

## Rosefinch Research | 2022 Series # 43

### Our 2023 Outlook Part III

#### New Energy Impacts on Other Industries



朱雀基金  
朱雀基金 2023 年度策略  
峰回路转 慢牛再续  
—— 碳寻新时代 ——

双碳革命的全产业链辐射

**郑路**  
大消费研究组组长  
消费组主要研究品牌消费品、  
物流与农业

**王一昊**  
大消费研究组副组长  
主要研究农林牧渔行业，  
包括饲料、养殖、动保、种业  
以及农业基础设施建设等

**张劲骐**  
TMT研究组组长  
TMT组主要研究半导体国产化、  
数字经济、现代金融、  
关键基础性电子元件及器件等

**陈飞**  
TMT组高级研究员  
主要研究数字经济相关行业  
包括互联网平台、数字内容  
以及软件应用

**徐睿潇**  
医药生物研究组副组长  
医药组主要研究医疗器械、  
医疗服务、生物药、医美、眼科等

Carbon neutrality has been a well-recognized investable theme for the investor community. However, some investors view it only as a limited “thematic track” when in fact it touches many areas of our lives. Every industrial revolution started off from a “single thematic track” and then broaden to impact many

other sectors. New Energy Revolution is no different, where sectors like consumer, pharmaceutical, and TMT are experiencing massive changes as a result. In the previous years, consumer, pharmaceutical, and TMT have been major developmental areas of A-shares. But since the peak in 2H21, the global market leaders in semi-conductors, consumer, and internet have dropped precipitously, entering into very challenging territory just as the global economy. As the market bottoms out and risk appetite returns, there are some rebounds in these sectors. One might be curious about what aspects of these sectors overlap that of the ongoing New Energy Revolution? Under the New Energy framework, how will these sectors' industrial structure evolve? Will 2023 bring about a change in dynamics for these sectors? To answer these important questions, we gathered the feedback from our key research analysts for these sectors below.

## 1. Consumer: 3060-driven new demands may reshape industry framework

Q1: Where does consumer and 3060 overlap?

ZHENG Lu: Consumer is the final stop for many industries, and is where a lot of carbon-emission materialize. We need to look across upstream energy, material, carrier, etc. to truly reduce consumer carbon-emission. In Rosefinch teams, the Advanced Manufacturing teams focus on the origins of carbon-reduction, while we consider various nodes of downstream carbon-reduction. One example is logistics where all transportation methods across sea, land, and air mainly use fossil fuel. We note that International Maritime Organization has imposed strict regulation on global shipping carbon-reduction. Similarly, domestic post office has stringent requirements on recycling of packaging material, and various local governments have prioritized using New Energy vehicles.

On the brand level, one area that's not obvious but increasingly important is the brand's carbon-reduction goals. As consumers raise their environmental protection awareness, it will impact future brand's influence and valuation. We're seeing this impact across clothing, shoes, cosmetics, home appliances, etc. These demands will in turn provide greater need for 3060-related products, supply chain, and technological innovation. These will lead to another round of new consumer demands, which will impact the competition landscape for the industry. Some important linked sector is agriculture, such as aquafarming and fishery-solar cooperations.

Q2: How is aquafarming related to 3060?

WANG Yihao: Under China's aim to achieve Carbon-Peak by 2030 and Carbon-Neutral by 2060, there are two major areas that are impacted in the agriculture sector. First is that within China's national meat consumption habits, the low-fat low-carbon aqua protein is increasing quickly. Currently, about 30% of global carbon emission comes from agriculture, mostly through animal husbandry. When compared to traditional pig, cow, or sheep, the per-unit carbon-emission of fishery products are clearly less. In the past, the fishery products are relatively expensive due to inefficient aquafarming technology and frameworks. Recently, the continued industry research has successfully increased the survival rate of fishery stock which in turn lowered the cost thus increased consumption.

Second major impact is how New Energy enabled successful farming activities. Currently in animal farming, the energy cost is between 5% to 15% for both livestock and aquafarming. Because such farming utilizes wide open spaces, there's actually a lot of room for cooperation with New Energy sector. The most representative cooperation is between fishery and solar panels. Aquafarmers may deploy Solar panels atop fishponds to reduce energy cost. This cooperation can be seen in area of shrimp-farm factories, hog-farm in buildings, farm-product refrigeration, and special fishery farms.

Q3: While it's unclear if consumer will charge up the economy, how will this impact investment in consumer sector?

ZHENG Lu: In the past, the consumer research will often reference developed countries. But there's growing doubt about whether consumer can achieve steady growth in percentage of national economies until they reach the levels of developed countries. And after the high valuations during the 2020 liquidity boost, the big challenge is there are fewer and fewer truly good values in consumer investment. But since consumer is ultimately the final demand means it is still a very large market. Those companies who can adjust to external changes will emerge victorious and profitable. Even in the darkest days of Japanese bubbles, there were a group of excellent consumer companies that emerged. Under the 3060 constraints, consumers will have new requirements for supply chain, technology, and ESG. If we can combine our advantages in green energy and energy utilizations, the industries will be more likely to stay in China and generate more local investment opportunities.

## **2. Pharmaceutical: One of the most sought-after investment themes is synthetic biology.**

Q1: What is the most important pharmaceutical area that's related to 3060?

XU Ruixiao: At Rosefinch, we follow closely on the synthetic biological technologies that are closely aligned with 3060. Specifically, we are tracking the equipment that deal with live substances. For example, we looked at recombinant collagens, which is used in post-cosmetic surgery recovery and special skin care products. For this sector, we see annual growth of 20% to 30% for the next few years. Compared to traditional chemical engineering that uses petroleum base, the synthetic biology uses bio-based material or renewable biomass materials. When it comes to carbon-reduction, this process has significant savings vs the traditional industrial processes. According to China Academy of Science, compared to petroleum and chemical process, the current synthetic biological production process saves between 30% to 50% of carbon-emission, with potentially 50% to 70% reduction in future. In addition, the synthetic biological process does not use huge number of organic solvents or other chemical products, thus reducing waste pollution and realizing green synthesis.

From the governmental policy perspective, China, US, and EU see biotechnology as a strategically important area. In Sep 2022, US signed executive order to promote more biotechnological research and production. In China, it also announced the new biological economy development plan in May 2022. Within capital market, domestically synthetic biology sector has been one of the most sought-after sectors

across VC/PE space. We believe that this sector will develop quickly due to technological innovation, policy support, and capital investments.

Q2: What are the major applications of synthetic biology?

XU Ruixiao: In the past 10 years, the biological manufacturing saw continued breakthroughs in both basic technology and core research areas. The advances have successfully lowered the costs of DNA coding, DNA editing, and synthesis, which in turn propels synthetic biology into a fast industrialization phase. Synthetic biology can be used widely across health care, chemical engineering, agricultural products, etc. Its application was seen first in pharmaceuticals, including the innovative cell-immunology treatment, RNA medicines, medicine enzymes, in vitro diagnostics, disposable medical equipment, and steady mass production of malaria medicine artemisinin.

Q3: What's the impact of medical insurance's lower medicine cost on health care?

XU Ruixiao: In the past few years due to the pandemic, the national health insurance fund experienced large drops in incoming premium, while the outgoing expenses continued to climb. This differential is very difficult for pricing power of those related to national health insurance' approved product list. We therefore must be extra vigilant on those fields more sensitive to participation in the national health insurance plans. But when it comes to medical care sector, we invested thoroughly and saw that most of the general hospital's profit model is through medical services and not through medicine or equipment costs. The prices of medical services have actually gone up every year. We see hospitals growing either via franchise general hospital model or expand offerings within single general hospital. Looking ahead to 2023, medical service sector will benefit from increased hospital visitors due to loosened Covid-policy, they also have fairly certain expansion plans where the strong staff expertise and substantial physical assets will support forecastable growth.

### **3. TMT: semiconductor is the most aligned product with 3060.**

Q1: What's the most aligned TMT sector with 3060?

ZHANG Jinqi: The most aligned TMT sector with 3060 is semi-conductor. 3060 is an energy revolution where the unstable energy generators will quickly increase their contribution to the overall energy mix. This leads immediately to the need for power conversion equipment, and therefore the need for power electronic parts and related modules which uses semi-conductors. The market follows closely the power semiconductors like mosfet and IGBT. Globally, there were some clear supply-demand imbalances in the past few years, which also saw domestic power semiconductors increasing their domestic market share. From the product design and quality perspective, power semiconductor does not require the latest top technology. The key requirement is stable product quality and continued improvement. China already has relatively mature production process and solid industrial base that produced about 30% of global market. Meanwhile, China's rise in wind, solar, and other new energy fields has provided an excellent field for power semiconductor's future growth. It's a great field that allows long-term development and continued improvements.

Q2: How's the current state of domestic power semiconductor?

ZHANG Jinqi: Based on current domestic power semiconductor industry status, our manufacturing capacity is continuously increasing with some parts already at world-leading level. Our IC design capability is quickly catching up to global leaders, where our low-power products are already capturing significant market share, and high-power products are catching up fast. As for compound semiconductor, domestically we're having breakthroughs in both substrate and epitaxy. The later stage and product designs are catching up to global standards. Chinese company has sufficient growth capability in all five main stages of material, production, equipment, module packaging, and product assembly. Power semiconductor and 3060 are complementary sectors to each other, whose growth will bring not only development but also safety.

Q3: Someone said the China's semiconductor industry has moved from a question of development to a question of survival, how do you respond to that?

ZHANG Jinqi: We looked at the global semiconductor industry development and noticed very clear cyclical tendencies. On an industry level, there's typically at 18-24 months of growth cycle followed by 12-18 months of slowdown cycle. Overall, the growth part of the cycle is longer, primarily because the global demand for digitalization is growing constantly. Even though we may see different challenges, the core driver of continued demand has not changed, which means there's no fundamental change to the global demand picture. Structurally, consumer related industries take up to 70% of semiconductor demand, which makes consumer the deciding factor for semiconductor demand. When we looked at the historical performances of semiconductors to the internet bubble or to the 2008 GFC, our drop in 2022 is already close the worst drops in those episodes. Given that we've already been down by almost a year, we have reason to be optimistic that at least based on historical precedence, there's light at end of the tunnel.

Semiconductor industry's cyclical nature is mostly due to the fact that it takes time to build up manufacturing capacity. This is mostly due to the barriers in either capital or technology. The good thing is that even in the highly uncertain environment today, the underlying continued consumer demand remains. We studied the previous episodes and noticed that whenever we have global concentration of inventory adjustment, where the industry see crowded drop in both orders and future expectations, we are near the bottom of the cycle. From investment perspective, this means a relatively good entry point. And based on the financial reports of global semiconductor makers and main customers, we're already there. We expect the fundamental data will pivot soon in support of this thesis, and the investment timing should be just ahead of that.

Q4: What kind of connections are there between 3060 and the digital economy?

CHEN Fei: Digital technology mostly services the real economy including the 3060 industries. Looking back, we experienced the shift from PC to mobile. As we migrate from digital contents on social media, information, or games to real consumption in physical world, it gave rise to whole industries like cars on call or food deliveries. In the current stage, digital technology has further penetrated to the real economy: from cloud technology, big data, AI, industrial software, to the remake of entire industry value chain.



Digital technology not only brought digital measuring tools to the real businesses, but also made available data to continuously improve the production process, and ultimately reach the goal of cutting cost and increasing efficiency.

We believe that data, as the new production ingredient, has become just as important as labor, capital, and land. Data is special in a few different ways. First, it's not a resource from the nature but from ourselves; second, this resource becomes more valuable the more we use it. Meanwhile, AI and other technological advances have increased the overall productivity. Therefore our medium-term outlook research also revolves around data and includes how the data enables the enterprise's digitalization and how safe is the data's industrial value chain.

Q5: Internet companies saw large hits earlier this year with some fast rebound recently. What's your view on them?

CHEN Fei: In the past two years, internet industry's challenge and opportunities co-existed. Since 4Q20, internet companies went through anti-monopoly and anti-excessive-growth phases, which led to last 2 years' retracement. At this point, there hasn't been any fundamental change in the business models of these companies, while the margin of safety is becoming clearer. In the past one to two quarters, we saw continuous drop in the operational uncertainties in overall internet sector and in specific companies. There's been various policy calls for more supportive measures for internet companies. At company level, some market leaders are continuing their reorganizations and service innovations. We also notice that the inter-company competitions are slowing down, with very few new entrants into the industries. The industry is therefore becoming more stable, which means once the landscape improves, the future cashflow expectations should rise. At the same time, some companies are putting more resources into new technology and innovative businesses like AI or big Data. These may become the 2<sup>nd</sup> growth curve for these companies and will be interesting to track.

4. Which key 3060+ technologies will bring major changes?

ZHENG Lu: We like to focus on modern agricultural development and the downstream food industry's trends. This sector is very important to our national food safety. Another is the consumer brand trend: how domestic brands are substituting global brands domestically, and how we enter global stage as Chinese brand and not OEM.

WANG Yihao: In modern agriculture we look at the following two perspectives. First is the fishery-solar synergy, which requires both agriculture and new energy sectors to improve their respective technology and their cooperations. Second is breakthrough in biotechnology, such as use biotech to cheaply and efficiently produce the nutrients needed for increasing demands of global population.

XU Ruixiao: Around the theme of technology enables beautiful health, we look at how synthetic biological technology can be applied in cosmetic materials innovation. Synthetic biology is the new energy of cosmetic surgeries. In addition to producing recombinant collagen, it may also be used to synthetically

create squalene instead of extracting it from sharks' livers. Based on their effectiveness and green nature, biological active substance will be applied more in the skin care industry.

ZHANG Jinqi: On TMT, even though consumer electronics continue to underperform, we still like VR/AR/MR. Apple is due to announce MR product. Since 2015, there's been a lot of changes, but the hardware is becoming mature now. Looking back, the most exciting phase of internet age came only after the maturity of its hardware.

CHEN Fei: From Web 1.0 to Web 3.0, we went from only reading data, to can read and write data, to own internet itself. Whether it's blockchain, NFT, or other new technologies, there's potential reconfiguration of the entire internet, where the true ownership of the data is returned to the user. We're still in early stages of the industry cycle, where opportunities may exist in upstream sensory, midstream data reliability, and downstream key factor trading market or specific digital environments. For the companies in the industrial chain, whoever develops the commercial model can become the definer of industry standard and the future star.

**We hope that by sharing Rosefinch's views, we add value to your day.**

#### **Disclaimer**

The information and data provided in this document is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of any financial products or services. This document is not intended for distribution to, or usage by, any person or entity in any jurisdiction or country where such distribution or usage are prohibited by local laws/regulations. The contents of this document are based upon sources of information believed to be reliable at the time of publication. Except to the extent required by applicable laws and regulations, there is no express or implied guarantee, warranty or representation to the accuracy or completeness of its contents. Investment returns are not guaranteed as all investments carry some risk. The value of an investment may rise or fall with changes in the market. Past performance is no guarantee of future performance. This statement relates to any claims made regarding past performance of any Rosefinch (or its associated companies') products. All rights are reserved by Rosefinch Fund Management Co. Ltd and its affiliates.