk by the end of 2025 already, with the potential to reach its existing facilities' capacity limit of around ten metric tons by the end of 2026. From 2027 onwards, management intends to leverage its network and distributed production system in Vietnam to scale output even further, as the region can support more than 1,200 metric tons of spider silk per year.

Aside scaling production, pricing remains a critical factor in assessing spider silk's revenue potential. While Kevlar averages around $40,000 per ton, spider silk's superior attributes justify a significant premium. A conservative estimate of $100,000 per ton reflects its value in advanced applications such as medical devices, aerospace, and high-performance textiles. Using this benchmark, Kraig's 2024 production of 0.5 metric tons could have generated approximately $55,000 in revenue already.

However, if we use the lower bound of managements' production estimates for 2025 of two metric tons and assume a doubling of the output until 2029, revenues for niche products could grow from $200,000 in 2025 to more than $6.0 million by 2029. While these figures demonstrate scalability, they highlight the limitations of relying solely on niche markets alone.

Therefore, the true financial opportunity lies in collaborative ventures by either leveraging Kraig's intellectual property (IP) via licensing deals or through joint ventures. In Vietnam alone, traditional distributed sericulture can handle up to 1,200 metric tons of spider silk per year, creating a substantial platform for Kraig to partner with industry leaders in performance outerwear, apparel, high fashion, and technical textiles. Rather than simply licensing out its technology, Kraig can co-develop specialized, high-margin products under joint venture agreements, capturing shared profits well above standard licensing returns. This not only allows the company to scale rapidly without significant capital expenditure but also positions it to capture high-margin revenues while enabling broader adoption of spider silk across diverse industries. Given the market size for aramid fibers ($4.5 billion in 2019), achieving just a 2% market share via a joint venture with an existing market leader could result in a revenue share for Kraig of $90 million in just a couple of years.

When it comes to licensing, KBLB's collaboration with the University of Notre Dame and its secured patents in jurisdictions such as South Korea, Australia, Vietnam, and Canada form a robust foundation for such deals. Industry data suggests royalty rates for high-performance materials typically range from 5% to 10% of licensee revenue. With the global synthetic spider silk market specifically for genetically modified silkworm-based products projected to grow from $0.4 billion in 2025 to $1.1 billion by 2030, even a modest 10% market penetration could yield $100 million in partner revenue by 2029.[10] At a conservative royalty rate of 7.5%, this would translate to around $7.5 million in additional revenue per year for Kraig - surpassing its potential from direct production. All in all, we can expect KBLBs total revenue to grow from a low of around $0.2 million in 2025 to a staggering $100 million in just a couple of years.

However, as time is of the essence, Kraig Biocraft Labs needs to impose a dual strategy in 2025 already to signal progress to its investors. Scaling up production is crucial to refine internal capabilities but prioritizing high-margin revenues via joint ventures are key. However, we expect progress as management assembles a sales team to track multiple sample requests and turn unsolicited inquiries into revenue opportunities or even partnerships. Otherwise, the challenges and risks – which will be discussed in the next section – will remain central and sensitive enough to overshadow any kind of opportunity set.

CHALLENGES AND RISKS

KBLB faces a number of challenges typical for biotech companies in the micro-cap stage. Furthermore, these challenges are compounded by a volatile macroeconomic environment, which is characterized by high interest rates and a less forgiving capital market for speculative ventures outside the fields of AI. Therefore, Kraig's going concern risk remains a pressing issue, as outlined in recent SEC filings.[11] Management has highlighted that current cash reserves, approximately $1.19 million as of September 2024, are insufficient to meet business objectives without additional capital. With an accumulated stockholders' deficit exceeding $52 million and a working capital deficit of $8.1 million, securing new funding was crucial to sustain operations. In January 2025, Kraig Labs announced a $10 million standby equity purchase agreement (SEPA) with Yorkville (YA II PN, Ltd.), which provides an alternative to conventional equity or debt financing.[12] While this SEPA arrangement mitigates immediate concerns about funding, the company still faces the broader risks of dilution and other restrictive terms if additional capital is needed in the future.

Although lower than some direct competitors, KBLB's current burn rate still poses a challenge, as increased general and administrative expenses, officer salaries, and professional fees continue to erode cash reserves.

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[10] https://www.rootsanalysis.com/synthetic-spider-silk-market

[11] https://www.m2compliance.com/hosting/company/KBLB/link_files/2024/11-13-2024/Form10-Q(11-13-2024)Kraigbiocraftlab/Form10-Q.pdf

[12] https://api.quotemedia.com/supplement/news-story/?webmasterId=102353&storyId=4797018245994383

While the recently announced standby equity purchase agreement helps mitigate immediate liquidity concerns, the decision to invest $636,000 in gold bullions rather than retaining liquid cash raises questions about financial priorities. Although holding gold can hedge against inflation and market risks, it also limits operational flexibility - particularly when funding must be carefully managed to support both ongoing R&D and day-to-day activities. This approach reflects management's caution in a volatile financial market but underscores the need for more active cash management practices to ensure continuity and capitalize on the company's growth potential.

Therefore, we need to remind a potential investor that investing in small and micro-cap companies like KBLB inherently carries significant risks, as outlined in the first chapter. These investments often behave like call options - highly speculative bets with binary outcomes. Even with a promising product like spider silk, the odds remain steep that the company could face insurmountable hurdles and fail to survive another year. This is the inherent downside, the worst-case scenario that cannot be ignored. To mitigate these risks, diversification across a basket of small caps is crucial, along with limiting exposure to no more than 1% of a total portfolio for any single stock. Such a strategy ensures that even a total loss will not materially impact the overall portfolio while preserving the opportunity for substantial upside.

A promising sign of resilience, however, is that although many small-cap companies fail within just a few years, Kraig has been operating since 2008. Even if the team is unable to fully commercialize its spider silk, the technology's inherent value should help hedge against some downside risk. Despite the challenges, Kraig's recent production milestones and unique spider silk approach provide grounds for cautious optimism. Over the years, management has demonstrated the ability to navigate technical hurdles, suggesting they may secure additional capital or strategic partnerships needed to extend the company's runway until 2029 and beyond. Given the current stock price, much of the worst-case scenario appears priced in, thereby reducing further downside risk. Consequently, any positive development - such as the recently announced funding round, a new licensing agreement, or another breakthrough in production - could yield some substantial gains for investors. But let's take a look at the overall company and stock price valuation for the next years in the subsequent section.

COMPANY AND STOCK PRICE VALUAwweTION

As mentioned earlier, valuing an early-stage biotechnology company like Kraig Biocraft Laboratories presents a challenge, as traditional valuation models such as Discounted Cash Flow (DCF) are impractical in the absence of stable revenues or predictable cash flows. Instead, we rely on a combination of valuation techniques suited for micro-cap companies, which emphasizes the comparables method and the potential revenue multiple approach. To account for the immediate financial needs, we consider a capital raise in 2025 and measure the impact of dilution on the shares outstanding.

In more detail, our analysis uses two methods to estimate Kraig's potential value:

1. **Revenue Multiples Approach:** This assumes a valuation range of 8x to 12x forward revenues, reflecting market norms for high-growth advanced material companies.
2. **Comparable Companies Approach:** Drawing parallels to the valuation metrics of similar firms in sector, which typically trade at elevated price-to-revenue multiples due to their disruptive potential. Given the heterogeneity of this field, we prioritize on the first approach as it will lead to a less biased estimate.

As discussed in the addressable market analysis, Kraig's management projects producing between two and five metric tons of spider silk by the end of 2025. At a conservative price of $100,000 per ton, this equates to roughly $200,000 to $500,000 in direct production revenue. Assuming the company at least doubles output annually through 2029, niche market sales alone could exceed $6 million within four years.

However, the real value lies in Kraig's joint-venture and licensing strategy, leveraging its patented technology to capture a portion of the expanding aramid fiber and global spider silk market. Based on our previous analysis about the overall market potential for biodegradable fibers and industry standard royalty rates, KBLB could generate a sizeable revenue through partnerships and licensing fees from 2026 and onwards. As table 1 summarizes, we expect revenues to grow from a low of around $200,000 in 2025 to significant levels between $45 and $104 million in 2029.

Year	Revenue Range (USD M)		8x Revenue Val. Range (USD M)		12x Revenue Val. Range (USD M)	
	Min	Max	Min	Max	Min	Max
2025	0.2	1.0	1.6	8.0	2.4	12.0
2026	1.5	7.5	12.0	60.0	18.0	90.0
2027	3.0	15.0	24.0	120.0	36.0	180.0
2028	6.0	30.0	48.0	240.0	72.0	360.0
2029	45.0	103.5	360.0	828.0	540.0	1242.0

Table 1: Ranges of Revenue Estimates until 2029, Source: Own Calculations

Given our cautious assessment, we estimate that most of this figure is based on licensing and joint-venture income alone and not made via direct sales. Therefore, we still leave sizeable room for improvement when scaling the internal production of spider silk can be achieved in the near future.

To sustain its operations and address working capital needs, our conservative forecast assumes Kraig will issue 125 million shares at $0.08 per share to raise $10 million in 2025 - a 20% discount to the current trading price. This would increase the total outstanding shares from around 1.05 billion to 1.17 billion. However, the recently announced $10 million standby equity purchase agreement (SEPA) with Yorkville provides an alternative of securing capital over the next years. While the SEPA may reduce the necessity for this larger share issuance, we maintain our conservative assumption for modeling purposes, as it ensures sufficient funding to scale production and pursue collaborations and licensing opportunities over the next one to two years.

In the next step, we apply sector specific revenue multiples between 8x and 12x to derive a first indication of Kraig's fair value. These multiples are elevated but can be justified given the high growth potential and scalability of innovative technologies. Table 1 shows the ranges of company values given an 8x and 12x revenue multiple in the third and fourth column. As we can see, the value of the company is quite limited when little or no revenue is generated. That is a shortcoming of the revenue multiple approach, as intellectual property or other assets are simply not taken into account. As the company is currently trading at a market capitalization of $100 million, the market seems to value KBLB's intellectual property and patents around this figure as other sources of value do not seem to exist at present. Chart 4 seem to confirm this assumption as the stock tends to revert towards its mean price of $0.08 over the last years.

Chart 4: Stock Price and Markt Cap Chart of KBLB, Source: Koyfin

Henceforth, we see the current stock market value of $0.10 as baseline for Kraig Biocraft Laboratories' intellectual property value. After accounting for dilution and factoring in a risk factor of 10% given the uncertainty about small- and micro-cap stocks, we use a value of $0.08 as implied fair value and add our multiple estimates accordingly as table 2 illustrates.

Year	8x Revenue Val. Range (USD M)		Shares Outstanding (M)	Stock Price Val. Range (USD)	
	Min	Max		Min	Max
2025	1.6	8.0	1165	0.08	0.09
2026	12.0	60.0	1165	0.09	0.13
2027	24.0	120.0	1165	0.10	0.18
2028	48.0	240.0	1165	0.12	0.29
2029	360.0	828.0	1165	0.39	0.79

Table 2: Ranges of 8x Revenue Multiples and Stock Price Values until 2029, Source: Own Calculations

Assuming combined revenues of $45 to $104 million by 2029, the company's valuation could range from $360 to $828 million at an 8x multiple, as table 2 indicates. Dividing these valuation figures by the diluted share count of 1.165 billion yields a potential implied value range for KBLB's future stock price between $0.39 and $0.79, respectively.

Year	12x Revenue Val. Range (USD M)		Shares Outstanding (M)	Stock Price Val. Range (USD)	
	Min	Max		Min	Max
2025	2.4	12.0	1165	0.08	0.09
2026	18.0	90.0	1165	0.10	0.16
2027	36.0	180.0	1165	0.11	0.23
2028	72.0	360.0	1165	0.14	0.39
2029	540.0	1242.0	1165	0.54	1.15

Table 3: Ranges of 12x Revenue Multiples and Stock Price Values until 2029, Source: Own Calculations

Applying a higher revenue multiple of 12x shows even more potential as shown in table 3. In a more optimistic case – which can be obtained through high profile collaborations or long-term contracts in the defense sector – Kraig's implied stock price could increase to $1.15 in 2029, which would mean an 12x increase compared to its current levels. Put differently, the stock would need to grow with a compounded growth rate of around 65% per annum to increase from $0.10 to $1.15 within a period of five years. And exactly this kind of upside leads to the attractive opportunity, with an asymmetric distribution.

Furthermore, some assumptions behind these calculations warrant further sensitivity analysis. Increasing the market penetration rate from just 2% to 3% would elevate annual partnership revenues to a range between $93 and $149 million by 2029, which, at a 12x revenue multiple, would push the stock price to $1.6 per share and bring the total value of the company above $1.7 billion. Of course, a scenario like this is highly optimistic, but as mentioned before, if the worst case is already priced in, we need to take one step back and simply look at a scenario when things go right.

Lastly, we take a brief look at comparable companies to assess a proper valuation for Kraig. As stated, this approach is primarily suitable if the market is quite homogenous, and the companies operate at similar stages. At the time being, only Bolt Project Holdings (BSLK) fits into the picture. However, it only trades at a market cap of $15 million and its enterprise value (EV) stands at $22 million. Still, the long-term valuation comparable (EV/Revenues) stands at a quite optimistic multiple of 14.5x, which is very much in line with the 12x revenue multiples for Kraig. Given that KBLBs has very little debt outstanding (less than $1.7 million) and cash on hands in the same region, its enterprise value does not differ much from its market capitalization. Therefore, we can conclude that using an 8x to 12x revenue multiple seems reasonable to value a promising, but highly speculative company like Kraig Biocraft Laboratories.

CONCLUSION

In conclusion, Kraig Biocraft Laboratories presents a textbook case of high-risk, high-reward micro-cap investing. As discussed in the introductory section, the micro-cap sector inherently behaves like a basket of asymmetric bets: highly speculative, with a low probability of success for most stocks, but significant upside potential for a tiny fraction that do succeed. Kraig embodies this dynamic, combining the promise of groundbreaking technology with the daunting challenges of early-stage commercialization.

Taking a portfolio perspective, diversification remains paramount when it comes to this type of asset. Any investment in KBLB should represent no more than 1% to 1.5% of a well-constructed small- and micro-cap basket, ensuring the overall portfolio risk is capped. Even with a product as compelling as spider silk, the odds of success are uncertain, and the risk of default remains a tangible concern. This is particularly evident in Kraig's financial position, where cash reserves have been dwindling. Although the recently secured standby equity purchase agreement with Yorkville provides a more promising near-term outlook, the company may still need additional funding in 2025 and beyond.

If KBLB's management introduces an industry-typical dual focus on scaling production and monetizing partnerships, a more balanced strategy for revenue growth can be ensured. The former allows Kraig to refine its processes and improve yields, but it's clear that internal production alone cannot drive significant revenues. The key to unlocking transformative growth lies in licensing agreements or joint ventures, enabling Kraig to leverage its IP portfolio across diverse industries. Such partnerships are critical not only for revenue generation but also for solidifying its competitive position in the biomaterials market.

Kraig has already reduced a significant risk by easily surviving the 5-year failure milestone, and its recently secured standby equity purchase agreement eases immediate concerns about a financing shortfall. Even so, investors should remain aware that further capital may be needed in the longer term, making the next year pivotal. Securing strategic partnerships or licensing agreements remains a top priority; if these milestones are met, the outlook becomes cautiously optimistic. KBLB's current valuation reflects substantial skepticism, and any positive news could yield substantial gains. Based on our most conservative valuation assumption, the stock has the potential to quadruple at least over the next few years, even without high multiples or excessive market optimism.

However, if Kraig fails to secure ongoing funding or achieve commercial breakthroughs, investor confidence could erode swiftly, heightening the likelihood of default. In such a scenario, Kraig Biocraft Laboratories' innovative promise would remain unrealized, underscoring the steep risks associated with micro-cap investing. This dichotomy - a potential pathway to transformative success versus the ever-present risk of failure - continues to make Kraig both an intriguing and challenging addition to any small-cap portfolio. Investors must remain vigilant and patient, ready to act when the company's defining moments unfold.

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