

Analysis of the Investment Value of Pony.ai Based on SWOT Analysis

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Abstract. With the rapid development of autonomous driving technology in daily life scenarios and logistics, some potential start-ups have emerged on such tracks. Therefore, research on this industry in the field of business research cannot be ignored. This article analyzes the investment value of pony.ai, one of the startups in the autonomous driving industry. Firstly, the macro market where pony.ai is located is analyzed, concluding that this industry is expected to develop rapidly and flourish in the next few years. Following the background information and projected financial position of pony.ai, which provides a basic understanding of the company. Additionally, showing the investment value of pony.ai by presenting its current situation through four dimensions, also known as SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. The results show that pony.ai can be a worthwhile investment choice, whereas specific improvements are needed. The results also have certain reference significance for analyzing startups of the same type.

Keywords: Autonomous driving technology, start-ups, pony.ai, SWOT analysis

1. Introduction

Autonomous driving technology, which is a widely discussed trend, has the opportunity to participate in more people's life scenarios. In modern society, automobile manufacturing and the Internet, big data, cloud computing, 5G information communication, and other technologies are deeply integrated, automatic driving technology is rapidly evolving, and automatic driving under specific conditions has come into people's lives. The benefits of autonomous driving vehicles include the reduction of the risk of accidents and the drivers can additionally spend time effectively in the vehicles. The global autonomous car market in 2021 was worth \$1.64 billion, and it is predicted that it will reach \$11.03 billion in 2028 [1-3]. Pony.ai, a startup and one of the competitors in this market, tested its robotaxi service in both the U.S. and China. Pony.ai was valued at \$5.3 billion at the end of 2020 and its market value significantly increased to \$8.5 billion after the fresh funding in 2022. This shows its growth and great potential [4-6].

This article has the purpose of analyzing the investment value of a startup branded "Pony.ai" based on SWOT analysis (Strengths, weaknesses, Opportunities, and Threats). By analyzing the company's Strengths and financial statements, an investment value can be determined, and by analyzing the weaknesses, the value could be adjusted in response to the level of significance. Opportunities available to the company will be seen as an external factor that would affect and show the company's potential. Moreover, the company's ability to tackle incoming threats is extremely important and should definitely be taken into account whether it is competition or barriers to entry [7-8]. By using SWOT analysis, the analysis shows where investment can take place, the factors affecting investment, and what improvements might result from the investment. strengths can be exploited to address weaknesses, alleviate any threats and take advantage of opportunities in several ways. Developing these integrated strategies allows for increased accuracy in estimating the investment amount required to implement each initiative. The approach results in a number of investment opportunities that will improve the company's situation in different ways.

The remainder of the paper is organized as follows: Section 2 discusses and introduces the firm, its target audiences as well as financial incentives and situation, followed by section 3 which describes the company's strengths, weaknesses, opportunities, and threats in detail followed by examples. Section 4 introduces our investment strategy and analysis of the investment value and finally, section 5 concludes our essay - firstly highlighting our main points followed by our investment analysis and advice and finally referring back to the areas that might be lacking for further improve.

2. Firm Description

Pony.ai is a new startup founded in 2016 in Fremont, California. It formed a strategic alliance with Toyota which is the top-selling automaker to co-develop self-driving technology. It specializes in developing autonomous taxis and trucks for users and companies in China and the U.S., with an aim to deliver autonomous mobility everywhere by building safe and reliable driving technology. As one of the first technology companies to launch robotaxi services, it is applying autonomous driving technology to small areas of daily travel and large areas of logistics. Additionally, its autonomous truck business, known as PonyTron also made a breakthrough [9-10]. It now has PonyTron public road testing permits in all four Tier-1 Chinese cities.

Pony.ai is a private company with no public financial information, however, it can be estimated by referencing xpeng and luminar which are the two public companies in the same industry. Adjusting the financial data by the proportion of the market size. Revenue in pony.ai was assumed to increase from \$200 thousand in 2020 to \$600 thousand in 2021, which shows a dramatic growth rate. Since the overall market is expanding, pony.ai is currently gradually improving the management team and developing more advanced technologies to create the foundation for commercialization, the revenue is predicted to increase in the next three years as well at a rate of 150%. Nevertheless, unlike the revenue, the situation of earnings before interest and tax (EBIT) in these two companies is not optimistic. EBIT remained negative from 2020 to 2021 in the two comparable companies, so pony.ai's EBIT in these two years can be considered a passive situation. However, it still showed a rising trend and can be predicted the growth rate would be 30% in the next few years, because the company's revenue will greatly increase, and the cost of technology research and development in the early stage is generally relatively high, it will gradually stabilize in the future.

3. SWOT Analysis

3.1 Strengths

Despite being a new startup, pony.ai's ideas are extremely effective and practical, leading to rapid growth over the past few years with new milestones every month. Pony.ai has industry-leading self-driving software and hardware technical strength. So far, it has accumulated more than 12 million kilometers of self-driving road test miles globally and domestically. The company has set up five major R&D centers worldwide to test mileage and earn operational experience in many places. robotaxi vehicles can quickly adapt to differentiated roads, weather, and driving habits [11-12]. In different cities, Robotaxi fleets can all show proficient driving skills. Whenever Robotaxi services expand to new cities, the technical costs are significantly reduced, shortening the implementation time. In addition, pony.ai has obtained various self-driving road test qualifications and recognition at home and abroad, including multiple licenses that prove its capability. In commercial vehicles, the company received the first self-driving truck test license in Guangdong, the first batch of self-driving truck test licenses and highway test licenses in Beijing, and the freight road transportation business license.

Furthermore, All the senior leadership teams of pony.ai graduated from prestigious universities and have experience working in leading companies such as Baidu and Google, for example, James led the overall strategy and development of Baidu's autonomous vehicle so they have had a lot of

experience in related industries before the founding of pony.ai so their products and service all come from extremely experienced workers.

Pony Smart's technology goal is to create a "virtual driver" (autonomous driving system) that can be applied to all types of vehicles and scenarios to reduce the majority of traffic accidents or dangerous driving due to human causes, thereby improving the travel experience and transportation efficiency. Among them, travel and transportation are the two most valuable scenarios. At present, Pony Smart's autonomous driving technology is mainly invested in the development of two primary businesses: passenger cars and commercial vehicles, both of which have achieved rapid growth, especially in the Robotaxi field, where Pony Smart's PonyPilot+ service covers more and more cities and has provided more than 700,000 Robotaxi services worldwide up to now, as well as It, is rapidly advancing in the direction of unmanned and scaled-up. Self-driving technology will be the critical enabler of future transportation change, and Pony Smart's "virtual driver" technology is expected to be the leader of this change. Compared with other countries, the technology of Chinese autonomous driving companies is already at the forefront of the world.

3.2 Weaknesses

However, On Oct. 28, a pony.ai vehicle that had been operating in autonomous mode hit a street sign on a median in Fremont, California, after turning right, prompting California in December to suspend the company's driverless testing permit. No one was injured in the incident. Pony.ai said earlier that the crash occurred less than 2.5 seconds after the automated driving system shut down. It said in very rare circumstances, a planning system diagnostic check "could generate a 'false positive' indication of a geolocation mismatch." This might've been one of their significant weaknesses.

In addition, From the technical point of view, the critical components of high-level self-driving cars, including AI chips, integrated circuits, LIDAR, etc., are still in the early stages of research and development. Currently engaged in self-driving research and development companies, in addition to Waymo's chip development, other companies L4 level above the car chip, basically from Intel and other international companies, and these chips have not yet passed the market test, the actual effect is difficult to determine. In particular, the self-driving chip company in China (pony.ai belongs to the country) is still in its infancy. The product is to be market verified, and the vehicle-grade LIDAR is now facing significant challenges involving size, cost, reliability, etc. It can not fully meet the requirements of the car installation, from the entire mass production is still tricky.

3.3 Opportunities

Since the company is still continuously growing, there are many opportunities waiting for them such as launching their technologies and products worldwide, not just in china and California. this would greatly improve growth and development rapidly. Because of their efficiency, competitors in the autonomous car market might be slow to adapt to new opportunities, giving pony.ai a distinct advantage and more opportunities.

3.4 Threats

Since pony is a newly founded company, there were already other existing startups before the founding of pony. These companies are all competitors who are fighting for new technologies and branding, as well as advertising, gaining more customers, and maximizing profit. For example, Most independent car companies use lidar, a laser mapping technology, and costly sensor. Because They are critical to the development of automated driving, enormous capital costs are required for not only the technology but as well as branding of autonomous cars. This limits the threat of new entry. However, since the price of the sensor is expected to increase, big companies are looking for alternatives such as a different and cheaper sensor to ensure that more people can access this technology therefore, the entry barrier will be lower.

The global robotaxi industry has formed a pattern of leading companies, mainly shown by Baidu Apollo, Xiaoma Zhixing, AutoX, Wen Yuan Zhixing, and Drip. In contrast, the leading foreign

companies include Waymo, Zoox, Cruise and Aurora. In the past decade, Waymo has been considered the leader in the industry's development and commercialization of autonomous driving systems, and its competitors are almost all over the world. Born with the golden key, Waymo has been striving to achieve the highest level of autonomous driving since the beginning. However, after continuous exploration in recent years, Pony Smart is on par with Waymo and other head companies in Robotaxi-related technologies.

Based on the above analysis, the author found that the company has a high profit value. In addition, the company's advantages are also very obvious. Pony.ai has industry-leading self-driving software and hardware technical strength. In the future, self-driving cars have extensive investment value. The self-driving chip company in China is still in its infancy. Therefore, the investment value of this company is obvious.

4. Conclusion

This article concludes with the main points of SWOT analysis and a final analysis of the investment value based on the SWOT analysis. Firstly, the main strengths include the company having a strong leadership team, and effective and industry-leading technology weaknesses include a still-developing LIDAR technology, and a crash that occurred that caused the company's permit to perform self-driving tests to be revoked. Next, the main opportunity for pony.ai is the ability to release and advertise their products worldwide finally, threats include the competition in the market for example a large company "Waymo" which has been considered a leader in the autonomous driving market.

A summary of the improvements for the company including Reliable financial controls should be one of the main value drivers for the company. Financial controls protect the assets of the business. and that the company is profitable is also supported by trustworthy financial controls. In general, buyers perform financial due diligence, which includes going over previous financial records and verifying all controls. If they are not pleased, the buyer's auditors may decide not to purchase the business. In the future, our company should look at aspects of improvement such as decreasing capital costs, having more access to capital costs, and having a more diverse customer range to attract more customers.

The value of the business is also based on the ability to attract and keep talented employees. We have concluded that investors seek out businesses with a consistent workforce, particularly in management. They seek confidence that devoted employees with solid contracts will remain even in the event of a change in ownership.

As a result making sure the buyer recognizes the value of the individuals holding the highest positions is crucial, and recruiting expert staff members that offer stability and assurance that the company will continue to function smoothly. In addition to other crucial elements, the correct personnel aids in maintaining a company's ethics and culture. It is valuable to invest in the Pony.ai.

References

- [1] Fortune Business Insights, 2022. Autonomous car market size to grow worth USD 11.03 billion at a CAGR of 31.3% for 2021-2029: Fortune Business Insights. GlobeNewswire News Room. Available at: <https://www.globenewswire.com/en/news-release/2022/06/08/2458427/0/en/Autonomous-Car-Market-Size-to-Grow-Worth-USD-11-03-Billion-at-a-CAGR-of-31-3-for-2021-2029-Fortune-Business-Insights.html> [Accessed September 17, 2022].
- [2] Liao, R., 2022. Robotaxi startup Pony.ai now valued at \$8.5B. TechCrunch.
- [3] Available at: <https://techcrunch.com/2022/03/07/robotaxi-startup-pony-ai-now-valued-at-8-5b/> [Accessed September 17, 2022].
- [4] Womack, K. L., & Zhang, Y. (2003). Understanding risk and return, the CAPM, and the Fama-French three-factor model. Available at SSRN 481881.

- [5] Vernon, J. A., Golec, J. H., & DiMasi, J. A. (2010). Drug development costs when financial risk is measured using the Fama–French three-factor model. *Health Economics*, 19(8), 1002-1005.
- [6] Taneja, Y. P. (2010). Revisiting fama french three-factor model in indian stock market. *Vision*, 14(4), 267-274.
- [7] Chen, Xiujuan. (2022). Pony Smart: Autonomous driving will reach an inflection point. *Auto Watch* (05), 48-50.
- [8] Wang He. (2020). Pony Smart: The RoboTaxi track is far from being the ultimate winner. *Intelligent Networked Vehicles* (04), 32-35.
- [9] Yan, Wenyuan. (2018). Pony Smart: The bottom line and exploration of going straight to L4 level. *Automotive Vertical* (08), 34-35.
- [10] Guo, Wenjia. (2021). From manned tests to eliminating safety officers Driverless cabs are getting closer. *Intelligent Networked Vehicles* (01), 21-25.
- [11] Ma, Xiaolei. (2022). Pony Smart's license revoked by California. *Operator (Automotive Business Review)* (06), 99-100.
- [12] Shepardson, David. "U.S. Agency To Review If Pony.Ai Complied With Crash Reporting Order". Reuters, 2022, <https://www.reuters.com/business/autos-transportation/us-agency-review-if-ponyai-complied-with-crash-reporting-order-2022-03-29/>.