The Wealth Effect on Acquisition's Amazon of Whole Foods

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Abstract. This report examines that the wealth effect of the announcement on Amazon's acquisition of Whole Foods by using financial analysis and Event Study methodology on acquirer. From ratio analysis, the acquisition generate operating and financial synergy effect in accord with motivation. In the event study, daily returns of 120 days before announcement are regarded as estimation period and a test period is [-5, +5]. The result is positive cumulative abnormal returns, reflecting positive attitude of investors for the acquisition consisting two reasons. Moreover, the report describes current development of Amazon and Whole Foods and challenges in offline that need to continue develop new technologies and to increase market shares. Thus, it is a successful acquisition combining e-commerce giant and offline stores, which is a valuable case for other similar enterprises.

Keywords: Amazon, whole foods, acquisition, synergy, event study methodology

1 Introduction

Amazon is the largest e-commerce company in America and Whole Foods is the first certified organic food retailer and the largest organic grocery chain in America. Amazon announced a deal to buy Whole Foods for $13.7 billion at $42 per share on June 16th 2017. This report focuses on motivation of acquirer and financial analysis by four types of ratio analysis (profitability, solvency, activity and growth rate ratios) that reflect to generate two kinds of synergy effect. Then, the research calculates and analyses CAR and AAR based on event study methodology with an estimation period of 120 days and a test period [-5,+5] in order to find the effect of acquisition. There are two aspects, Whole foods' local brands and introducing new technologies, that briefly describe the current situation of both parties and some challenges of "new retail" business.

2　　Motivation

2.1　　Build delivery network and reduce costs

Due to fresh food that are required to be stored in a short period of time, how to quickly delivery food on platform to customers is a challenge for Amazon to develop e-commerce business in daily food. The advantages of acquisition are that purchase not only the whole food brand but also over 400 stores located in prime lot around the world, which helps build a widespread delivery network. In addition, Amazon proposed "click and collect" service that enables customers receive goods and food nearby after buying them on Amazon website. Furthermore, it effectively shortens the distance between delivery and stores and decreases logistics costs.

2.2　　Enrich offline data and improve more precise demand positioning of customers

Although e-commerce platform is a new direction, it is indispensable for retailing to maintain and enrich offline data. World food markets is the most expensive organic grocery store in the U.S. because of its healthy, high-quality products which have a large number of high quality offline users. Therefore, it can enrich Amazon's data samples, provide support for its research on consumer needs, develop artificial intelligence, realize more accurate consumer portraits and feature labels, and optimize data-driven models. Amazon also could exploit these data to enable customers keep loyal in Amazon Prime or other business [1].

2.3　　The new retail layout

In October 2016, Jack Ma puts forward the "new retail" for the first time at the Alibaba Cloud Habitat Conference. Its core essence is to combine online with offline and make online Internet power and offline physical retail stores produce synergy effect, so as to complete the e-commerce platform and physical retail stores in business optimization and upgrading in dimensions.

3　　Financial Analysis

3.1　　Profitability analysis

As can be seen from the table 1, gross profit margin increased slightly after acquisition and maintenance of high ratio in 2019. Surprisingly, considering that net income in 2018 ($10073 million) was roughly five times than that of in 2016, net profit margin significantly outnumbered after acquisition. With regards to ROE and ROA, although they both declined marginally from 2016 to 2017, there were dramatic rises after acquiring Whole Food, climbing to 23.13% and 6.19% respectively. Due to adding op-

erating leases ($25141) to total assets and higher shareholders' equity, ROE and ROA decreased slowly in 2019.

Table 1. Profitability ratios (table credit: original)

	2016	2017	2018	2019
Gross profit margin	35.09%	37.07%	40.25%	40.99%
Net profit margin	1.74%	1.71%	4.33%	4.13%
ROE	12.29%	10.95%	23.13%	18.67%
ROA	2.84%	2.31%	6.19%	5.14%

Therefore, after acquisition, Amazon had better costs management by building a robust delivery network and good profitability by exploiting new retail layout. More importantly, it creates synergy effect that is the extra value through combining two firms, generating opportunities that would not been available to these companies operating independently [2]. Particularly, acquiring Whole foods generated operating synergy that Amazon increase operating income by adding market shares and reduced costs by economies of scales, enabling Amazon more cost-effective and profitable.

3.2   Solvency analysis

The former two ratios measure a firm's ability to meet short-term obligation and the remained three ratios measure the ability to pay long-term debt. In general, the current and quick ratio must be above 1 to ensure that the liquidity of enterprise meets standard. From table 2, current ratios were all above 1, but quick ratios were between 0.7 and 0.9. In addition, quick ratio in 2017 had witnessed a marginal decrease, which was attributed to higher account payable that more $9.307 billion than last year. However, Amazon did not concern this situation because an increase in accounts payable may reflect a company's improved bargaining power in the upstream and downstream, as well as its dominant power for suppliers. Therefore, the acquisition generates operating synergy through greater pricing power [2]. The subsequent two years saw a considerable rise in quick ratio because cash and cash equivalents grew up to $31.75 billion, year-on-year rise of 54.71%.

Table 2. Liquidity and solvency ratios (table credit: original)

	2016	2017	2018	2019
Current ratio	1.04	1.04	1.10	1.10
Quick ratio	0.78	0.76	0.85	0.86
Interest protection multiples	8.65	4.84	8.77	9.09
Debt to equity	0.4	0.89	0.54	0.38
Debt to assets	76.88%	78.90%	73.23%	72.45%

In term of long-term solvency ratios, a D/E ratio below 1 is generally considered relatively safe. Given that Amazon acquired Whole Food by adding debt and long-term debt rose to $24.71 billion in 2017, the D/E ratio was significantly higher than before [3].

After that, an increase in shareholders' equity year by year led to decreasing D/E. Similarly, a substantial increase in long-term debt resulted higher interests and acquisition costs, leading to a lower interest protection multiples, dropping to a half of value last year. Fortunately, good net profits in 2018 guaranteed interest protection multiples and continued to rise in 2019, meaning a good debt paying ability. As regards to D/A, Amazon paid $13.76 billion for Whole food as acquisition costs, including $9.1 billion goodwill and $3.794 billion property and equipment, indicating a growth in capital investment and total assets, so D/A also went down after 2017.

Therefore, it can be seen that Amazon undertook massive long-term debt, but after acquisition, its short-term liquidity and long-term solvency ability improved and Amazon effectively reduced financial risk. It effectively shows the advantage of new retail layout and reflect financial synergy by increasing debt capacity, because their earnings and cash flow become more predictable and stable [2].

3.3   Activity analysis

It is obvious that total asset turnover and accounts receivable turnover declined slowly over the period from 2016 to 2019. However, there was an opposite trend in inventory turnover. But assets turnover were all more than 1, meaning that the enterprise sales ability is strong and the benefit of asset investment is relatively high. What is more, Amazon's accounts receivable turnover were actually higher than that of average industry, indicating efficient collection processes and conservative credit policies.

As regards to days, average receivable outstanding was 22 days and meanwhile Amazon kept paying its suppliers about every 67 days. Therefore, Amazon exploited the difference of time and use suppliers' money to new investment or operations. Surprisingly, cash conversion cycle were all below 0, which means greater liquidity. Amazon is one of few firms that has negative cash conversion cycle, so it could receive capital before paying to suppliers.

In general, although acquisition did not apparently promote Amazon's efficiency in operation of capital, the activity ratios still reflect greater liquidity and efficiency.

Table 3. Activity ratios (table credit: original)

	2016	2017	2018	2019
Total asset turnover	1.84	1.66	1.58	1.45
Accounts receivable turnover	19.4	16.5	15.6	15
Inventory turnover	11.2	11.6	12.2	12.8
Days payable out-standing	68.4	68.4	65.8	64.5
Days receivable outstanding	18.81	22.12	23.40	24.33
Days inventory	32.59	31.47	29.92	28.52

outstanding				
Cash conversion cycle	-17	-14.81	-12.48	-11.65

3.4   Growth analysis

After acquiring Whole Food, the growth rate of revenue of Amazon further grew up and maintained approximately 30% next year. However, in terms of growth rate of net profit, it saw a considerable decrease, even below 0 in 2017. The main reason is that Amazon has been investing in order to keep its giant core businesses growth at the cost of profits. For example, it indeed made progress in retailing business that delivery goods to customer just in one day, resulting in higher revenue. After that, in 2018, the dramatic growth was primarily driven by Amazon Web Service that generated $66.8% of its operating income [4].

Table 4. Growth ratios (table credit: original)

	2016	2017	2018	2019
Growth rate of revenue	27.1%	30.8%	30.9%	20.5%
Growth rate of net profit	87.4%	-1.9%	202.5%	17.1%

4   Event study methodology

4.1   Sample data selection and time parameters

This report uses event study methodology to analyze the impact on stock price of Amazon, given that it announced that it would acquire Whole Foods. The estimation period runs from February 1st 2017 to May 31th 2017 considering that daily returns of 120 days prior to event date is adequate to be regarded as a benchmark, which could be used to figure out normal return [5]. This report creates the event window of 11 days, including 5 days before and 5 days after announcement. The window started June 9th 2017 to June 23th 2017. Therefore, the identification of test period is short and results can reflect immediate effect when acquisition announced in June 16th 2017 [6].

4.2   Abnormal returns

The essence of abnormal returns is excess return that deviates from the expected return. In this study, normal return indicates that Amazon generates profits without acquisition announcement. There are two abnormal return models below

Market-adjusted return model (MKAR). $AR_t = R_t - R_{Mt}$ where AR_t refers to the abnormal return for Amazon and R_{Mt} is market return (S&P 500) on a given day.

Risk-adjusted return Model (RAR). $AR_t = R_t - (\hat{\alpha} + \hat{\beta}R_{M,t})$ where $\hat{\alpha} + \hat{\beta}R_{M,t}$ is expected return. $\hat{\alpha}$ is intercept of Amazon rate of return during the estimation period and is calculated 0.0003. $\hat{\beta}$ is the Amazon slope during the estimation period and is calculated 0.1915.

$$\text{CAR}(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \tag{1}$$

$$\text{AAR} = \frac{1}{n}\sum_{i=1}^{n} AR \tag{2}$$

Cumulative Abnormal Return (CAR) is calculated as a sum of daily returns over the test period [7] and AAR is the average of total abnormal returns for each day in the event window. AAR is 0.23% and 0.22% and CAR is 2.295% and 2.212% in the MKAR and RAR model. On the announcement day, stock return is 2.42%

There are some reasons that acquisition generates CAR and AAR. Firstly, market inefficiency brings about abnormal returns. According to Efficient Market Hypothesis (EMH), if market is efficient, prices fully and instantly reflect all available information and no one could exploit private information to gain profits [8] Thus, stock price has already reflected its actual value and abnormal return is always equal to 0. However, in fact, EMH is a ideal and impractical and market is always inefficient that any change may induce stock price to fluctuate and investors overvalue or undervalue the stock price in the market. That' why the acquisition generated CAR and AAR.

Secondly, given that the Amazon, the largest online e-commerce company in America and good performance of Whole Foods, investors had positive attitudes on this acquisition. In addition, management analysis in the Amazon's annual report had positive impact on investors who receive public information from resources or private information from interpersonal network. Thus, on June 16th 2017, the positive sentiments reflected to Amazon's stock price, rising to the closed price of $49.39 and stock return is 2.42%. After that, the price broke through $50 on June 21th 2017 [9].

5   Current development

Nowadays, Whole Foods has added 60 stores in the past five years and total number of stores reach 533 with170 million users. Surprisingly, it still maintains independent operation, adhering to their own localization of fresh positioning. Over the past five years, Whole Foods has increased the number of local brands by 30%, more than 3,000 brands. For Amazon, the most direct change is that Whole foods has become offline return and pickup locations, where customers can return goods they ordered online. Moreover, Amazon Prime members get 10% off the entire store and other extra special discounts at Whole Foods.

Over the past few years, Amazon has been exploring ways to make shopping experience more convenient and impersonal, piloting and deploying in physical stores like AmazonGo, AmazonFresh, and Whole Foods. As one of the most customer flow

brick-and-mortar stores, Whole Foods has played a key role in Amazon's exploration of new shopping technologies.

Amazon began piloting AmazonGO checkout at Whole Foods stores on March 2022. Users carry their smartphone, verify their Amazon account through the AmazonGo app, and check out without paying cash because the app will immediately charge the credit card attached to your Amazon account. Moreover, AmazonOne Palm Pay, an another new payment technology Amazon, applies to Whole Foods. Users will be able to pay directly by swiping their palm print on AmazonOne. Palm Pay has already been introduced in more than 20 Whole Foods stores and it expects to add over 60 this year.

6   Challenges

However, Whole Foods now accounts for only 1 percent market share of U.S. food sales, according to Numerator, a market-research firm, and Amazon takes up just over 2 percent. By comparison, retail giant Wal-Mart has 19 percent market shares of the U.S. market, and Kroger's has 9 percent, although Walmart has over 2,800 stores in the United States, which is significantly higher than Amazon.

Amazon develops the "new retail" business, trying to organically combine its dominant online business with offline physical stores through mergers and acquisitions, and realize the integration of online and offline shopping experience through new technologies. The $13.7 billion acquisition of Whole Foods is the most critical step in Amazon's exploration of offline shopping.

In September this year, the new CEO JasonBuechel will manage Whole Foods. Under Buchel's leadership, Whole Foods may deploy Amazon's new technology more aggressively and quickly, which could ensure an optimal win-win solution.

7   Conclusion

This study investigates the effect of acquisition announcement that Amazon bought Whole Foods in 2017. From financial analysis of acquirer, it generates operating and financial synergy effects. Amazon developed new retail business that promoted more revenue and improved profitability. Despite long-term debt produced by acquisition, it saw the liquidity enhancement and better ability of solvency. It is apparent that the growth rate of net profit dramatically rise after acquiring Whole Foods. Furthermore, using Event Study Methodology, a data of daily returns of 120 days before the acquisition announcement as estimation period and a test period [-5, +5] are used for the analysis. The result is positive CAR and AAR from two models and study further demonstrates two reasons. Therefore, this acquisition could be considered a successful case and other similar enterprises could develop offline and online combination. Today, Whole Foods has its won local brands and expand new branches and Amazon commits itself to applying new technology to physical stores. It is worth noting that it provides valuable referential meaning and it is indispensable for acquirer to improve the ability of resource integration.

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