

Linear Capital - 2023Q1 Newsletter

May 6, 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 Q1, 2023.

Enjoy!

--- Observation and Insights ---

Overall Recap of Q1

In the first quarter of this year, we experienced a notable increase in activity compared to both the previous quarter (Q4 of 2022) and the same period last year (Q1 of 2022). We capitalized on the favorable market conditions by enhancing our productivity, particularly in executing high-quality deals at attractive prices. Although we maintain our high standards, we hope that our increased productivity will yield improved results as the Chinese economy shows more signs of recovery later this year.

We are encouraged by the better-than-expected (but not that significant) export (+14.8% over Q122, -7.1% expected) and import (-1.4% over Q122, -6.4% expected) statistics for March, and we remain optimistic that this positive trend will continue as the economy gradually regains its footing.

Indeed, many investment opportunities are still available at attractive prices, as the broader capital market remains subdued and China has not yet displayed a significant rebound in Q1. The past year has been akin to a cold that China has caught; recovery is not instantaneous and requires time.

However, we maintain our belief in China's eventual recovery, as the nation's fundamental advantages remain unchanged. These strengths include the vast size of its

market, a dedicated and skilled workforce across various sectors, and considerable capital availability. China's return on equity (ROE) continues to surpass that of many other regions worldwide.

One area that has particularly piqued our interest is the Large Language Model (LLM) and AI-Generated Content (AIGC) sector.

Our view about LLM & AIGC

This is going to be big.

The groundbreaking results achieved by the "largeness" of Large Language Models (LLMs) have astounded many. When the Transformer architecture was introduced in 2017, it was considered interesting, but not necessarily a game-changer. Back then, "large" models had millions of parameters, but with the release of ChatGPT 3, boasting 175 billion parameters (that's 10^4 - 10^5 bigger), the definition of "large" has been redefined, giving rise to unprecedented capabilities such as Understanding, Reasoning, and content Generation(URG). Researchers are still puzzled by the emergence of capabilities of URG due to the super large size of data, parameters and computing power. That phenomenon of emergence was the core reason that made ChatGPT so different from and so better than the previous chat bots. This development has established LLMs as the future mainstream of AI tech.

Undoubtedly, ChatGPT's capabilities of understanding, reasoning, and generating high-quality answers have amazed users, marking the beginning of Artificial General Intelligence (AGI).

Our views on the trend include:

1. Many knowledge-based jobs will be replaced within 3-5 years, as 80% of repetitive, non-truly-innovative tasks could be automated unless human intervention deliberately slows the transition.
2. We have asked all members of our firm to begin using ChatGPT as much as possible. Those who struggle to adapt to this technology are considered less suitable for a fast-paced, rapidly-evolving organization like ours, as adaptability to future norms is a crucial trait for success in such a rapidly evolving environment.
3. AI-Generated Content (AIGC) will reshape Software as a Service (SaaS) or Decision as a Service (DaaS), with AGI-native startups potentially leading the way.
4. China is likely to develop its own version of LLMs in the long term, as the country has talents, algorithms, engineering optimization, computing power, and high-

quality data required for LLM success. Computing power could be considered a potential Achilles' heel for China in the race towards developing advanced LLMs like GPT. However, efforts are already underway to address this challenge. Creating GPT-specific, optimized Application-Specific Integrated Circuits (ASICs) is comparatively easier than developing general-purpose GPUs, which could help China overcome this limitation in the future.

5. Government support will be essential for LLMs to thrive in China.
6. Developing LLMs for startups presents significant risks due to the substantial capital, talent, and governmental trust and support required. We categorize the players in this field into three classes: Class A includes startups; Class B consists of large tech firms such as Baidu, Alibaba, and Tencent; and Class C comprises state-owned enterprises (SOEs) like China Mobile and potential spin-offs or coalitions of organizations such as the China Academy of Science. We believe that Class B and Class C players have a higher likelihood of success in the LLM domain.

AIGC applications are expected to gain popularity. Although the potential returns for each application may be smaller compared to a successful LLM startup, the chances of success are considerably higher. We recently invested in a Midjourney-like startup in China that focuses on marketing content generation by text-to-image and will provide more information once the deal is finalized in April. We believe that applications like this are worth monitoring for investment opportunities in China.

We think AIGC business is naturally a global business. So, startups here are tapping into a big TAM but need clarity in priorities.

We plan to put 25-30% of our yearly investment budget to AIGC/LLM related startups. We can talk more about this on our conference calls.

But not just about AIGC - NEW energy/materials, robotics, biomed continue to develop.

While we recognize the significance of the LLM and AIGC wave, we will not solely focus on this area. It is essential to remain aligned with our long-term vision of becoming the leading frontier tech application fund. The innovation trends in energy/materials, robotics, and biomedicine remain robust, and we will allocate approximately 60% of our investment budget this year to these three sectors. Our approach ensures a balanced investment strategy that resonates with emerging technologies while staying true to our core mission.

Working on our continuity fund of Fund 1

The volatility and unpredictability of the real world and capital markets in recent years have taught us valuable lessons about the potential instability in the short term. We have learned three key things: 1) Only the best and well-prepared can survive in the worst times; 2) Survival is essential for becoming the best; and 3) Prepare for the difficult times to survive when waiting for the best time to thrive. Nothing is guaranteed, and circumstances can change rapidly.

We have reevaluated our exit strategy and made adjustments accordingly. Our aim is to exit 1x of our principal investment when a company reaches a 5x return and 2x when it reaches a 10x return. This approach may reduce our best-case return by 20%, but it significantly reduces our downside risk to 0, which we believe is a fair strategy in the increasingly volatile capital market. It is important to note that this strategy should not negatively impact a startup's fundraising plan or future growth potential though.

We plan to finalize the continuity fund for Fund 1 this year, providing our Fund 1 investors with solid take-home proceeds. Although the challenging market conditions may necessitate a considerable discount to the book value, we believe that the high markups and quality of our main value drivers in Fund 1 make this a fair choice. We will offer LPs who wish to remain invested the opportunity to do so.

Annual meeting 2023 to be held on May 13 & 14

Indeed, we are excited to announce that the 2023 Annual General Meeting (AGM) will take place in Shanghai on May 13th and 14th. The event on May 13th will be a full day, featuring team reports, portfolio founders' presentations, panel discussions, and lunch and dinner. On May 14th, we will organize a tech tour to visit three of our portfolio companies. Kindly let us know if you have any interest in joining us. We are eagerly looking forward to seeing you all in person after years of warm but lame virtual interactions :P...

A big team change

We are proud to announce that we now have our first home-grown partner, Songyan. Having joined us five years ago as a junior investment manager, Songyan has since developed into a highly skilled investor, leading early-stage deep tech deals. His exceptional work began with Agile Robotics and was followed by Hexaflake and We-i-build, both of which were sourced and led by him. Songyan has made significant contributions to many more deals, particularly in recent years, resulting in impressive growth YOY. His outstanding performance, collaborative nature, leadership, and extreme hardwork have earned him this well-deserved promotion.

For those of you who already know Songyan, please feel free to share your congratulations with him. If you haven't had the chance to meet him yet, I encourage you to get to know our newest partner :)

Europe Trip (to be reported in the next Q letter)

As a preview for our next Q letter, we want to share that we are spending most of April touring top labs at leading UK and European universities - I am literally writing this letter during a brief stop in Annecy, France, in the midst of our European trip transitioning from Geneva, Switzerland to Genova, Italy. This trip aims to expand our talent sources and global reach, as we continue to seek the right combination of tech arbitrage, talent arbitrage, market arbitrage, and capability arbitrage that could generate promising investment opportunities similar to Agile Robotics and etc. We believe that there are talented tech founders, akin to hidden gems, waiting to be discovered in Europe, and shine in the China market. This belief is inspired by the many European-trained returnee founders we have previously invested in. Stay tuned for more details in our next Q letter.

Best regards,

Harry

--- Investments ---

- In a nutshell, in Q1 2023, we offered five Term Sheets to target companies, with total potential investment amounts of US\$12.6M. All are lead investments.

We have three new deals that are under closing in Q1 2023. Please see below for details.

- Company D
 - Company D is dedicated to addressing the issue of insufficient understanding of the reaction process of small molecule drugs, and aims to reduce costs and improve efficiency in drug research, development, and production. To achieve this, Company D is developing an online data-driven CMC process optimization platform that uses multi-parameter continuous monitoring, data analysis, and modeling. This platform can assist researchers in gaining a fundamental understanding of the reaction process and making breakthroughs in optimizing reaction conditions.
 - After comprehensive calculations, Company D's technology can save 20-30% of

raw material costs and 50% of personnel costs through process optimization in clinical phases 1 and 2. In phase 3 clinical trials, it can achieve 15-20% material savings and 50% personnel cost savings.

- Company S
 - Company S 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, Company S has developed supporting products such as ophthalmic surgical robots, ultra-microscopic surgical robots, micro-pushing devices, and injection needles. Company 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.
- Company B
 - Company B is a next-generation sustainable biomaterials, protein materials, and living materials company with product design at its core. By using protein design at the genetic level and metabolic regulation at the species level, Company B creates the next generation of biomaterials using synthetic biology. The company has already partnered with several synthetic biology labs, as well as neural regulation and metabolism labs, and polymer biomaterials labs.

Highlights of Holdings

- [Bitstream](#) has recently announced their Angel Round Fundraising news. The funding round was led by Linear.
- [Haoli Technology](#) released the Angel Round Fundraising news. Linear was the lead investor.
- [Juehua Medical](#) released the Angel Round fundraising news. Linear was the only investor.
- [Dessight](#) announced the fundraising news of the Pre-A round. Linear was the lead investor.
- [SynMeta Bio](#) publicized the Angel Round fundraising news. Linear was the lead investor.

--- Other things you may be interested in ---

Media reports, public events and awards about Linear or our portfolios

At the beginning of 2023, with the attention drawn to chatGPT, investment in AIGC

became a hot topic. We expressed our attitude towards AIGC's investment strategy through original articles, media interviews, and offline activities.

- We wrote an investment article explaining our strategy on AIGC titled [China will have its own large model, but Linear focuses on truly intelligent scenario applications](#).
- Linear Capital founder and CEO Harry Wang accepted [an interview with The Paper](#), systematically expounding on Linear Capital's investment direction in the AI industry and the development prospects of AIGC.
- Can Zheng, Managing Director of Linear Capital, participated in the [offline event](#) organized by Chinaventure.com sharing Linear Capital's views on AIGC with many investment institutions and entrepreneurs. In this event, our portfolio company, such as Mindverse, was also recommended to participate by Linear Capital.
- Zeren Bai, Senior of Linear Capital, accepted interviews from [JazzYear](#), [Daily Economic News](#), and [China Newsweek](#), sharing Linear Capital's views on the hot topic of AIGC, and also expressed Linear Capital's positive attitude and investment direction towards AIGC.
- Xiaodu Lou, CEO of our portfolio company Bangmi Technology, was [listed in the Young Global Leaders released by World Economic Forum](#). He was one of the ten leaders in Great China on the list.

Events we hosted

- [Linear Open House](#) started a new series: visiting our portfolio companies, letting them share experiences with other portfolio companies. The first stop of this series was Agile Robots Beijing office.
- [Linear hosted offline event with Xiamen C&D Inc](#) at Xiamen C&D building in Shanghai, bringing some of our portfolio companies to talk to the teams of different departments relatively. For us, this was a good opportunity to communicate with the industry as well as building a bridge for portfolio companies to sell their products/solutions to them.
- Our branded event, The Strategists, returned offline this year. We hosted the event in the Linear office with the theme of energy storage. We invited industry experts and related invested companies to discuss the development of technology investment and energy storage.
- Linear Academy, our learning platform for startups, hosted a recruitment workshop with Amazon China and PWC 2023 market analysis activities.

Best regards,

Linear Team