The Examination of Segway-Ninebot's Decision-making Through Case Analysis, Strategies and Stock Overview

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Abstract. A firm's development in its ability to execute key decisions more efficiently than its competitors could lead to an overall better performance. While investment decision results in outflows of cash and financing decision results in inflow of cash, dividend decision concert with how profits are distributed among shareholders. With the interest of shareholders, smart and appropriate decisions have been important to all businesses. This article decompose the company Segway-Ninebot's decision-making process and its strategy, thereby how the company is ahead in the industry. Through looking at the company's strategies, positioning, stocks and major decisions, the effectiveness of each investments carried out by the company is decomposed. Our findings indicate that the key determinants that lead to the success of Segway-Ninebot are its spontaneous innovations, technological improvements and adaptation to the demand of the customers. However, risks are present in investing in Segway-Ninebot, and this paper examine the possible solutions in minimising losses.

Keywords: Decision-making, investments, risks, case analysis.

1. Introduction

On 11 March 2020, the World Health Organization (WHO) officially declared the COVID-19 outbreak to be a global pandemic [1]. The rapid spread of the virus has dramatic impacts on financial markets all over the world. It has created an unprecedented level of risk and dangers, causing many investors to suffer significant losses in a very short period, and over 170 countries are affected continuously as well. The pandemic outbreak has had clear negative impacts not only on human lives but also on the economy and has become a worldwide crisis. In the short run, as many countries initially adopt strict quarantine policies and lockdowns, their main economic activities are dramatically slowed down and even limited. The longer-term consequences of this may arise from unemployment, business strategy failures, and loss of confidence in the market. Some industries, such as tourism and transportation will certainly face hardships. And then there's a ripple effect as the epidemic progresses until now, the pandemic can trigger several channels, including labor markets, global supply chains, consumption behaviors, and so on, all of which can affect the global economy. Among these channels, one of the most essential components is the financial market which is a lack of energy and capital inflows. It has already responded with dramatic movements including the stock markets around the world have been moving in unusual ways. A great amount of uncertainty remains as the pandemic continues. But China quickly reacted and introduced effective policies to prevent the spread of the virus at the origin. Currently, many Asian countries including China, still adhere to the dynamic zero-COVID policy and strategies to tackle both imported and domestic infections. There are obvious changes that the main reason for the significant drop in demand and orders from various industries during the epidemic was that most of the measures taken by the state to prevent the further spread of the epidemic, such as stricter inspection and more complicated procedures for the transportation of goods, led to a serious reduction in the efficiency of the logistics system, and many primary industries, i.e. manufacturing, experienced a shortage of raw materials and a serious drop in the supply of products. The negative impact of the epidemic on the tertiary sector was therefore

particularly severe, both in terms of the scarce supply of goods and the need to cope with unmet online demand.

While many firms face hardships in making profits during the pandemic, Segway-Ninebot roared across the horizon, it found the way of expanding its business under extreme conditions through multi-business model promotion and technological innovation, including sponsoring cross-country scooter journeys to support COVID-19 relief. Ninebot, the privately held company headquartered in Beijing, China, has become the leading company committed to the production of AI robotics. After it acquired Segway Inc in April 2015, it began its research and development, as well as manufacturing of short-distance transportation products, such as intelligent distribution stations, delivery robots and shared scooters, etc. Under the International health crisis, the company found an alternative path to bring about financing opportunities. This has boosted stakeholders' confidence in the company and its future outgrowth. The prospectus of the company disclosed that the company confirmed 1.38 billion CNY, 4.25 billion CNY, and 4.59 billion CNY in 2017, 2018, and 2019 respectively. Over the past year, its earnings have increased by 103.1%.

However, the company also experiences high risks. In the past 3 months, the share price was highly volatile. Under this circumstance, it is severely important to utilize the best-fit decision-making rule to ensure that any economic or investing decisions can generate the most value. Therefore, this essay sets out to investigate the how successful Ninebot was in its decision-making through analysing various cases.

2. Strategies of the Company

Ninebot is a robotics research business that is currently the world's absolute leading supplier of mobile robots. They are experts in the creation, design, production, and selling of robots. It was founded in 2012 by a group of engineers who concentrate on the advancement of robotics and artificial intelligence technology. It has manufacturing facilities or retail locations in 80 different countries and is highly known in Europe and Asia. In recent years, ninebot has been developing its products to enhance safety and user comfort through technological improvements, such as increasing the life span of its batteries and using stronger metals for the bikes' bones. In the video, the concept of "making customers' lives easier through technology" is reflected in various scenes, such as the technology of sensor unlocking without a key and the technology of charging from space. Through a side-by-side comparison with similar balance bikes in the same industry, we find that the price of ninebot ranges from a minimum of 1799 to 4499 RMB, but the average price is around 3200, while the average price of balance bikes in the same industry, such as Xiaomi and Huawei, is around 1800 to 2400. In summary, we conclude that Ninebot's main marketing strategy is to improve the quality of its products to create a higher priced product that is more suitable for young people, while Xiaomi's main marketing strategy is to lower the price to increase its sales.

Ninebot currently sells its products directly through e-commerce websites and through resellers. ninebot guarantees its brand image by signing exclusive distribution contracts with resellers. In addition, ninebot tends to promote its own products through new media, such as WeChat and Weibo, which are being used more frequently in the epidemic environment than traditional advertising, thus creating a spreading effect from person to person. This integrated approach to sales and promotion has enabled ninebot to achieve very good sales even during the epidemic. The online marketing approach is also better suited to the main customer groups that Ninebot sells to, i.e. students and white-collar workers, who are more aware of the Internet and new media.

In addition, in 2020, some areas of Shanghai and Beijing in China implemented a ban on balance bikes for safety reasons, and the adoption of this policy is likely to continue to grow. In response to this policy, ninebot began to develop products other than mobility tools and in August 2022 launched its new product, the Automated Transfer Robot, which was designed to reduce labour costs and reduce the frequency of direct human contact. The food service industry has been restricted due to the inevitable human contact in the epidemic environment, with some regions even requiring the food

service industry to suspend operations, as has the logistics industry. The advantages of food delivery robots and delivery robots in terms of reducing staffing can therefore go a long way to alleviating the major problems faced by these industries.

2.1 Positioning of the Company

Ninebot intends to carry out additional research in the area of car balance in order to identify additional fields in which artificial intelligence may be put to use and then apply the technology in those fields. Their major goal is to demonstrate their cutting-edge technologies and improve customer and business connections between robots and mobile phones. Robot contact makes it possible for more people to take advantage of the convenience and smarter living it brings, which promotes a wider range of goods and services. A wider variety of functionalities can be generated thanks to the integration of robotics and mobile phones. In this way, they hope to convince people that the ninebot should be viewed as more than simply a mode of transportation and a means of mobility but as a cutting-edge mode of transportation that will play a crucial role in people's lives in the future. They hope that the business will continue to innovate and raise the bar for self-balancing car innovation in the future. In 2015, Ninebot increased the number of its subsidiaries throughout the world to include Seoul, Singapore, Sitao, and China. In order to further its success with its electronic cars and transport robots, Ninebot has established branch teams in Hong Kong, Beijing, and Tianjin. These teams are working to develop and find more effective transportation methods. The company also gained renowned intellectual property rights that allow it to sell its products in more than 80 countries through ongoing technological research and innovation. Segway-Ninebot is known for advancing the industry via continual innovation and development, and products like the Gokart PRO, which has two hub motors and a maximum engine power output of 4800W and a maximum torque of 96Nm, are examples of their world-renowned intellectual property. Sequoia Capital, Xiaomi Corporation, and Shunwei are among the investors of Ninebot. With a smartphone, hardware, and Internet of Things platform at its core and capabilities that are similar to Ninebot, Xiaomi is a smart electronics firm. With the creation of Xiaomi Mobile MIUI and Mi Chat in 2011, Xiaomi entered the mobile phone market effectively and soon developed a loyal following of customers. In this way they formed a smart home package and the subsequent Xiaomi company wholly acquired RIGO DESIGN, which is a design company. In the months that followed, Xiaomi created a number of devices that were useful in daily living, including TVs and scales. Observing the popularity of Xiaomi's spin-off products and the platform as a whole, the company has worked with a number of other businesses, including Li Ning, a Chinese manufacturer of sporting goods, to develop a new style of sports running shoe. To assist Xiaomi in expanding the field of health testing with big data, this makes use of more cutting-edge technologies. The collaboration with Alipay is an additional step toward developing quicker payment options and assisting users in making more convenient payments. The continuous product output has allowed Xiaomi to expand into markets such as Europe and the US.

Xiaomi should now be the fourth-largest smartphone manufacturer in the world after a successful listing in Hong Kong in 2018. To effectively entice many business owners and users, Xiaomi has concentrated on developing its own Wireless sensor Networks system. They have released a line of goods that are closely tied to consumers' daily lives and that people can utilize on a daily basis. Xiaomi hopes to make people's attitudes about the changes that technology brings about more positive by using the loT platform. Users will be able to more fully appreciate the promise of technology in their lives and in the future thanks to the unified platform. While Xiaomi is always enhancing its loT platform to enable customers to better experience the distinctive services that technology offers, Ninebot, a firm focused on technological innovation, is focused on creating creative capabilities and connects to many sectors of electronic vehicles.

By concentrating on the development of artificial intelligence in the car and the interaction and integration with portable wearable devices, Ninebot is more distinctive and irreplaceable than Xiaomi, which enables consumers to enjoy the convenience and special value of technology in the home automation by developing wide variety of products that gradually link them to the loT platform. Users

can get a closer look at the autonomous balancing vehicle's more dynamic side thanks to Ninebot's distinctive innovation. It has a stronger emphasis on electronic vehicle innovation and improvement than on introducing new goods and derivatives. As a result, the broader business and technology market will benefits even more.

2.2 The Stock of Ninebot-Segway

2.2.1 Overview of the stock

The most updated stock price of Segway-Ninebot, as of the previous closing, was CN¥51.28 which is a mean value as the stock performance within 52 weeks range from CN¥33.05 to CN¥92.90.The market capitalisation, which is the total value of the shares of stock, is CN¥36.685 billion. The total earnings of the company was reported to be CN¥412.21 million, which grew by 0.1% over the past year, with a 5.83 earnings per share (EPS). The revenue over the year was CN¥9.2b whereas the cost of revenue was CN ¥7.07b, resulting in a gross profit of CN¥2.2b and a 23.54% gross margin.

The pubic held company in the electronics industry has been experiencing an upward growth since 2019, with the most noticeable change happening between 2020 and 2021. The revenue received in 2022 and 2021 are relatively similar, with CN¥9.146b and CN¥6.003b respectively. This is twice the number of the pre-pandemic level in 2019, which is CN¥4.248. The earnings, on the other hand, also increased sharply between 2020 and 2021. The earnings before 2021 was reported to be negative since 2018, until it reached CN¥73.473 by the end of 2020 which continued to rise steadily from 2021 to 2022. Ninebot has been making profits over the past year as its earnings grown by 90.7% per year. Yet, the earnings growth per the past year (0.1%) was below its 5-year average, though still ahead of the Auto industry (-5%).

Ninebot recently disclosed a semi-annual report. In the first half of 2022, the revenue of the company was CN¥4.820 billion, a year-on-year increase of 2.16%; the net profit attributable to the parent was 256 million, a year-on-year increase of 0.63%; the non-net profit deducted was 236 million, a year-on-year increase of 7.56%. On a quarterly basis, in the first quarter of 2022, the revenue of the company was 1.917 billion, a year-on-year increase of 7.80%; the net profit attributable to the parent was 38 million, a year-on-year increase of 51.32%; the second quarter revenue was 2.903 billion, a year-on-year decrease of 1.26%; the net profit attributable to the parent was 2.18 100 million, down 5.00% year-on-year. Therefore, the revenue and profit of Ninebot are still growing, but the growth rate has slowed down significantly.

2.2.2 P/E ratio

The price to earning ratio of Segway-Ninebot over 2022 was forecasted to show a 46.2% growth at 89x which is close to its peer average of 90.9x. Compared to the industry average of similar Asian companies, where the P/E ratio is 16.5x and estimated growth is 19.1%, Segway-Ninebot shows a considerable price to earrings ratio and growth rate. Nevertheless, the fair PE ratio is expected to be 40.9x, as it takes consideration of the forecasted earnings growth, profit margins and other risk factors Thereby, Ninebot-Segway's P/E ratio is relatively expensive compared to its fair P/E ratio.

2.2.3 P/B ratio

The price-to-book ratio compares a company's market capitalisation to its book value. The market value of Ninebot is its share price multiplied by the number of its shares, whereas the book value is the net assets of the company. The price to book ratio of Ninebot is estimated to be 0.8280, which is considered as a solid investment but a undervalued stock as the stock price is significantly being traded at a lower price compared to the value of its assets. The low P/B ratio also indicates a low earning by Ninebot. The research and development costs of the company reduces its book value while performing unique process and differentiated products, further enhancing new patents and royalty to its brand. The company could also raise its stock price to support its R&D, causing wide difference between the market value and book value of equity.

3. Case analysis

3.1 Case 1

Ninebot plans to conduct additional research in the area of automotive balancing in order to find additional industries that could benefit from the application of artificial intelligence and then use the technology in those industries. Their main objective is to showcase their state-of-the-art technology and enhance customer and commercial relationships between robots and mobile phones. Robot interaction makes it possible for more people to benefit from the convenience and smarter living it delivers, which encourages a greater variety of goods and services. Due to the combination of robotics and mobile phones, a greater range of functionalities can be produced. They seek to persuade people in this way that the ninebot should be considered more than just a form of transportation and a means of mobility, but rather a cutting-edge mode of transportation that will be essential to people's lives in the future.

Segway, however, has struggles with decision-making, which contributed to its downfall at the time. Segway debuted the two-wheeled personal transportation vehicle in 2002 as a brand-new offering to the general public. Segway's CEO—John Doerr described it as "exactly like a car and similar to a horse and buggy.". Sales of approximately $1 billion may have been reached by Segway earlier than any other firm in history. The two-wheeled vehicles were the result of extensive research and development work by Segway. According to their estimates, the project might draw in a sizable number of customers despite the fact that just a few of nations have laws allowing individuals to ride ninebots on public roads. Consumers' faith in the product rapidly dwindled, and Segway's potential was not reached. According to the Washington, DC (CNN), segway overspent on the original development of the Ninebot, which forced them to raise the price to assure that the Ninebot's earnings would cover their expenditure. The brand-new ninebot was supposed to bring about a revolution in urban transportation, but that didn't happen. This rendered it unaffordable for many people with costs ranging from $6,000 to even $10,000. This, together with the fact that many nations at the time did not implement the use of these cars, deterred a lot of people. It was less than anticipated because Ninebot's earnings only made up 1.5% of the company's overall sales.Only a limited portion of people at the time, including the police and some tourism organizations, were willing to purchase and utilize it. Due to the high expense of three-wheeled Segway devices, which could have an impact on how the police used their budget, the police have started to prefer less expensive electric scooters as technology has advanced. They discovered that they were no longer required to invest a significant sum of money in the purchase and upkeep of pricey electronic skateboards. Additionally, Segway stopped offering the police a three-wheeled Segway device.

Additionally, the Segway PT project's self-balancing wheelchair, which was developed in the 1990s, performed much better than the Segway. When it initially came out, it only cost $4950. Even the batteries were over $1,000 at the time, making them unaffordable, therefore the company continued to lower the price over the following few years. The majority of people could afford wheelchairs at the time because to these processes. The number of PTs sold since 2001 is over 100,000. A 2003 Hollywood movie clip also features the Segway PT. The actors in the movie rode around on a Segway and grabbed the audience's attention. It resulted in a highly successful promotion for the business.

The traditional view of automobiles and transportation is challenged by this product, which also opens up new opportunities for business to investigate the transportation sector. The item made people aware of how much the use of electricity and other technologies can actually advance and transform human life in the future. Segway continued to develop and improve the two-wheel personal vehicle during the ensuing years. They introduced the Segway Cross-treeian Transporter (XT), which had extended-range lithium-ion batteries, and the second generation Segway PT, which included the adaptable Segway i2 and the cross-terrain variant, the Segway x2. Through the use of cutting-edge technology, they integrated the mobile phone and the electron vehicle. Through a 2003 agreement with DARPA, the Defense Advanced Research Projects Agency, the Segway RMP was created. Their

technological and scientific prowess was being improved. In fact, Segway has benefited from a variety of technological improvements and advancements, giving it a competitive edge in the market.

3.2 Case 2

In recent years, ninebot has been developing its products to enhance safety and user comfort through technological improvements, such as increasing the life span of its batteries and using stronger metals for the bikes' bones. In the video, the concept of "making customers' lives easier through technology" is reflected in various scenes, such as the technology of sensor unlocking without a key and the technology of charging from space. Through a side-by-side comparison with similar balance bikes in the same industry, we find that the price of ninebot ranges from a minimum of 1799 to 4499 RMB, but the average price is around 3200, while the average price of balance bikes in the same industry, such as Xiaomi and Huawei, is around 1800 to 2400. In summary, we conclude that ninebot's main marketing strategy is to improve the quality of its products to create a higher priced product that is more suitable for young people, while Xiaomi's main marketing strategy is to lower the price to increase its sales.

ninebot currently sells its products directly through e-commerce websites and through resellers. ninebot guarantees its brand image by signing exclusive distribution contracts with resellers. In addition, ninebot tends to promote its own products through new media, such as WeChat and Weibo, which are being used more frequently in the epidemic environment than traditional advertising, thus creating a spreading effect from person to person. This integrated approach to sales and promotion has enabled ninebot to achieve very good sales even during the epidemic. The online marketing approach is also better suited to the main customer groups that ninebot sells to, i.e. students and white-collar workers, who are more aware of the Internet and new media.

In addition, in 2020, some areas of Shanghai and Beijing in China implemented a ban on balance bikes for safety reasons, and the adoption of this policy is likely to continue to grow. In response to this policy, ninebot began to develop products other than mobility tools and Article 26 of the "Shanghai Non-Motorized Vehicle Management Measures" issued in 2016 stipulates that "electric balance bikes" do not have the right of way and are not allowed to be driven on the road. With the issuance of this ban, the sales of balance bikes in Shanghai were at a low ebb. Soon after the issuance of this ban, the Beijing Municipal Government issued Article 90 of the Measures for the Implementation of the Road Traffic Safety Law of the People's Republic of China, which stipulates that if a balance bike or scooter driven by a power device is used on the road, the traffic management department of the public security authorities may detain the device and impose a fine of 200 yuan. The market for balance bikes will likely shrink further as the number of cities that restrict the use of balance bikes may still increase further, and the outlook is not bright. There are 2 main reasons for this ban, one being that the quality is not up to scratch and the other being the frequent safety accidents concerning balance bikes.

In order to deal with this problem, ninebot is trying to reduce its losses in two ways, one is to improve the safety of its own products through technological improvements. ninebot's balance bikes are positioned in the market as an upper-priced but high-performing product, so its products can have the opportunity to improve the quality of their own products. ninebot is still launching more expensive and better quality balance bikes in recent years. In recent years, ninebot has been launching more expensive and higher quality products to respond to the current balance market environment and to meet the needs of its target customers.

In addition to this, ninebot is also trying to reduce the damage caused by the heavy impact of one product by broadening its range of products, such as the three latest logistics robots launched by Ninebot, which in August 2022 launched a new product, the "Automatic Transfer Robot", aimed at reducing labour costs and reducing the frequency of direct human contact. direct human contact. Due to the inevitable human contact in an epidemic environment, the food service industry has been restricted, and in some areas even required to suspend operations, as has the logistics industry. The

advantages of takeaway robots and delivery robots in terms of reducing staff could therefore go a long way to alleviating the major problems faced by these industries.

4. Conclusion

Segway-Ninebot effectively utilities its comparative advantages and economies of scale to improve its technological state, while developing innovations in its product chain to adapt to the market's demand. Its new products during the epidemic successfully change with the consumers' tastes and preferences, thereby built high reputation of the brand and established confidence for investors. However, the danger of investing in Ninebot is resulted from its market vitality, meaning, the frequency and magnitude of price fluctuations. It is important for the investors to be concerned with risk-adjusted return and measure the risk by using the Sharpe ratio, which compares the return of investing in Ninebot with its potential risks. Moreover, the ratio reveals the extent of excess return that could be generated from the volatility endured in an investment riskier than Ninebot (Macroaxis, n.d). Comparing Ninebot's volatility with the benchmark is also necessary. Another solution of minimising the risks in investing in Ninebot is employing the market-neutral strategies, which stand for a form of hedging that aims to generate returns that are independent of the market's swings and uncorrelated with both stocks and bonds. If one owned equity performs unexpectedly, the other quite can balance or neutralise the losses. To find the possible equities that could be owned along with Segway-Ninebot, peer analysis can be used in valuation to compare with other companies within the industry.

Finally, the limitation of this paper is the lack of prior research studies on the topic. Not building a foundation of understanding the problem leads to inaccurate estimation of the stock performance of the company. Another limitation of this research is that there is a lack of available or reliable data that could be used to broaden the scope of the analysis. Therefore, new methodologies should be designed in future papers for collecting data.

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