Linear Capital - 3Q23 Newsletter

Nov 3, 2023

Dear Friends & Partners,

Thank you for being supportive along the way. We are very glad to present this letter to summarize our quarterly activities in Q3 2023.

--- Observation and Insights ---

The recent Q3 presented its own set of challenges. While we did anticipate policy shifts favoring private sectors in our Q2 report, the tangible impact of these changes remains to be seen.

The policy announcement on July 19, highlighting support for the private sector, marked a significant shift in direction. Subsequent to this, a series of economic support measures were unveiled, notably, interest rate reductions and the release of more capital from banks into the broader economy. Two fundamental questions arise from these policy shifts:

1- Will this change be sustained with unwavering commitment?

2- Can these policies truly expedite economic recovery?

While it's premature to draw conclusions, these policy shifts are a step in the right direction. The core issue, in our view, is the erosion of confidence. Trust, once shattered, is much harder to rebuild. Nonetheless, the intent and will to heal are the preliminary steps to any remedy. Moving forward, what the sector truly needs is tangible financial support, along with rational and transparent regulations that provide a predictable landscape for growth, especially for the private sectors.

We remain cautiously optimistic as we move forward, ever watchful of the evolving landscape.

Feedback from our portfolio companies

Just a heads up on how our portfolio companies are doing after the recent policy changes. Honestly, we haven’t seen a huge difference yet. Most companies are still on the same track for revenue as they predicted in Q2 — no better, no worse.

The clients in the private sectors whom our companies work with are still pretty careful about how they're spending this year. But on the bright side, we've seen steady payments from the big SOEs. So, all in all, we're still on the slow path to getting back to where we want to be.

Our response

We continue our "gaze-to-attack" policy as we started in Q1 last year. We believe, with the investable dry powder we have at hand and our higher selection criteria, along with lower prices for high-quality assets, we may be at the best vintage of ealry stage investments. But this is based on the belief that China will remain stable, which we're confident about.

If the economy shows a steady recovery and the revenue of our portfolio companies stabilizes in a clear manner, we might consider accelerating our investments. Until then, it's crucial for us to remain patient and discerning. We should prioritize selecting only the best opportunities and focus on preserving the most promising companies in our current portfolio.

A new trend in tech startups - international expansion

Since the end of the previous year, many of our portfolio companies have been considering their plans for international expansion. While it's not uncommon for companies with successful business models to expand overseas, as seen with TikTok and Temu, it's a newer trend for cutting-edge tech startups in China. Historically, these startups viewed the Chinese market as vast and lucrative, leading them to become complacent about exploring beyond its borders. However, 2022 served as a catalyst for them to diversify. Those who ventured overseas found that the technological and product competition was less fierce than anticipated, but the challenge lay in adapting, integrating, and growing within the local markets alongside local partners.

Many companies under Linear's investment umbrella were established by founders with quality overseas education and relevant work experience. This makes them well-suited for international business, provided they have the drive and commitment. A growing number are eager to introduce their existing products and services to international markets. As we move into 2023, there's a renewed focus on robust international business strategies. Equipped with superior technology, cost-effectiveness, competitive pricing, outstanding service, and a commendable work ethic, we're confident these tech companies will have a competitive edge.

The primary challenge lies in forging strong alliances with local partners to ensure mutual goals and interests. We recognize that business competition extends beyond just the basics - better tech and better products. Aligning with local stakeholders to foster shared long-term interests is essential. It's for this reason that we recently introduced CEOs of select startups, valued between US$300M and US$1.3B, to potential partners in the Middle East. The visit was met with a positive reception from local entities.

Recap from my US trip in July

I had committed to delving deeper into my experiences from my U.S. trip in July. Primarily, the journey was about reconnecting with our current Limited Partners (LPs) and several long-standing friends in the U.S.

The prevailing sentiment toward China was one of caution. Most have put a hold on engaging new GPs, though they remain keen on comprehending the evolving dynamics within China. Even as many face scrutiny from their Investment Committees, particularly when reaffirming commitments to established Chinese GPs, a pivotal question persists regarding fund performance: 'What is the optimal level of exposure to the world's second largest and persistently resilient and growing economy?'

In our discussions, most shared their perspectives — a 5% investment might be conservative, while 10% could be perceived as more aggressive. However, the consensus was a desire to allocate this 5-10% of investable assets exclusively to the premier funds in China, those known for exceptional returns and the capacity to nurture substantial, enduring relationships. We believe that U.S. LPs will continue their investments in China, though at a reduced scale, barring any unexpected major events that currently appear unlikely.

For Chinese GPs, the pressing task is to demonstrate that significant opportunities ("whales") continue to emerge from this vast "ocean" and that these entities can command substantial valuations despite the challenging market. We are tasked with validating that the underlying economic fundamentals remain intact.

In light of this, we extend a warm invitation to you for any upcoming visits to China. We are eager to engage in deeper discussions and are willing to facilitate meetings with an array of our founders, as well as organize visits to some of the most robust companies that continue to flourish within our portfolio.

Overall

To summarize, this quarter remains challenging for tech startups in China, though our sector is comparatively fortunate. We hold a firm belief in the economy's eventual rebound, recognizing that patience and resilience are currently the most indispensable assets in this journey.

Best regards,

Harry

--- Investments ---

We closed four new deals in Q3 2023. Please see below for details.

- **Dessight (迪视)**
  - Dessight develops and produces surgical systems that integrate biomedical and implementation instruments for ultra-microscopic surgery, with a focus on ophthalmic surgery. Alongside its high-precision microscopic operating platform, Dessight has developed supporting products such as ophthalmic surgical robots, ultra-microscopic surgical robots, micro-pushing devices, and injection needles. Dessight's remote-controlled ultra-microscopic surgical robot can assist doctors in achieving more stable, accurate, and rapid surgical operations, reducing the risks and difficulties of high-precision ophthalmic surgery, and enabling more patients to receive timely, stable, and efficient treatment.
  - **Sensitive Analysis**
    - Current targeted market/clients: The main customers are hospitals, used to assist doctors in performing ophthalmic surgery to treat patients with eye

diseases.

- Potential application areas: There won't be much change compared to the current situation.
- **Conclusion**: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the ophthalmic surgery sector in the foreseeable future.

- **Kewoke(刻沃刻)**
  - In the context of the national Dual-Carbon goals (i.e., carbon peaking and carbon neutrality goals), green hydrogen technology will play an important role in reducing carbon emissions, with electrolysis of water as a representative. Alkaline electrolysis of water is a relatively cost-effective, long-lasting, and scalable technology for hydrogen production. In alkaline electrolysis cells, the membrane is the most crucial material.
  - For many years, Kewoke has been focusing on the research and development of third-generation composite membranes. Its membrane has a higher current density than competing products, reaching up to 6000 A/m2. Kowoke has successfully produced membranes with a thickness of 500um (surface resistance of 0.3 Ωcm-2) and has technical reserves for membranes with a thickness of 200um. Kewoke has the opportunity to contribute to the localization of this membrane and enhance its current density and safety performance in electrolysis cells, thereby promoting the development of the entire green hydrogen industry.
  - **Sensitive Analysis**
    - Current targeted market/clients: Existing clients include hydrogen fuel cell and equipment manufacturing companies, as well as water electrolysis hydrogen production technology companies.
    - Potential application areas: Their products will be primarily used in civil scenarios such as power plants, industrial and commercial energy storage, etc.
    - **Conclusion**: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the civil-use new energy related materials sector in the foreseeable future.

- **Encred**
  - Encred is committed to implementing cutting-edge large language model technology in the field of email marketing. By optimizing with prompts and fine-tuning, AI aligns with the capabilities of professional marketers to help B2B companies solve key issues such as where and how to reach customers, how to send cold emails, how to respond, and how to convert effectively and cost-

efficiently through the email outreach channel, and overcome growth challenges.

- The next generation of Generative AI applications has always been a focus of Linear, and content marketing scenarios are one of the important applications where AI can be implemented at present. Unlike many projects that only superficially combine AI capabilities for content generation, Encred focuses on the topic of overseas and international company growth, combining the capabilities of large language models to provide end-to-end technical services to help clients with target customer positioning, personalized marketing content generation, and automated replies to promote conversions. We believe that this approach allows for the effective scaling of email marketing, which previously required human involvement in core processes, leading to greater incremental gains and the opportunity to bring about disruptive innovation in the field of email marketing.
- **Sensitive Analysis**
    - Current targeted market/clients: Overseas or international SaaS companies with Chinese backgrounds.
    - Potential application areas: B2B or B2C companies with growth demands in the US market.
    - Conclusion: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the smart marketing sector in the foreseeable future.

- **Nanoprint**
    - Photovoltaics is an industry with a market size in the trillions, and 80% of the market is in mainland China. Equipment is an important part of the photovoltaic industry chain, whether it is the pursuit of ultimate efficiency in photovoltaic conversion or the maximum cost reduction. Continuous innovation in photovoltaic equipment is necessary to ensure these goals. Nanoprint utilizes SALD (Space Atomic Layer Deposition) / SCVD (Space Chemical Vapor Deposition) to solve the problems of slow deposition speed, high temperature, low doping efficiency, and vacuum in existing deposition equipment such as ALD/CVD/sputter. It is applied in photovoltaics, semiconductors, and flexible material coating. SALD/SCVD offers faster coating speed, better film quality, significantly reduces equipment costs and production line maintenance costs without the need for vacuum, which is of great importance in the production of photovoltaic cells.
    - **Sensitive Analysis**
        - Current targeted market/clients: Photovoltaic cell and module factory
        - Potential application areas: There won't be much change compared to the current situation.
        - Conclusion: The company's products/services are all for commercial

applications, now and future. We anticipate the applications will be in the civil photovoltaic sector in the foreseeable future.

We have three new deals that are under closing in Q3 2023. Please see below for details.

- **Company M**
  - A company developing enzymatic synthesis of long DNA fragments technology (酶法合成长片段 DNA 技术), which is used to splice DNA fragments and integrate them into high-throughput enzymatic DNA synthesis instrument. This drastically reduces the cost of DNA synthesis and enables efficient large-scale gene synthesis. Company M also integrates gene and protein design technologies to provide large-scale gene design and synthesis services for the biotechnology industry.
  - DNA synthesis technology is the foundation of synthetic biology and even modern molecular biology. Long-chain DNA is crucial in synthetic biology, as current chemical synthesis can only generate sequences of up to 100 bases. Long chains can only be manually spliced, which is time-consuming and laborious, making it the slowest step in the research and development process, requiring large-scale instruments. Currently, there is a lack of high-quality, low-cost, on-demand DNA synthesis solutions in the market. Company M has *de Novo* DNA synthesis enzymes, which can synthesize DNA sequences at a speed nearly 100 times faster than current chemical synthesis methods. The enzymes are stable at high temperatures and have the potential to break the length limitation of chemical methods, enabling one-step synthesis of gene fragments longer than 1000 base pairs with a 10-fold cost reduction.
  - **Sensitive Analysis**
    - Current targeted market/clients: Not yet commercialized.
    - Potential application areas: Synthetic biology, gene therapy, and cell therapy. There is a potential for the utilization of highly advanced gene editing technologies.
    - **Conclusion**: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the synthetic biology sector in the foreseeable future.

- **Company Y**
  - Perovskite solar cells possess several advantageous features, including high theoretical conversion efficiency with adjustable bandgap, simplified processing, shortened production cycles, and reduced costs. These attributes hold the potential to revolutionize the crystalline silicon photovoltaic industry.

However, the stability of perovskite cells in the face of light, heat, water, and oxygen remains a fundamental challenge at the material level. Current approaches typically involve passivation methods that only provide indirect mitigation of degradation or rely on specialized transition layer materials and device designs to partially enhance stability, but these solutions are difficult to implement in practical industrial settings.

- Company Y specializes in the fabrication of monolithic-multi-junction perovskite solar cells, with a particular focus on achieving higher theoretical conversion efficiencies through all-perovskite stacked cells. Their all-perovskite stacked cells have demonstrated exceptional performance, reaching a conversion efficiency of 27% on a small scale, which is close to the current world record. Through innovative breakthroughs in materials and device engineering, Company Y has successfully overcome the stability issues associated with perovskite solar cells.

- **Sensitive Analysis**
  - Current targeted market/clients: Not yet commercialized.
  - Potential application areas: Their products will be primarily used in Ground-mounted solar power plants, rooftop solar panels, building-integrated photovoltaics and etc.
  - **Conclusion**: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the solar energy sector in the foreseeable future.

- **Company S**
  - Footed robots have been developed for many years, both domestically and internationally. In particular, the open-sourcing of MIT Cheetah's MPC algorithm in 2019 has significantly reduced the development barriers for footed robots. The primary advantage of this configuration is its ability to adapt to complex terrains. However, it inherently suffers from disadvantages in terms of efficiency, load capacity, and endurance, thereby limiting its application to B2B scenarios.
  - Company S's innovative technological features provide a glimpse into the commercial potential of versatile footed robots:

1) The wheeled-footed configuration offers several essential foundations for commercialization:

a) High mobility, enabling transportation efficiency comparable to unmanned vehicles.

b) Strong maneuverability, accommodating various types of terrains, similar to footed robots.

c) Improved load capacity of 80kg and endurance of 4 hours, surpassing the capabilities of footed robots.

2) The adoption of a learning-based control strategy, in contrast to model-based approaches, significantly enhances the control strategy's generalization,

smoothness, and robustness. This advancement enables the application of footed robots in diverse scenarios, extending beyond mere demonstration purposes.
Company S is poised to leverage its cutting-edge proprietary technology, in conjunction with China's robust supply chain and production capabilities, to achieve optimal cost reduction and deliver exceptional commercial products that cater to global market demands.

- **Sensitive Analysis**
  - Current targeted market/clients: Public service departments and infrastructure maintenance departments overseas.
  - Potential application areas: Express logistics companies, supermarkets, etc.
  - **Conclusion**: The company's products/services are all for commercial applications, now and future. We anticipate the applications will be in the robotics sector in the foreseeable future.

A bunch of our portfolio companies completed subsequent financing in Q3 2023. We selected some as below for your information.

- **WE-I-Building (蔚建机器人)**
  - WE-I-BUILD Robots designs and manufactures intelligent robots used in construction. WE-I-BUILD Robots is aiming to design intelligent robots that construction workers can use. Therefore, it can accelerate the intelligent transformation of China's construction industry. The major part of work they started replacing is the plastering process in construction. They are able to replace 10 workers with 1 robotic plastering machine and 1 coordinating worker.
  - WE-I-Building closed Series A3 led by Unicorn Partners (独秀资本) in Q3, 2023.
- **Hexaflake (海飞科)**
  - Hexaflake is committed to the R&D of general-purpose parallel processor chips. Also, the company has established software tools and ecosystems for general-purpose parallel computing. Hexaflake has a new SIMT fine-grained instruction set and has developed the underlying hardware architecture by themselves. From the perspective of software developers, the newly designed architecture provides excellent general programming ability and efficient parallel computing capabilities. Typical applications include deep learning inference and training, data analysis, graphics, images, speech, etc.
  - Hexaflake closed the Series A3+ round led by Summitview in Q3, 2023.

- **Guoguangshunneng（国广顺能）**
    - Guoguangshunneng, is dedicated to building a safe and efficient MPS (Mobility Power Supply) mobile energy product/solution with the technology and experience of producing hundreds of thousands of electric vehicles, providing users with a convenient energy charging service and finding a distributed solution for user-side coordinated charging in the new energy network.
    - Guoguangshunneng closed Series Pre-A led by ZGC Group in Q3, 2023.
- **Kexin（科芯）**
    - The chemical industry is very large and traditional. After hundreds of years of development, the traditional manufacturing equipment and technics have been very matured. In the meantime, the technical iteration in the chemical industry is getting more and more limited. There are two major unsolved problems in the industry:
        i. Process development and process amplification. It is one of the pain points and bottlenecks for the chemical industry under the traditional tank reactor (釜式反应) techniques, which is directly related to feasibility of mass production of new chemical products as well as length of R&D cycle, representing huge underlying economic value.
        ii. Safety problems. The high risk in the traditional tank reactor is inevitable due to the characteristics of the chemical reaction. Accidents occur from time to time.
    - Kexin is a continuous-flow chemical production solution based on micro-reactor. This new technology paradigm can effectively solve the problems of process development, process amplification and safety in the chemical industry.
    - Kexin closed Series Pre-A led by Alpha.
- **Xinxiao (芯晓)**
    - Xinxiao provides a chiplet simulation platform with efficient and high-precision distributed matrix solving as its underlying technology. Chiplet is a clear development trend due to its ability to overcome the challenges of advanced processes, reduce the barriers to chip design, have cost advantages, and enable higher chip reuse and faster iteration. However, Chiplet still faces challenges in the design process and requires large-scale system-level simulation. Xinxiao applies distributed solving platform to large-scale system-level simulation, bringing significant improvements in the simulation analysis of chips while ensuring the accuracy of solving. The team is a pioneer in applying distributed computing to the field of chip simulation, accumulating rich practical experience, and having strong cohesion. Currently, the company's target market for its research products is mainly in EDA and physical field simulation.
    - Xinxiao has just completed the second closing of the Series Angel round led by Yinxinggu.

Highlights of Holdings

- Intelligent product design tool developer Orthogonal completed Pre-A round of financing, with Linear Capital as the lead investor.
- Dessight Biomedical released the information that the company completed the first clinical application of ophthalmic surgical robot in Asia by working with People's Hospital of Zhejiang.

Media reports, public events and awards about Linear or our portfolio companies

- Can Zheng, Managing Director of Linear Capital, participated in the "2023 Jiazi Gravity X Technology Industry Investment Conference" hosted by *JazzYears*, discussing the investment philosophy and future development trends of the current artificial intelligence.
- Songyan Huang, Partner of Linear Capital, and invested company We-i-build were invited to talk on the 36Kr podcast program, sharing the story of Linear Capital's investment in We-i-build and Linear's view on investing in deep tech startups.
- Zeren Bai, Senior Director of Linear Capital, interviewed by *First New Voice*, shared Linear Capital's views on investing in AIGC.
- Linear Capital was awarded as *"2023 China's Most Recognized Early-stage Investment Institution"* and *"2023 Top Venture Capital Firm on New Generation Information Technology"* from 36Kr.
- Linear Capital announced that Jun Yang, the experienced entrepreneur and former CTO of Dada, has joined as a venture partner.

Events we hosted

- Linear Capital and Microsoft Startup Accelerator jointly organized the "AI+ Vertical Industry Application Landing" event, where founders of portfolio companies Whale, Powerlaw AI, and Hours Technology shared the implementation of AI in their respective industries.
- Linear Capital and invested company GuanData organized the "*ToB Technology Enterprise Operations and Management Sharing*" event together.
- Some of Linear portfolio companies participated in the World Artificial Intelligence Conference.

Other portfolio comapny news you might be interested in

- Gritworld, one of our portfolios that Linear invested in since A round, announced the completion of Series B fund raising led by BYD compay.
- Datablau, Linear led the deal exclusively in Series A Round, completed Series B1 financing, with continued support from existing shareholder Linear Capital.
- EYIMU announced the completion of Angel Round financing, with exclusive investment from Linear Capital.

Best regards,

Linear Team