

The Effects of Outbound Mergers and Acquisitions (M&As) on Chinese Automobile Corporations' Performance: A Case Study of Geely's Acquisition of Volvo

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Abstract

Pursuing M&As is an important growth strategy for many companies. This study examines whether Geely has succeeded in improving the acquirer's performance as expected over a long-time span. In particular, it: (i) assesses the short-term and long-term post-acquisition firm performance respectively; and (ii) establishes a post-acquisition performance evaluation framework for Chinese automobile companies' overseas M&As based on their motivations. By investigating the influence of acquiring Volvo on Geely's performance as a case of outbound M&A during the financial crisis, this research will serve as an example of evaluating M&As as a mechanism for corporate growth in the automobile industry of China or other emerging economies.

Keywords: corporate growth, emerging economies, Geely, mergers and acquisitions, performance evaluation

1. Introduction

Pursuing mergers and acquisitions (M&As) is an important growth strategy for many companies. The volume of global M&As after the 2008 financial crisis peaked in 2015 but experienced volatile decreases up to the present (J.P. Morgan 2019). Surviving well from the global financial crisis, China has been playing an increasingly active role in the global M&A market (Sun et al. 2012; Institute for Mergers, Acquisitions and Alliances 2019).

Notably, the success rate of Chinese outbound deals has not been satisfying so far. Chinese outbound M&As seemed to be slightly silent after 2016, with the volume falling year over year (J.P. Morgan 2020). Additionally, according to McKinsey & Company (2017), over the decade 2007-2017, about 60% of outward investments by Chinese businesses created little or no value for acquirers. Unlike multinationals in the US and major European countries, Chinese businesses are less experienced in M&A transactions, since experienced buyers usually create value and outperform occasional ones by a wide margin (BCG 2019).

Nevertheless, the young Chinese automaker Zhejiang Geely Holding Group's acquiring 100% stake of Swedish Volvo Cars from Ford for \$1.8 billion in 2010 astonished the world instantly and was deemed to have created win-win outcomes for both companies successfully in a few years after the deal. Geely acquired the whole chain of Volvo, from research and development (R&D) to international supplier and marketing channels. Volvo also reported a first-time profit within one year of the deal, after three consecutive years' losses in the charge of Ford (Lai et al. 2013). Therefore, its strategic influence is quite remarkable among previous Chinese automotive cross-border acquisitions, such as Shanghai Automobile Industrial Corporation (SAIC) - Shuanglong (South Korea), SAIC/Nanjing Automobile Corporation - MG Rover (UK), and Beijing Automotive Industry Corporation - Saab (Sweden) (Huang 2009; Collinson 2013, Guo et al. 2017).

Given that it has been a whole decade since 2010 and most prior studies (Ma and Wu 2012; Lai et al. 2013; Ren 2013) were focused around two or three years after the deal, this study aims to fill in this gap by tracking the performance of Geely after the acquisition. The aim is to examine whether Geely has succeeded in improving the acquirer's performance as expected over a long-time span. In particular, this study aims to: (i) assess the short-term and long-term post-acquisition firm performance respectively; and (ii) establish a post-acquisition performance evaluation framework for Chinese automobile companies' overseas M&As based on their motivations.

To investigate the acquisition's influence on Geely's firm performance using the multidimensional evaluation framework, we have collected secondary data from three sources: annual reports, financial databases such as Bloomberg, and government websites. We found that the shareholder value decreased within the short term of the acquisition announcement, as the stock market did not respond positively in this stage. In the longer term, the acquisition of Volvo affected the profitability of Geely negatively in the first five years, but the situation reversed in recent years up to 2018.

We also found that the efficiency performance of Geely was susceptible to the vehicle demand apart from the pure managerial efficiency, and thus the acquisition's impact on it was not quite obvious. Geely managed well its long-term solvency after the acquisition despite taking over all of Volvo's debts through the acquisition. The innovative and internationalization performance of Geely was boosted significantly by acquiring Volvo, but the international presence weakened gradually in recent years. By investigating the influence of acquiring Volvo on Geely's performance as a case of outbound M&A during the financial crisis, this research will serve as an example of evaluating M&As as a mechanism for corporate growth in the automobile industry of China or other emerging economies.

2. Overview of Zhejiang Geely Holding Group

2.1 China's Automobile Industry

China's automobile industry was launched in the early 1950s, falling behind the world's car industry for over half a century. Under a planned economy, the central government determined the pattern of industrial development in China. Based on the production model of transplants from the former Soviet Union, three large state-owned enterprises (SOEs) were founded: First Auto Works (FAW), Dongfeng Motors (DFM), and SAIC (Balcet et al. 2017).

The development of the passenger car segment took place mainly after 1978 when China shifted towards a market economy through Chinese economic reform (Chu 2011). This transitional stage was featured by increasing foreign direct investments in China. Supported by the Chinese government, nearly all top 10 world automakers established joint ventures (such as SAIC Volkswagen and Changan Ford) with local SOEs.

Joining the World Trade Organization (WTO) in 2001 marked the third stage of China's automotive industry. Before this, private companies were not allowed to produce vehicles in China. It was during this period that Chinese automakers began to progressively catch up at an early stage of globalization (Balcet et al. 2017). In 2009, China overtook the US as the world's largest car market (Alon and Fetscherin 2011).

2.2 History of Geely

Geely was founded in 1986 by Li Shufu in Zhejiang Province, China, initially manufacturing refrigerator parts and motorcycles. To bring all Geely businesses into one group, Geely Group was established in 1996 and entered the automotive industry by setting up Geely Automobile Holdings Limited (Geely Auto) in 1997.

There have been three eras in the history of Geely. From 1997, Geely's vision in its 1.0 era was "producing cars that ordinary people can afford". In this stage, Geely started by producing low-end cars through reverse engineering, i.e. the process of imitating a product by disassembling its components and parts, analysing and reproducing them (Balcet et al. 2017), leading to the low cost and affordability of Geely cars. Geely Auto was granted a licence to produce vehicles in 2001 on the eve of China's entry into the WTO, becoming the first private automobile manufacturer in China.

As early as 2002, only one year after Geely being an official automaker, Li Shufu revealed his ambition by requesting his team to prepare to buy one of the international carmakers. In 2003, Zhejiang Geely Holding Group (Geely Holding) was established, with all of Geely's automotive businesses placed under it. Meanwhile, driven by fierce competition in the Chinese domestic market, Geely debuted in the export market as its first step in overseas expansion.

In 2005, Geely Auto was listed on the Hong Kong Stock Exchange. In 2006, Geely kicked off its first asset-seeking acquisition of a 19.97% stake in Manganese Bronze Holdings and established a joint venture to produce the iconic London taxi in Shanghai. In 2007, Geely announced its entry into its 2.0 era with a major strategic transformation from price to technology and performance competitive advantages, to narrow its gap with major automobile multinational corporations in terms of technology and product branding. Later in this year, Geely also announced its "Go Global" Globalization Strategy with a promise to make the "safest, eco-friendliest, most energy-efficient cars that can be driven all over the world."

In 2009 Geely acquired DSI, the world's second-largest maker of automatic transmissions. In 2010, Geely

completely acquired Volvo from Ford, becoming the Chinese first multinational automotive group. After three consecutive years' substantial losses, Volvo finally turned a profit in 2010 (Lai et al. 2013). Thanks to this deal, Geely Holding entered the Fortune 500 list in 2012 for the first time. In 2013, Geely completed the 100% acquisition of Manganese Bronze Holdings and its subsidiary London Taxi International and established China Euro Vehicle Technology (CEVT) R&D centre jointly with Volvo.

Geely announced its entry into its 3.0 era in 2014 with a new brand mission and value proposition focusing on "Making Refined Cars for Everyone." It also opened up a new strategy development pathway of new energy commercial vehicles in 2015 and announced the Blue Geely Initiative promising that 90% of its vehicles sold by 2020 would be using either hybrid or pure electric powertrains. In 2017, Geely bought a 49.9% stake in Malaysian automaker Proton, 51% control of luxury sports car brand Lotus, and Terrafugia Inc, a US flying-car developer.

In 2018, the ambitious company also acquired a 9.7% share of Daimler AG in pursuit of further partnership, becoming the single largest shareholder of Daimler AG. As of 2019, Geely ranked in 4th place by sales volume among the top 10 passenger vehicle manufacturers in China (see Figure 1). Its share of Chinese total export of passenger vehicles also increased from 3.7% in 2018 to 8.0% in 2019. In February 2020, Geely announced preliminary discussions with Volvo Cars AB, previously partially acquired in 2017, regarding a possible combination of the businesses of the two corporations into a strong global group (Geely Auto 2020; Zhejiang Geely Holding Group 2020).

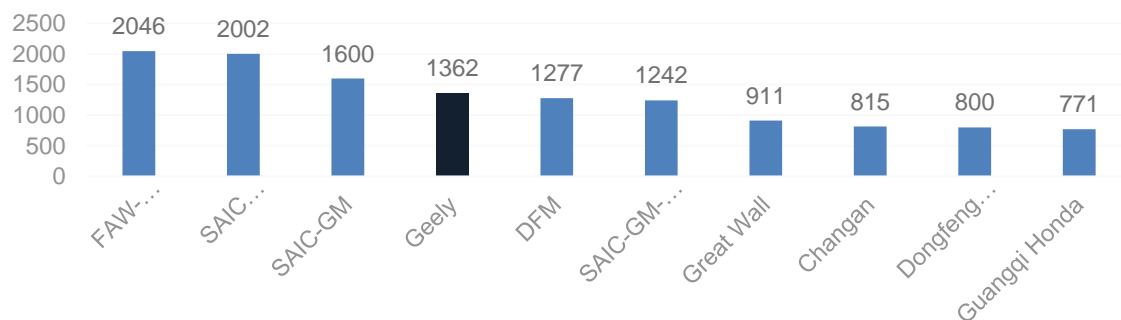


Figure 1. Top 10 passenger carmakers by sales volume in China, 2019 ('000 cars)

Source. China Association of Automobile Manufacturers (2020)

3. Relevant Literature

3.1 Waves and Types of M&As

Back in the 18th century, M&As originated in the US and started one century later in Europe (Focarelli et al., 2002). Unlike in the US and Europe, few M&A related pieces of research had been done before the last three decades in developing countries such as China, India, and Malaysia (Malik et al. 2014; Lebedev et al. 2015). In the literature (Lipton 2006; Roberts et al. 2010; Fuad and Gaur 2019), global M&As have been divided into five waves based on their types.

The first wave (approximately 1897-1903) predominantly involved horizontal acquisitions in the same sectors. Due to the completion of the national railroad system, the US companies were able to evolve into large integrated firms by virtue of the new national product market and prosperous stock exchanges (Banerjee and Eckard 1998).

With the widespread availability of bank loans and automobiles accelerating the integration, the second wave (approximately 1918-1929) was characterized by the significant growth of vertical mergers forward or backwards along the supply chains. The third wave (approximately 1955-1970) saw the large conglomerates seeking acquisitions of unrelated companies in unrelated industries.

Generally referred to as the mega-merger wave, the fourth wave (approximately 1980-1989) experienced an increase in hostile takeovers and corporate raiding by large companies. The fifth wave (approximately 1994 to present) was characterized by expanding cross-border transactions, fueled by economic globalization and

emerging technologies. It was during this period that Chinese automotive corporations' outbound M&As sprang up (Ma and Wu 2012).

3.2 Theories in Motivations of M&A

The literature elaborates on different rationales concerning motivations for M&As, including Transaction Cost Theory, Market Power theory, and Synergy theory. The study of Coase (1937) shows that lower transaction costs are regarded as the main M&A objective according to the Transaction Cost theory. The Market Power theory (Comanor 1967; Bessler and Murtagh 2002; Ongena and Penas 2009) stresses reducing competitors and achieving the market monopoly by horizontal and vertical M&A.

According to the Synergy theory, acquiring companies aim to optimize resource allocation on a global scale and improve the efficiency of both parties in three aspects: managerial, operational, and financial synergy (Trautwein 1990). Although the Synergy theory fits in most M&A cases, cross-border M&As springing up after the 2008 global financial crisis in developed countries by acquirers from emerging economies showed some unique motivations from those in previous M&A waves (Du et al. 2016).

Based on previous literature, market-seeking, strategic assets, and internationalization are the three main motives for Geely, typically in emerging market countries. Not driven by monopoly status, Chinese automobile companies are forced to expand the overseas market by harsh domestic competition. They also view M&A as a good way of avoiding trade barriers and rapidly entering the host countries for production and sales activities (Deng 2009).

Besides, the Chinese domestic market is the major goal of them, as China overtook the US to become the world's biggest auto market in 2009 (Alon and Fetscherin 2011). Since most competition in the Chinese auto market came from leading multinationals such as Audi, Mercedes-Benz, and BMW, Geely was keen to improve its competitive position and enter the domestic luxury car market by virtue of the Volvo brand.

In the automobile industry, strategic assets including intellectual property, brands, sales channels, and technologies (Deng 2009; Su and Liu 2013) are critical to the growth of firms. An important motive of acquiring Volvo is to obtain strategic assets including technology innovations, managerial capacity, human capital, and brand names (Yakob et al. 2018). Volvo's integrating safe and high technology into environmentally friendly cars fitted Geely's mission of producing the safest, most environmentally friendly, and most energy-efficient vehicles (Alon and Fetscherin 2011).

Another interesting motive of investing in developed countries by emerging economies is corporate internationalization (Sun et al. 2012). As part of China's "Go Global" strategy, Chinese automobile companies were driven to invest overseas to improve their international presence and competitive edge (Deng 2004; Du et al. 2016). Chinese government created incentives to accelerate consolidation in the vehicle industry and to support at least one Chinese vehicle manufacturer in becoming one of the global top ten automakers (Rakita and Markovic 2014). By acquiring the Volvo brand, Geely could save many years to internationalize itself (Chen and Liu 2011).

3.3 M&As and Firm Performance

The measures of M&As' effects on firm performance have varied in terms of short and long term, financial and non-financial, objective and subjective metrics. They include the event study, accounting-based measures, and management subjective assessments.

3.3.1 Event Study

A traditional study into the impact on the acquiring firm performance is the event study, first proposed by Fama et al. (1969). It assessed the outcomes of M&A by computing the daily abnormal returns caused by the unexpected event, assuming that stock prices react very quickly to new information if the market is efficient. Fama et al. examined the impacts of stock splits on share prices and provided the framework for future event studies and tests of semi-strong market efficiency.

Despite being the most widely used tool for studying M&As' effect, the event study has several limitations. Firstly, Sitthipongpanich (2011) concluded that in the circumstance of market inefficiency, the stock prices may not fully or immediately reflect all information. Secondly, unforeseen events could have a co-effect on the stock returns and thus abnormal returns are not entirely the direct market response to a specific event of interest. Thirdly, changes in investors' expectations reflected by stock prices observed in the event study may be biased due to subjective behavioural elements (Focarelli et al. 2002). Lastly, this method is proved to mainly work for the short-run stock price performance.

Having reviewed 87 research papers on M&A performance from top Management and Finance Journals, Zollo and Degenhard (2007) concluded that 41% used the short-term event study method, while only 16% used the long-term event study, as the stock value change is only significant over a short period around the M&A announcement date.

With the limitations of the event study, King et al. (2004) applied meta-analytic techniques to empirically evaluate the influence of the most commonly researched antecedent variables on M&A performance. The authors claimed that additional long-term post-acquisition performance researches were needed in addition to the event study to cast light on other dimensions of firm performance.

3.3.2 Accounting-based Measures

Another popular method is accounting-based measures, especially in M&A researches in emerging market economies (Krishnakumar and Sethi 2012). It evaluates the long-term organizational financial performance by comparing accounting data and ratios calculated from financial statements.

Major debates are surrounding the usefulness of accounting research on M&A performance. Stanton (1987) suspected the validity of accounting information as it is easily manipulated with accounting policies and earnings management. Sitthipongpanich (2011) argued that inaccuracies in financial statements might gain an inaccurate assessment of firm performance. Another difficulty lies in the combination of the parent and subsidiary companies' financial performance. In some cases, the target ceases to exist, while in other cases becomes a subsidiary of the acquirer. It is also uncertain whether the holding company is listed by itself or by a representative subsidiary within the group. This will increase the difficulty of evaluating the synergy effect of the group as a whole and comparing deals in the same industry.

Despite these limitations, many academics still adopt accounting information to assess the operational performance affected by takeovers. The figures presented in financial statements are usually deemed to be true and fair, especially for listed companies that are audited regularly. Tuch and O'Sullivan (2007) concluded the rationale of this method: for takeovers seeking growth instead of value, the final aim of earning a higher return on capital and any benefits arising from acquisitions will end in appearing in the accounting records.

The financial performance can be normally subdivided into profitability, efficiency and solvency. However, researchers have different preferences for their chosen indicators. Meeks (1977) found ROA is the best among these ratios to evaluate impacts of M&A, comparing profit margin, return on equity and return on assets (ROA). In the study of Barber and Lyon (1996), operating cash flows is regarded to be optimal in assessing firm performance after significant events including acquisitions, as earnings are easily manipulated.

In terms of the evaluation of Geely's post-acquisition performance, previous researchers (Lai et al. 2013; Ren 2013; Gao 2015; Feng and Liu 2016; Fan et al. 2018) dominantly used accounting-based measures such as profitability, solvency and operating capacity to assess the acquirer's financial situation, but few of them once used the event study to statistically examine the impact on the value of the firm.

3.3.3 Management Subjective Assessments

The management subjective assessments rate the extent to which M&As are able to realize business stakeholders' initial objectives several years after completing the transactions (Harvey 2015). Their preliminary objectives are described and quantified by financial and non-financial indicators. For Chinese outbound investments in developed countries, the acquirers normally have ambitions for operational expansion, brand image improvement, international brand awareness, managerial synergy, technological innovation capacity, and diversity of professionals (Shaker 2010; Alon and Fetscherin 2011; Chen and Liu 2011).

These non-financial purposes should also be comprehensively reflected by the indicators in the evaluation framework of the M&A success and the acquiring firms' performance. As there is hardly a consensus surrounding the definition and dimensions of firm performance, the performance measurement model is inevitably subjective (Santos and Brito 2012), especially in terms of non-financial measures. Namely, the management subjective measures might not reflect all key dimensions of post-acquisition performance or be entirely used in other cases with different M&A objectives.

Traditional firm performance measurement systems cannot be entirely employed for post-acquisition performance evaluation. The most popular among them is the balanced scorecard (Kaplan and Norton 1992) which emphasizes a balance between both financial and non-financial measures (including customer satisfaction, internal processes, and the organization's innovation and improvement activities) to achieve strategic alignment. It acted as a catalyst for further research on developing performance measurement systems (Bourne et al. 2000; Hudson et al. 2001; Santos and Brito 2012).

Neely et al. (1995) defined firm performance as a function of the efficiency and effectiveness of actions a business undertakes. According to this, they surveyed small and medium-sized manufacturing businesses in the UK and pointed out four categories of firm performance, i.e. quality, time, cost and flexibility, and their dimensions. However, individual performance measurement system designers tend to focus on different aspects of performance and the collection of dimensions.

Santos and Brito (2012) enriched the measurement model with seven financial and strategic indicators, including profitability, growth, market value, customers' satisfaction, employees' satisfaction, environmental performance, and social performance. The indicators of performance measurement system often vary with researchers. Although previous evaluation systems cannot be directly applied to the case in this study, their coverage of indicators is broad and inspiring for the design of M&A performance evaluation frameworks.

Among performance analyses of the Geely-Volvo case, Fan et al. (2018) overcame the limitation of predominantly using accounting-based measures by previous literature (Ren 2013; Gao 2015; Feng and Liu 2016) and established a two-tier evaluation framework to investigate Geely's firm performance from 2009 to 2016 in four aspects of acquisition objectives, including profitability, management efficiency, technological innovation and internationalization. They concluded that acquiring Volvo had significantly strengthened Geely's innovation capability but insignificantly improved profitability, efficiency and international presence. This research made important progress in incorporating subjective non-financial indicators but neglected the solvency of financial performance and might have missed more obvious performance trends in a longer period (Ren 2013).

In summary, Chinese automobile companies' outbound investments showed three main motives of market-seeking, strategic assets and internationalization. Surrounding the literature debates about measures of post-acquisition performance, a vast majority of researchers used the event study and a portfolio of accounting indicators. Some of them also included specialized non-financial indicators to measure the extent to which M&As had realized the acquirer management's preliminary objectives.

In the case of Geely, whilst it has been ten years since the announcement of Geely's acquisition of Volvo, there exist few studies tracing this event over a decade. Most performance analyzes were concentrated around two or three years after the acquisition. Ren (2013) suggested future research should be based on a long-time horizon to observe the case's long-term influence. Besides, many researches on the Geely-Volvo case did not use the traditional event study or introduce multidimensional non-financial indicators to evaluate the post-acquisition performance. Therefore, we will try to address these limitations by developing an evaluation framework incorporating the event study, selective financial and non-financial indicators to reflect the influence on the acquirer's short- and long-term performance in line with Geely's specific acquisition motives. To achieve this aim, our study sought to answer the following research questions:

- 1) How did the short-term shareholder value change around the acquisition announcement?
- 2) What was the long-term financial performance of the deal?
- 3) Did the long-term non-financial performance realize the acquisition motivations?

This case is expected to set an example of M&As in economic recession and provide experience for Chinese automobile businesses that aim to conduct cross-border M&A and accelerate global expansion in the future.

4. Method

4.1 Research Strategy

We have selected case study analysis as our research strategy. According to Yin (2018), a case study is an in-depth inquiry into a topic or phenomenon within its real-life setting. It has three advantages over other research strategies in achieving our research objectives and answering the research questions. Firstly, case study research is conducted within a certain real-life context, especially when the boundaries between phenomenon and context are not always apparent. Since performances of different M&A cases are susceptible to their specific participants and circumstances, understanding the context is fundamental to analyze in M&A researches. Secondly, interactions between a phenomenon and its context are best understood through in-depth case studies (Dubois and Gadde 2002), which allow a mixture of research methods, both qualitatively and quantitatively, to explore and interpret the effects of the situation and implications for action. Thirdly, a case study has the capacity of generating insights into a critical contemporary or historical event through in-depth and intensive research in its real-life settings (Paterson et al. 2016; Saunders et al. 2019).

The case of Geely is deemed to be a typical win-win transaction in the history of Chinese outbound M&As and global economic crises, and the strengths of the case study in answering "how" questions can provide an

in-depth understanding of the phenomena (Yin 2018). The conclusions to this case will be educational for future emerging economies' outbound investments in the automotive industry, especially during the ongoing global economic recession. In addition, as the effects of M&As on acquirers' firm performance are attributable to interactions of a number of variables, the case study should be used focusing on exploration and description with no single cause-effect link (WritePass 2017).

In the literature review section, we have reviewed three main post-acquisition performance measures and identified the gaps of evaluation methods in prior researches on the Geely-Volvo case. To address these gaps and achieve the first research objective, we will design a multidimensional performance evaluation framework consisting of the event study, accounting-based and management subjective assessment methods, based on a longitudinal time horizon.

4.2 Data Collection and Analysis

To answer our first research question (i.e. "How did the short-term shareholder value change around the acquisition announcement?"), we conducted the event study which requires a variety of data including the acquirer's daily stock prices around the announcement date, historical daily stock market indices and short-term government bond yield, to identify the event's direct effect on the stock market and analyze the deviation of shareholders' actual return from their expected normal return.

The data are secondary and were collected from major financial databases and government website (e.g. Bloomberg and U.S. Department of the Treasury). Bloomberg terminals available at Coventry University Business School's Trading Floor were used to provide reliable information including historical daily stock market indices and corporate stock prices (Coventry University 2020). As Geely Holding itself was not listed, we collected the daily stock prices of its listed subsidiary Geely Auto instead to reflect the stock market's expectation of the acquisition. The analysis of short-term stock price changes will be conducted using predefined Excel spreadsheet functions. In the event study, FTSE 100 index was selected to estimate the market return, and the 90-day US Treasury Bill rates were collected from the U.S. Department of the Treasury (2020) website to estimate the contemporary daily risk-free interest rate.

The event study is based on the market efficiency hypothesis that share prices react to new information in a timely and unbiased manner, representing the expected present value of future cash flows to shareholders (Tuch and O'Sullivan 2007). Usually, the announcement date is set as the event date; the normal returns are estimated by the Capital Asset Pricing Model (CAPM):

$$r_{i,t} - r_{f,t} = \alpha_i + \beta_i(r_{m,t} - r_{f,t}) + \varepsilon_{i,t} \quad (1)$$

Where,

$r_{i,t}$ = the return to stock i at time t

$r_{f,t}$ = risk-free rate at time t (i.e. short-term government bond yield)

$r_{m,t}$ = the return to the market (e.g. FSTE 100) at time t

α_i = intercept term

β_i = sensitivity of the return to stock i to market returns

$\varepsilon_{i,t}$ = zero mean disturbance term

A 120-day estimation period is chosen to calculate the expected returns, removing the effects before the announcement date. Afterwards, the abnormal return (AR), the difference between actual return and expected return estimated by the CAPM during the event window, is obtained as follows:

$$AR_i = (r_{i,t} - r_{f,t}) - [\alpha_i + \beta_i(r_{m,t} - r_{f,t})] \quad (2)$$

The cumulative abnormal return (CAR) is the sum of daily ARs during the event window, which is calculated by the following formula:

$$CAR_i = \sum_{t=1}^n AR_{i,t} \quad (3)$$

Where,

n = the number of days within the event window

The M&A effects will be ultimately measured by the deviation of AR from zero through the t-test and CAR. A positive deviation implies the M&A has a positive impact on corporate performance, while a negative deviation suggests the market's displeasure with the acquisition (Hitt et al. 1998; Bruner 2002).

To answer the second research question (i.e. “What was the long-term financial performance of the deal?”), we collected accounting data from the 2008-2019 annual reports of Geely Auto. The time horizon constitutes 2 years before and 9 years after the transaction to generate a comparison between the pre-acquisition and ex-post performance. The starting point 2008 was selected because it is the next year of Geely’s announcing its entry into its 2.0 era with an increased focus on technology and quality, and its “Go Global” Globalization Strategy (Geely Auto 2020).

2008 is also a milestone year because on 1 July 2008 Geely Holding acquired the additional interests in its five major operating associates, allowing it to fully consolidate their financial results into the group’s consolidated financial statements onwards. Consequently, we have excluded the distracting influence of other critical events in the history of Geely, such as going public in 2005 and establishing a joint venture with Manganese Bronze Holdings in 2006. We have also started from 2008 to ensure the year-on-year comparability. As Geely has always maintained the managerial autonomy of Volvo and did not plan a full merge until February 2020 (Zhejiang Geely Holding Group 2020), 2019 should be a proper end in our research into the current stage of Geely-Volvo acquisition performance.

Accounting-based measures were used to evaluate the long-term financial performance from three aspects, i.e. profitability, efficiency and solvency in accordance with the literature. Accounting-based measures are credible because financial statements are audited and widely used by investors for judging corporate performance (Bruner 2002). They reflect the real M&A impact on operating performance net of capital market inefficiency and mispricing bias (Krishnakumar and Sethi 2012). The analysis of accounting-based indicators will be basically through horizontal analysis method showing data changes over a longitudinal time horizon. The changing trends of these indicators will be visualized through charts and tables. Several accounting indicators (e.g. gross profit margin, operating margin, debt ratio) are calculated with the vertical analysis method, where line items on the income statement and balance sheet are expressed as a fraction of a base figure, normally total revenue or total assets, to compare companies of different sizes or performances of a single company over time (Jagels 2006; Ungureanu et al. 2013).

To answer the third research question (i.e. “Did the long-term non-financial performance realize the acquisition motivations?”), we collected non-financial data (e.g. annual transnationality indices) from the “Chinese Top 100 Transnational Corporations and Transnationality Indices” report. The report has been issued by China Enterprise Confederation and China Enterprise Directors Association for nine consecutive years. The Chinese top 100 transnational corporations are selected from all China headquartered non-financial enterprises registered and operated in more than one country, ranked by the scale of foreign assets.

Since the performance evaluation framework should be designed based on the motivations of the acquirer, there should be subjective indicators selected specifically for this case to assess the extent to which the performance outcome has realized the management expectations. Therefore, we will introduce R&D intensity and Transnationality Index (TNI) into the evaluation framework (see Table 1).

Table 1. Indicators of the evaluation performance framework

	Dimensions	Indicators
Financial performance	Stock price (short-term)	CAR
	Profitability	ROA
		Gross profit margin
		Operating margin
	Efficiency	Earnings per share (EPS)
		Asset turnover
Inventory turnover		
Solvency	Receivables turnover	
	Current ratio	
	Quick ratio	
Non-financial performance	Innovative performance	R&D intensity
	Brand internationalization	TNI

All ethical approvals have been obtained before conducting this research. With no primary data involved, the ethical considerations of our research have been focused on protecting research data from unauthorized access and unwanted loss, through appropriate data storage and data security strategies. To avoid the risk of storage on

external devices or online shared drives (Saunders et al. 2019), we have stored all our data through computer hard drives. According to UK Data Archive (2011), threats to digital data security may come from physical, network, and computer systems and files aspects. We have several corresponding strategies in place, including firewall, password protection of computer systems, controlled access to data files, and back-ups of important data on different media and locations.

5. Findings and Discussions

5.1 Short-term Shareholder Value Performance

In answering the first research question “How did the short-term shareholder value change around the acquisition announcement?”, the event study was selected to reflect the market’s expectations for the M&A success and the growth of shareholder wealth related to the acquisition (Perepeczo 2007). Normally, the M&A announcement day, 28 March 2010 (Geely Auto 2010), is set as the event date. However, since the stock was not traded on that day, the next trading day 29 March is set as the event date (i.e. time 0 in Table 3) instead. The event window is determined to be 20 before and after the event date. A 120-day estimation period has been selected to obtain the expected returns. In the estimation period, the intercept (α) and slope (β) of the CAPM are calculated to be 0.005910407 and 0.820432541.

Table 2 shows the calculations of Geely’s and the market’s excess returns in the CAPM, from the beginning of the estimation period to the end of the event window. The third column P_t of Table 2 is Geely Auto’s stock prices. The daily risk-free interest rate ($r_{f,t}$) is estimated from the 90-day US Treasury Bill annual rate divided by 365. Although Geely was listed on the Hong Kong Stock Exchange, it became a constituent of the Hang Seng Index from 13 February 2017. Thus, the FTSE 100 index is used to reflect the market share price instead.

Table 2. Calculations of the event study

Date	Time (t)	P_t (USD)	90 Day Treasury Bill rate (%)	Mktp (FTSE 100 Index)	R_i	$R_{f,t}$	$R_{m,t}$	$R_i - R_{f,t}$	$R_{m,t} - R_{f,t}$
04/09/2009	-141	0.23	0.14	4933.2					
08/09/2009	-140	0.28	0.14	4947.3	0.1967	3.83562E-06	0.0029	0.1967	0.0029
09/09/2009	-139	0.29	0.14	5004.3	0.0351	3.83562E-06	0.0115	0.0351	0.0115
10/09/2009	-138	0.28	0.14	4987.7	-0.0351	3.83562E-06	-0.0033	-0.0351	-0.0033
11/09/2009	-137	0.26	0.14	5011.5	-0.0741	3.83562E-06	0.0048	-0.0741	0.0048
14/09/2009	-136	0.25	0.14	5018.9	-0.0392	3.83562E-06	0.0015	-0.0392	0.0015
15/09/2009	-135	0.25	0.13	5042.1	0.0000	3.56164E-06	0.0046	0.0000	0.0046
16/09/2009	-134	0.25	0.10	5124.1	0.0000	2.73973E-06	0.0161	0.0000	0.0161
17/09/2009	-133	0.25	0.10	5164.0	0.0000	2.73973E-06	0.0078	0.0000	0.0078
18/09/2009	-132	0.25	0.08	5172.9	0.0000	2.19178E-06	0.0017	0.0000	0.0017
21/09/2009	-131	0.27	0.11	5134.4	0.0770	3.0137E-06	-0.0075	0.0770	-0.0075
22/09/2009	-130	0.37	0.11	5142.6	0.3151	3.0137E-06	0.0016	0.3151	0.0016
23/09/2009	-129	0.30	0.11	5139.4	-0.2097	3.0137E-06	-0.0006	-0.2097	-0.0006
24/09/2009	-128	0.33	0.10	5079.3	0.0953	2.73973E-06	-0.0118	0.0953	-0.0118
25/09/2009	-127	0.31	0.10	5082.2	-0.0625	2.73973E-06	0.0006	-0.0625	0.0006
28/09/2009	-126	0.28	0.11	5165.7	-0.1018	3.0137E-06	0.0163	-0.1018	0.0163
29/09/2009	-125	0.29	0.13	5159.7	0.0351	3.56164E-06	-0.0012	0.0351	-0.0012
30/09/2009	-124	0.29	0.14	5133.9	0.0000	3.83562E-06	-0.0050	0.0000	-0.0050
01/10/2009	-123	0.28	0.10	5047.8	-0.0351	2.73973E-06	-0.0169	-0.0351	-0.0169
02/10/2009	-122	0.28	0.10	4988.7	0.0000	2.73973E-06	-0.0118	0.0000	-0.0118
05/10/2009	-121	0.27	0.08	5024.3	-0.0364	2.19178E-06	0.0071	-0.0364	0.0071
06/10/2009	-120	0.33	0.08	5138.0	0.2007	2.19178E-06	0.0224	0.2007	0.0224
07/10/2009	-119	0.32	0.09	5108.9	-0.0308	2.46575E-06	-0.0057	-0.0308	-0.0057
08/10/2009	-118	0.31	0.06	5154.6	-0.0317	1.64384E-06	0.0089	-0.0318	0.0089
09/10/2009	-117	0.31	0.07	5161.9	0.0000	1.91781E-06	0.0014	0.0000	0.0014
12/10/2009	-116	0.31	0.07	5210.2	0.0000	1.91781E-06	0.0093	0.0000	0.0093
13/10/2009	-115	0.33	0.07	5154.1	0.0625	1.91781E-06	-0.0108	0.0625	-0.0108
14/10/2009	-114	0.34	0.07	5256.1	0.0299	1.91781E-06	0.0196	0.0299	0.0196
15/10/2009	-113	0.36	0.07	5223.0	0.0572	1.91781E-06	-0.0063	0.0572	-0.0063
16/10/2009	-112	0.36	0.07	5190.2	0.0000	1.91781E-06	-0.0063	0.0000	-0.0063
19/10/2009	-111	0.39	0.08	5281.5	0.0800	2.19178E-06	0.0174	0.0800	0.0174
20/10/2009	-110	0.38	0.08	5243.4	-0.0260	2.19178E-06	-0.0072	-0.0260	-0.0072
21/10/2009	-109	0.36	0.07	5257.9	-0.0541	1.91781E-06	0.0028	-0.0541	0.0028
22/10/2009	-108	0.35	0.06	5207.4	-0.0282	1.64384E-06	-0.0097	-0.0282	-0.0097
23/10/2009	-107	0.36	0.07	5242.6	0.0282	1.91781E-06	0.0067	0.0282	0.0067

26/10/2009	-106	0.35	0.08	5191.7	-0.0282	2.19178E-06	-0.0098	-0.0282	-0.0098
27/10/2009	-105	0.37	0.08	5201.0	0.0556	2.19178E-06	0.0018	0.0556	0.0018
28/10/2009	-104	0.38	0.07	5080.4	0.0267	1.91781E-06	-0.0235	0.0267	-0.0235
29/10/2009	-103	0.40	0.06	5137.7	0.0513	1.64384E-06	0.0112	0.0513	0.0112
30/10/2009	-102	0.37	0.05	5044.5	-0.0780	1.36986E-06	-0.0183	-0.0780	-0.0183
02/11/2009	-101	0.36	0.06	5104.5	-0.0274	1.64384E-06	0.0118	-0.0274	0.0118
03/11/2009	-100	0.36	0.06	5037.2	0.0000	1.64384E-06	-0.0133	0.0000	-0.0133
04/11/2009	-99	0.37	0.05	5107.9	0.0274	1.36986E-06	0.0139	0.0274	0.0139
05/11/2009	-98	0.39	0.04	5125.6	0.0526	1.09589E-06	0.0035	0.0526	0.0035
06/11/2009	-97	0.38	0.06	5142.7	-0.0260	1.64384E-06	0.0033	-0.0260	0.0033
09/11/2009	-96	0.39	0.07	5235.2	0.0260	1.91781E-06	0.0178	0.0260	0.0178
10/11/2009	-95	0.41	0.07	5230.5	0.0500	1.91781E-06	-0.0009	0.0500	-0.0009
11/11/2009	-94	0.44	0.07	5266.8	0.0706	1.91781E-06	0.0069	0.0706	0.0069
12/11/2009	-93	0.47	0.06	5276.5	0.0660	1.64384E-06	0.0018	0.0660	0.0018
13/11/2009	-92	0.47	0.07	5296.4	0.0000	1.91781E-06	0.0038	0.0000	0.0038
16/11/2009	-91	0.46	0.06	5382.7	-0.0215	1.64384E-06	0.0162	-0.0215	0.0162
17/11/2009	-90	0.47	0.04	5345.9	0.0215	1.09589E-06	-0.0069	0.0215	-0.0069
18/11/2009	-89	0.51	0.02	5342.1	0.0817	5.47945E-07	-0.0007	0.0817	-0.0007
19/11/2009	-88	0.47	0.02	5267.7	-0.0817	5.47945E-07	-0.0140	-0.0817	-0.0140
20/11/2009	-87	0.49	0.05	5251.4	0.0417	1.36986E-06	-0.0031	0.0417	-0.0031
23/11/2009	-86	0.50	0.05	5355.5	0.0202	1.36986E-06	0.0196	0.0202	0.0196
24/11/2009	-85	0.49	0.05	5324.0	-0.0202	1.36986E-06	-0.0059	-0.0202	-0.0059
25/11/2009	-84	0.49	0.03	5364.8	0.0000	8.21918E-07	0.0076	0.0000	0.0076
27/11/2009	-83	0.46	0.06	5245.7	-0.0632	1.64384E-06	-0.0225	-0.0632	-0.0225
30/11/2009	-82	0.51	0.06	5190.7	0.1032	1.64384E-06	-0.0105	0.1032	-0.0105
01/12/2009	-81	0.51	0.05	5312.2	0.0000	1.36986E-06	0.0231	0.0000	0.0231
02/12/2009	-80	0.55	0.06	5327.4	0.0755	1.64384E-06	0.0029	0.0755	0.0029
03/12/2009	-79	0.54	0.06	5313.0	-0.0183	1.64384E-06	-0.0027	-0.0183	-0.0027
04/12/2009	-78	0.53	0.04	5322.4	-0.0187	1.09589E-06	0.0018	-0.0187	0.0018
07/12/2009	-77	0.56	0.03	5310.7	0.0551	8.21918E-07	-0.0022	0.0551	-0.0022
08/12/2009	-76	0.59	0.03	5223.1	0.0522	8.21918E-07	-0.0166	0.0522	-0.0166
09/12/2009	-75	0.60	0.02	5203.9	0.0168	5.47945E-07	-0.0037	0.0168	-0.0037
10/12/2009	-74	0.57	0.03	5244.4	-0.0513	8.21918E-07	0.0078	-0.0513	0.0078
11/12/2009	-73	0.54	0.04	5261.6	-0.0541	1.09589E-06	0.0033	-0.0541	0.0033
14/12/2009	-72	0.57	0.05	5315.3	0.0541	1.36986E-06	0.0102	0.0541	0.0102
15/12/2009	-71	0.57	0.04	5285.8	0.0000	1.09589E-06	-0.0056	0.0000	-0.0056
16/12/2009	-70	0.57	0.04	5320.3	0.0000	1.09589E-06	0.0065	0.0000	0.0065
17/12/2009	-69	0.53	0.05	5217.6	-0.0728	1.36986E-06	-0.0195	-0.0728	-0.0195
18/12/2009	-68	0.50	0.08	5196.8	-0.0583	2.19178E-06	-0.0040	-0.0583	-0.0040
21/12/2009	-67	0.45	0.08	5294.0	-0.1054	2.19178E-06	0.0185	-0.1054	0.0185
22/12/2009	-66	0.49	0.07	5328.7	0.0852	1.91781E-06	0.0065	0.0852	0.0065
23/12/2009	-65	0.57	0.05	5372.4	0.1512	1.36986E-06	0.0082	0.1512	0.0082
24/12/2009	-64	0.56	0.11	5402.4	-0.0177	3.0137E-06	0.0056	-0.0177	0.0056
29/12/2009	-63	0.55	0.10	5437.6	-0.0180	2.73973E-06	0.0065	-0.0180	0.0065
30/12/2009	-62	0.54	0.05	5397.9	-0.0183	1.36986E-06	-0.0073	-0.0183	-0.0073
31/12/2009	-61	0.55	0.06	5412.9	0.0183	1.64384E-06	0.0028	0.0183	0.0028
04/01/2010	-60	0.55	0.08	5500.3	0.0000	2.19178E-06	0.0160	0.0000	0.0160
05/01/2010	-59	0.57	0.07	5522.5	0.0357	1.91781E-06	0.0040	0.0357	0.0040
06/01/2010	-58	0.57	0.06	5530.0	0.0000	1.64384E-06	0.0014	0.0000	0.0014
07/01/2010	-57	0.55	0.05	5526.7	-0.0357	1.36986E-06	-0.0006	-0.0357	-0.0006
08/01/2010	-56	0.54	0.05	5534.2	-0.0183	1.36986E-06	0.0014	-0.0183	0.0014
11/01/2010	-55	0.54	0.04	5538.1	0.0000	1.09589E-06	0.0007	0.0000	0.0007
12/01/2010	-54	0.53	0.05	5498.7	-0.0187	1.36986E-06	-0.0071	-0.0187	-0.0071
13/01/2010	-53	0.54	0.06	5473.5	0.0187	1.64384E-06	-0.0046	0.0187	-0.0046
14/01/2010	-52	0.53	0.05	5498.2	-0.0187	1.36986E-06	0.0045	-0.0187	0.0045
15/01/2010	-51	0.53	0.06	5455.4	0.0000	1.64384E-06	-0.0078	0.0000	-0.0078
18/01/2010	-50	0.51	0.06	5494.4	-0.0385	1.64384E-06	0.0071	-0.0385	0.0071
19/01/2010	-49	0.53	0.05	5513.1	0.0385	1.36986E-06	0.0034	0.0385	0.0034
20/01/2010	-48	0.52	0.06	5420.8	-0.0190	1.64384E-06	-0.0169	-0.0190	-0.0169
21/01/2010	-47	0.49	0.06	5335.1	-0.0594	1.64384E-06	-0.0159	-0.0594	-0.0159
22/01/2010	-46	0.47	0.06	5303.0	-0.0417	1.64384E-06	-0.0060	-0.0417	-0.0060
25/01/2010	-45	0.48	0.07	5260.3	0.0211	1.91781E-06	-0.0081	0.0211	-0.0081
26/01/2010	-44	0.45	0.08	5276.9	-0.0645	2.19178E-06	0.0032	-0.0645	0.0032
27/01/2010	-43	0.42	0.08	5217.5	-0.0690	2.19178E-06	-0.0113	-0.0690	-0.0113
28/01/2010	-42	0.45	0.08	5145.7	0.0690	2.19178E-06	-0.0139	0.0690	-0.0139
29/01/2010	-41	0.45	0.10	5188.5	0.0000	2.73973E-06	0.0083	0.0000	0.0083

01/02/2010	-40	0.45	0.10	5247.4	0.0000	2.73973E-06	0.0113	0.0000	0.0113
02/02/2010	-39	0.46	0.10	5283.3	0.0220	2.73973E-06	0.0068	0.0220	0.0068
03/02/2010	-38	0.48	0.09	5253.1	0.0426	2.46575E-06	-0.0057	0.0426	-0.0057
04/02/2010	-37	0.44	0.10	5139.3	-0.0870	2.73973E-06	-0.0219	-0.0870	-0.0219
05/02/2010	-36	0.43	0.12	5060.9	-0.0230	3.28767E-06	-0.0154	-0.0230	-0.0154
08/02/2010	-35	0.42	0.12	5092.3	-0.0235	3.28767E-06	0.0062	-0.0235	0.0062
09/02/2010	-34	0.40	0.11	5111.8	-0.0488	3.0137E-06	0.0038	-0.0488	0.0038
10/02/2010	-33	0.44	0.11	5132.0	0.0953	3.0137E-06	0.0039	0.0953	0.0039
11/02/2010	-32	0.47	0.10	5161.5	0.0660	2.73973E-06	0.0057	0.0660	0.0057
12/02/2010	-31	0.46	0.10	5142.5	-0.0215	2.73973E-06	-0.0037	-0.0215	-0.0037
15/02/2010	-30	0.47	0.10	5167.5	0.0215	2.73973E-06	0.0048	0.0215	0.0048
16/02/2010	-29	0.46	0.10	5244.1	-0.0215	2.73973E-06	0.0147	-0.0215	0.0147
17/02/2010	-28	0.47	0.11	5276.6	0.0215	3.0137E-06	0.0062	0.0215	0.0062
18/02/2010	-27	0.46	0.11	5325.1	-0.0215	3.0137E-06	0.0091	-0.0215	0.0091
19/02/2010	-26	0.45	0.12	5358.2	-0.0220	3.28767E-06	0.0062	-0.0220	0.0062
22/02/2010	-25	0.45	0.12	5352.1	0.0000	3.28767E-06	-0.0011	0.0000	-0.0011
23/02/2010	-24	0.47	0.13	5315.1	0.0435	3.56164E-06	-0.0069	0.0435	-0.0069
24/02/2010	-23	0.46	0.13	5342.9	-0.0215	3.56164E-06	0.0052	-0.0215	0.0052
25/02/2010	-22	0.50	0.13	5278.2	0.0834	3.56164E-06	-0.0122	0.0834	-0.0122
26/02/2010	-21	0.50	0.14	5354.5	0.0000	3.83562E-06	0.0144	0.0000	0.0143
01/03/2010	-20	0.51	0.14	5405.9	0.0198	3.83562E-06	0.0096	0.0198	0.0095
02/03/2010	-19	0.53	0.14	5484.1	0.0385	3.83562E-06	0.0144	0.0385	0.0144
03/03/2010	-18	0.51	0.15	5533.2	-0.0385	4.10959E-06	0.0089	-0.0385	0.0089
04/03/2010	-17	0.51	0.16	5527.2	0.0000	4.38356E-06	-0.0011	0.0000	-0.0011
05/03/2010	-16	0.52	0.16	5599.8	0.0194	4.38356E-06	0.0130	0.0194	0.0130
08/03/2010	-15	0.52	0.15	5606.7	0.0000	4.10959E-06	0.0012	0.0000	0.0012
09/03/2010	-14	0.52	0.16	5602.3	0.0000	4.38356E-06	-0.0008	0.0000	-0.0008
10/03/2010	-13	0.54	0.15	5640.6	0.0377	4.10959E-06	0.0068	0.0377	0.0068
11/03/2010	-12	0.54	0.17	5617.3	0.0000	4.65753E-06	-0.0041	0.0000	-0.0041
12/03/2010	-11	0.52	0.16	5625.6	-0.0377	4.38356E-06	0.0015	-0.0377	0.0015
15/03/2010	-10	0.53	0.15	5593.9	0.0190	4.10959E-06	-0.0057	0.0190	-0.0057
16/03/2010	-9	0.52	0.16	5620.4	-0.0190	4.38356E-06	0.0047	-0.0191	0.0047
17/03/2010	-8	0.53	0.16	5644.6	0.0190	4.38356E-06	0.0043	0.0190	0.0043
18/03/2010	-7	0.53	0.15	5642.6	0.0000	4.10959E-06	-0.0004	0.0000	-0.0004
19/03/2010	-6	0.52	0.14	5650.1	-0.0190	3.83562E-06	0.0013	-0.0191	0.0013
22/03/2010	-5	0.52	0.14	5644.5	0.0000	3.83562E-06	-0.0010	0.0000	-0.0010
23/03/2010	-4	0.53	0.14	5673.6	0.0190	3.83562E-06	0.0051	0.0190	0.0051
24/03/2010	-3	0.53	0.14	5677.9	0.0000	3.83562E-06	0.0008	0.0000	0.0008
25/03/2010	-2	0.53	0.15	5727.6	0.0000	4.10959E-06	0.0087	0.0000	0.0087
26/03/2010	-1	0.55	0.16	5703.0	0.0370	4.38356E-06	-0.0043	0.0370	-0.0043
29/03/2010	0	0.53	0.16	5710.7	-0.0370	4.38356E-06	0.0013	-0.0370	0.0013
30/03/2010	1	0.54	0.16	5672.3	0.0187	4.38356E-06	-0.0067	0.0187	-0.0068
31/03/2010	2	0.54	0.16	5679.6	0.0000	4.38356E-06	0.0013	0.0000	0.0013
01/04/2010	3	0.55	0.18	5744.9	0.0183	4.93151E-06	0.0114	0.0183	0.0114
06/04/2010	4	0.55	0.17	5780.4	0.0000	4.65753E-06	0.0062	0.0000	0.0062
07/04/2010	5	0.55	0.17	5762.1	0.0000	4.65753E-06	-0.0032	0.0000	-0.0032
08/04/2010	6	0.54	0.17	5712.7	-0.0183	4.65753E-06	-0.0086	-0.0184	-0.0086
09/04/2010	7	0.54	0.16	5771.0	0.0000	4.38356E-06	0.0102	0.0000	0.0101
12/04/2010	8	0.52	0.16	5777.6	-0.0377	4.38356E-06	0.0011	-0.0377	0.0011
13/04/2010	9	0.49	0.16	5761.7	-0.0594	4.38356E-06	-0.0028	-0.0594	-0.0028
14/04/2010	10	0.48	0.16	5796.3	-0.0206	4.38356E-06	0.0060	-0.0206	0.0060
15/04/2010	11	0.47	0.16	5825.0	-0.0211	4.38356E-06	0.0049	-0.0211	0.0049
16/04/2010	12	0.47	0.16	5744.0	0.0000	4.38356E-06	-0.0140	0.0000	-0.0140
19/04/2010	13	0.46	0.16	5727.9	-0.0215	4.38356E-06	-0.0028	-0.0215	-0.0028
20/04/2010	14	0.49	0.16	5783.7	0.0632	4.38356E-06	0.0097	0.0632	0.0097
21/04/2010	15	0.48	0.15	5723.4	-0.0206	4.10959E-06	-0.0105	-0.0206	-0.0105
22/04/2010	16	0.46	0.16	5665.3	-0.0426	4.38356E-06	-0.0102	-0.0426	-0.0102
23/04/2010	17	0.47	0.16	5723.6	0.0215	4.38356E-06	0.0102	0.0215	0.0102
26/04/2010	18	0.47	0.16	5753.9	0.0000	4.38356E-06	0.0053	0.0000	0.0053
27/04/2010	19	0.45	0.16	5603.5	-0.0435	4.38356E-06	-0.0265	-0.0435	-0.0265
28/04/2010	20	0.46	0.16	5586.6	0.0220	4.38356E-06	-0.0030	0.0220	-0.0030

We have depicted Figure 2 which shows that Geely's stock prices climbed slowly after the announcement date but experienced a significant drop from the 8th day until the end of the event window. The temporary slight increase in the share price before the announcement might indicate some abnormal trading in the acquiring firm'

s shares by anticipators or informed traders holding private information (Kedia and Zhou 2014; Mohil et al. 2020). Overall, the acquisition announcement had a positive impact on the acquirer’s share price in a short term but did not stimulate the market to react dramatically. Investors tended to conservatively expect the performance of this event, with the stock price falling below \$0.5 in only 9 days.

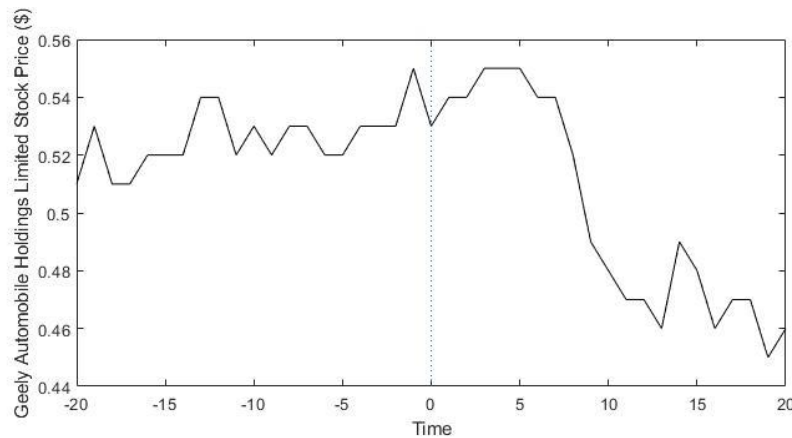


Figure 2. Geely’s stock price changes

As shown in Table 3, which demonstrates the daily AR and CAR from -20 to 20 trading days around the event date and the t-test results of ARs, daily AR for Geely’s shareholders floated up and down, with more negative ARs than positive ones. To present the aggregate impact on the AR, we created a graph of the CAR changing trend (see Figure 3). There were negative CARs from 10 days prior to the announcement, and much more significantly negative CARs after the announcement date. This indicated that the market was anticipating an event of which investors’ anticipation negatively affected the shareholder’s return, in accordance with the findings of Zhang (2017). The announcement date witnessed a comparatively greater AR of -4.41%; the t-statistic -0.6960 was also significantly different from zero (see Table 3), again suggesting the markets’ passive reaction to this acquisition. To summarize, the shareholder value decreased in the short term, complying with Lebedev et al. (2015) who claimed that M&As often decrease the shareholder value of the acquiring firm in the short term. However, the long-term operating performance needs a longer time to inspect.

Table 3. Daily AR, t-statistic of AR, and CAR

Time	AR	T-statistic	CAR	Time	AR	T-statistic	CAR
-20	0.61%	0.0956	0.61%	1	1.83%	0.2893	-10.04%
-19	2.08%	0.3281	2.68%	2	-0.70%	-0.1100	-10.74%
-18	-5.17%	-0.8165	-2.49%	3	0.31%	0.0483	-10.43%
-17	-0.50%	-0.0793	-2.99%	4	-1.10%	-0.1732	-11.53%
-16	0.28%	0.0442	-2.71%	5	-0.33%	-0.0523	-11.86%
-15	-0.69%	-0.1093	-3.40%	6	-1.72%	-0.2716	-13.58%
-14	-0.53%	-0.0832	-3.93%	7	-1.42%	-0.2250	-15.00%
-13	2.62%	0.4145	-1.30%	8	-4.46%	-0.7043	-19.46%
-12	-0.25%	-0.0397	-1.55%	9	-6.31%	-0.9963	-25.77%
-11	-4.49%	-0.7086	-6.04%	10	-3.14%	-0.4967	-28.91%
-10	1.78%	0.2807	-4.26%	11	-3.10%	-0.4899	-32.01%
-9	-2.88%	-0.4555	-7.15%	12	0.56%	0.0881	-31.46%
-8	0.96%	0.1518	-6.19%	13	-2.51%	-0.3967	-33.97%
-7	-0.56%	-0.0888	-6.75%	14	4.93%	0.7790	-29.04%
-6	-2.60%	-0.4115	-9.35%	15	-1.79%	-0.2832	-30.83%
-5	-0.51%	-0.0805	-9.86%	16	-4.01%	-0.6334	-34.84%
-4	0.89%	0.1409	-8.97%	17	0.72%	0.1137	-34.12%
-3	-0.65%	-0.1032	-9.62%	18	-1.02%	-0.1618	-35.14%
-2	-1.31%	-0.2063	-10.93%	19	-2.77%	-0.4370	-37.91%
-1	3.47%	0.5475	-7.46%	20	1.85%	0.2929	-36.06%
0	-4.41%	-0.6960	-11.87%				

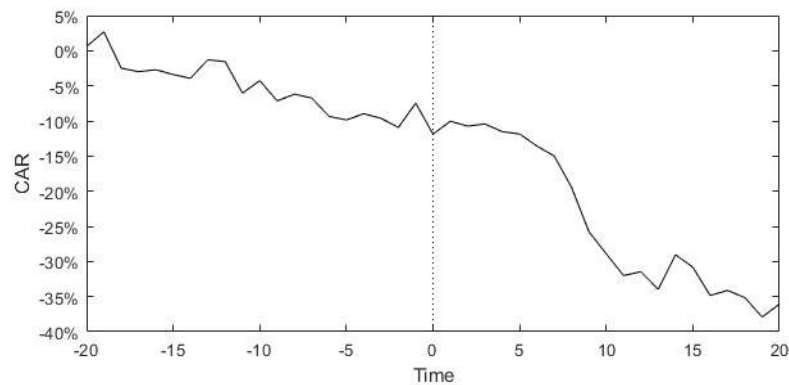


Figure 3. Trend in cumulative abnormal return (CAR)

5.2 Long-term Financial Performance

To answer the second research question “What was the long-term financial performance of the deal?”, we evaluated the long-term financial performance of Geely by considering profitability, efficiency; and solvency.

5.2.1 Profitability

The sales volume of passenger vehicles fell by 10% in 2019, as a joint result of the deterioration of consumer confidence in China caused by economic uncertainties of the US-China trade dispute, the completed elimination of purchase tax subsidies for fuel-efficient vehicles, and the implementation of new emission standards by local governments in China. These external factors negatively affected Geely’s profitability substantially this year. However, to investigate the effects of the case of acquiring Volvo, we should focus more on the years before 2019.

As the first layer of profitability, gross profit margin shows the profit potential of a firm before deducting miscellaneous selling, general, and administrative costs. Geely’s gross profit margin increased generally stably until 2018, except in 2014, aligning with decreases of the other three ratios in the corresponding period. The fall in 2014 was primarily imputed to the 24% contemporary drop in sales revenue, resulting from the reshuffle of the group’s sales and marketing system in China, and the deterioration of the political and economic environment in some major export countries. The gross profit margin shows Geely performed well in sales increase and had a health profit foundation of post-acquisition integration.

Unlike the stable gross profit margin, ROA and operating margin got even worse in four years after the acquisition but recovered gradually until 2018. We can see that the acquisition harmed the acquirer’s profitability significantly in the following few years, as the ex-post integration of cross-border M&As was still a challenge for private acquirers. The target’s financial problems could also offset part of the acquirer’s profitability.

Nevertheless, the situation improved quickly after 2014, in which year Geely’s cooperation with Volvo made remarkable progress in running a new independent R&D centre, CEVT in Sweden to deliver world-class product technologies and attributes, and facilitate considerable cost saving for both Volvo and the group. This reveals the financial benefits to Geely resulting from the synergy of technology and product quality in the long term.

We have illustrated the findings by designing Figure 4 to show that Geely’s EPS climbed stably to ¥0.32 in 2013. Despite dropping to ¥0.16 affected by lower sales earnings in 2014, it rose exponentially after then, showing the positive side of this acquisition and strong profitability potential for investors.

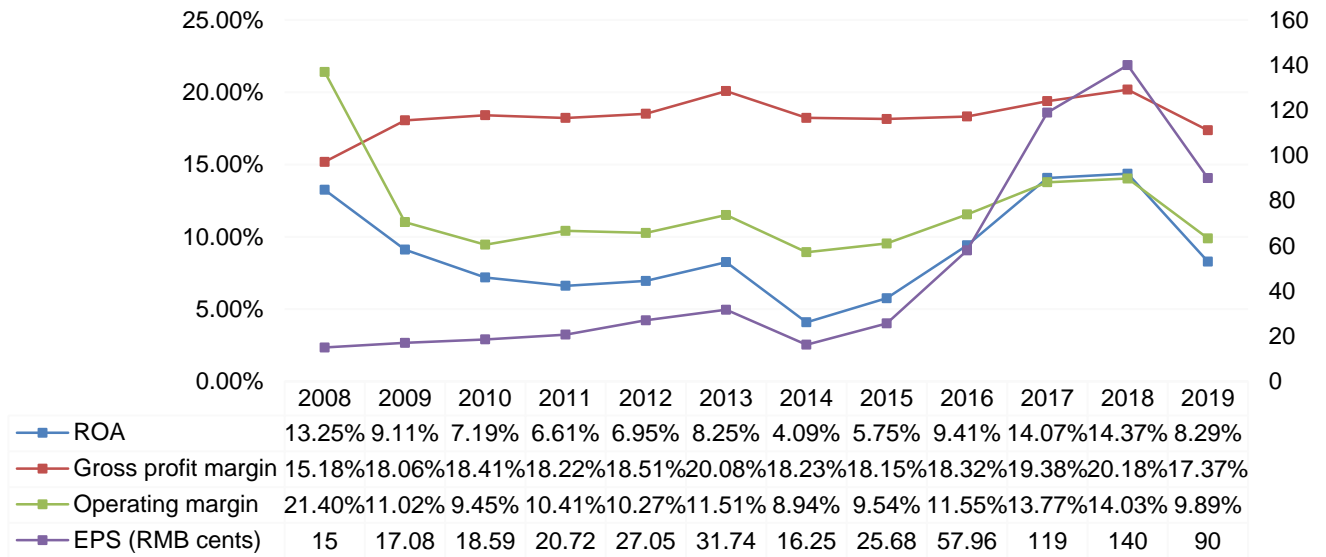


Figure 4. Profitability ratios

5.2.2 Efficiency

The asset turnover ratio indicates the efficiency with which firms are using their assets to generate sales. As shown in Figure 5, Geely’s asset turnover remained relatively stable below the industry average level until 2016 (IiMedia Research 2018) but rose to over 1.2 after 2017. This reveals Geely was able to improve the efficiency of utilizing assets internally and obtained from the target, which supported Feng and Liu (2016) in suggesting Geely had no over-expansion issues. As Volvo’s financial data were not included in Geely’s financial statements, the assets of Volvo would not affect the total assets of Geely, thus avoiding the abrupt volatility of asset turnover after the acquisition.

As credit sales account for the major part of automotive companies’ current assets, the receivables turnover is critical for measuring the effectiveness of credit policies and collecting money from customers. The changing trend of receivables turnover was similar to that of asset turnover. Specifically, the receivables turnover fell relatively greatly in 2011, with the 23.22% increase in receivables being more than 4.31% increase in revenue compared with in 2010. This increase mainly came from the rising trade receivables from related companies controlled by the substantial shareholder of Geely, and the acquisition might also decrease the acquirer’s ability to collect its accounts receivable to some degree. From 2014, however, the receivables turnover performed increasingly well, due to the significant increase in sales and cost of sales.

The inventory turnover is a comprehensive indicator of how efficiently a firm manages ordering, manufacturing and inventory levels. More importantly for car dealerships, it measures how rapidly they are selling the existing inventory of cars. Geely’s inventory turnover experienced an annual decrease from 2010 and then peaked at 20.45 in 2016. The decreasing trend might imply either weak sales or overstocking, leading to lower liquidity and additional cost for storage. This disproved the findings of Lai et al. (2013) that Geely had appropriately dealt with the large pile of stocks resulting from the acquisition. The peak in 2016 was mostly due to the unexpected increase of revenue by 78.3%, as strong domestic sales volume growth in China overtook the weaker exports. Accordingly, Geely should be conscious of the insufficient inventory risk in the case of a high inventory turnover ratio.

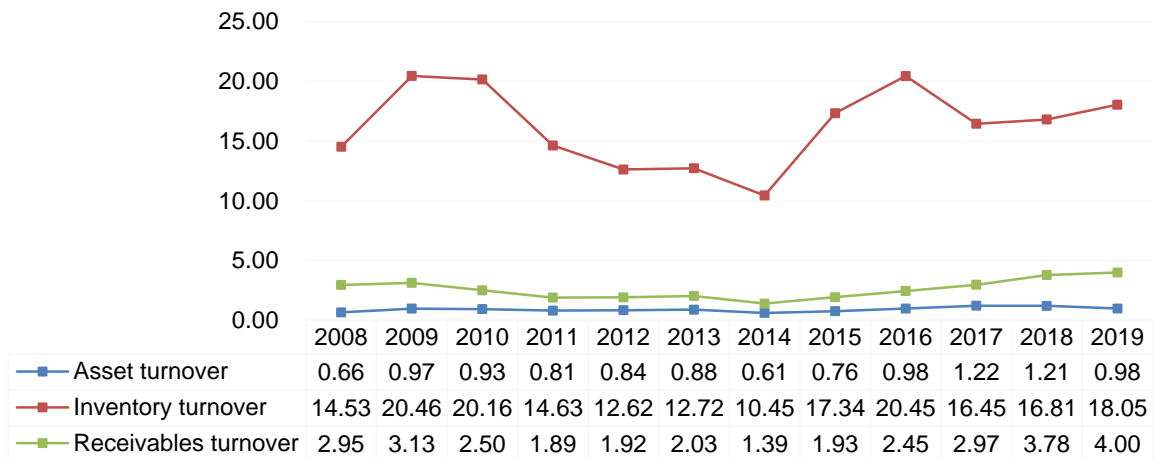


Figure 5. Efficiency ratios

5.2.3 Solvency

Given that Geely completed the acquisition of Volvo by bearing all of its debts which is one of the most critical risks for Chinese private acquirers (Feng and Liu 2016), the ability to meet its short- and long-term debts and financial obligations is essential for assessing the post-acquisition performance.

The changing trends of current and quick ratios were quite similar. They experienced an obvious drop by roughly 15-16% in the first year of acquisition, indicating the short-term solvency negatively affected by abruptly taking on all debts of Volvo through the acquisition. After three-year increases due to well digesting the target’s assets, from 2015 however, the current and quick ratios fell continuously back to the initial levels preceding the acquisition year. This suggested the liquidity benefit of this acquisition had faded away.

The debt ratio is a good measure of a company’s long-term solvency. As shown in Figure 6, this ratio decreased steadily after the end of 2011 to an appropriate range of 40-60% (Lai et al. 2013), indicating Geely had a greater portion of assets funded by equity rather than debt. In 2012-2013, for example, the decrease in debt ratio was mainly due to a combination of the full exercise of all warrants and the partial conversion of convertible bonds, and improved cash reserve for repayment of borrowings upon maturity. Therefore, Geely went smoothly in terms of managing credit financing after the acquisition.

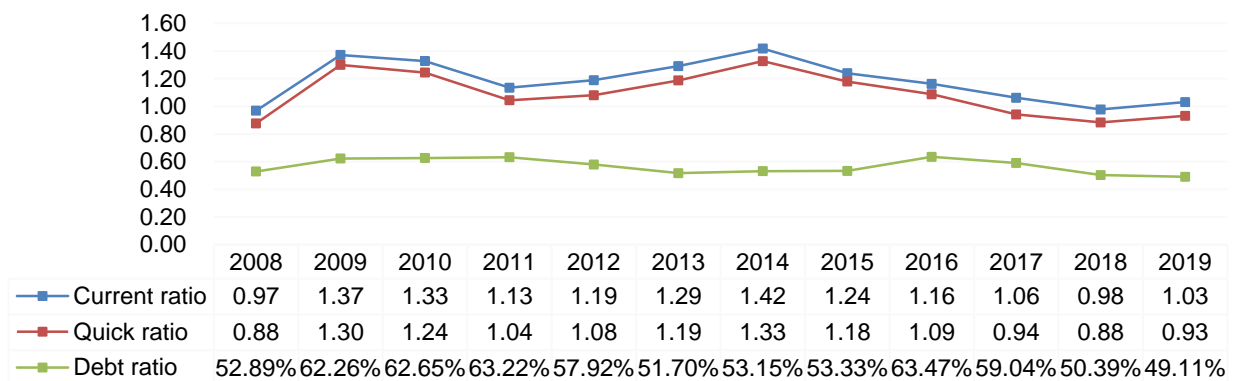


Figure 6. Solvency ratios

5.3 Long-term Non-financial Performance

Our third research question is “Did the long-term non-financial performance realize the acquisition motivations?” In the light of Geely’s acquisition motives (i.e. market-seeking, strategic assets, and internationalization) discussed before, we have divided its non-financial performance into innovative performance and brand

internationalization and will evaluate the acquisition’s non-financial motivation achievements in these two aspects.

Assessing the competitive strength of technological innovation is one of the main motives for acquiring Volvo. The fast-changing automobile market also pushed Geely to continuously develop new products adopting advanced technologies to be competitive in terms of design, performance, and price. Therefore, the continued success of Geely, in turn, largely depends on its R&D capabilities.

In Figure 7, the absolute R&D costs showed an overall upward trend, disproving the findings of Hitt et al. (1998) that acquisition activities reduce a firm’s commitment to continued R&D funding. The R&D intensity, which is calculated by dividing the total R&D costs charged to profit or loss by the total revenue, increased to 2.57% in 2015, meaning the R&D investment in every single unit of sales increased during this period due to the establishment of CEVT. This proves the findings of Liu and Zou (2008) that importing foreign technology and investing in domestic R&D positively influence domestic innovation. Despite dropping to 1.59% in 2017, the R&D intensity recovered quickly to 3.15% in 2019. This suggests that the strong R&D advantage brought about by the acquisition can diminish but Geely is increasingly seeking to strengthen its homegrown innovation capabilities in a long term.

Noticeably, the R&D intensity did not rise obviously in the first year of acquisition. This might be attributable to the delay of the technological cooperation with Volvo and the post-acquisition resource integration. Concurrently, it also concerns Geely that the R&D efforts probably could not be applied to products that will be accepted by the market or promptly to take advantage of the opportunities presented in the market.

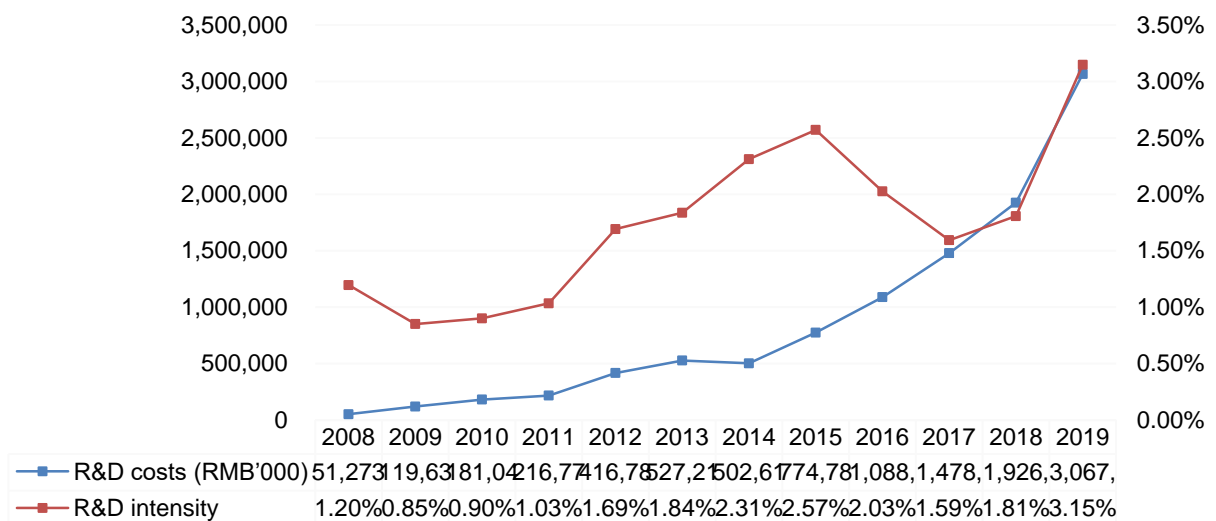


Figure 7. Innovative performance

The extent that the Geely-Volvo acquisition has achieved its brand internationalization motivation is evaluated by the TNI, annually issued by China Enterprise Confederation and China Enterprise Directors Association from 2011. It is calculated as the arithmetic mean of three ratios of foreign assets to total assets, foreign sales to total sales, and foreign employment to total employment, as developed by the United Nations Conference on Trade and Development. As the indicator was not available before 2011, we cannot compare the internationalization of Geely with its pre-acquisition performance.

As shown in Table 4, Geely outperformed a vast majority of Chinese corporations in internationalization, with the average TNI of those on the list being much lower than the average level (around 60-65%) of global top 100 transnational corporations. Geely’s TNI had always ranked first between 2011 and 2016 but dropped to the fifth from 2018. Although its foreign assets and foreign sales increased quickly in recent three years (see Figure 8), they were not able to surpass those of other multinationals in the proportions to total amounts. Consequently, we can see that the internationalization benefit for Geely of acquiring Volvo maintained for quite a long time but weakened gradually with the strong growth of other domestic multinationals. While leading the international

presence of Chinese firms, Geely was simply equal or inferior to the average performance of global top 100 transnational corporations and could still improve its growth internationally.

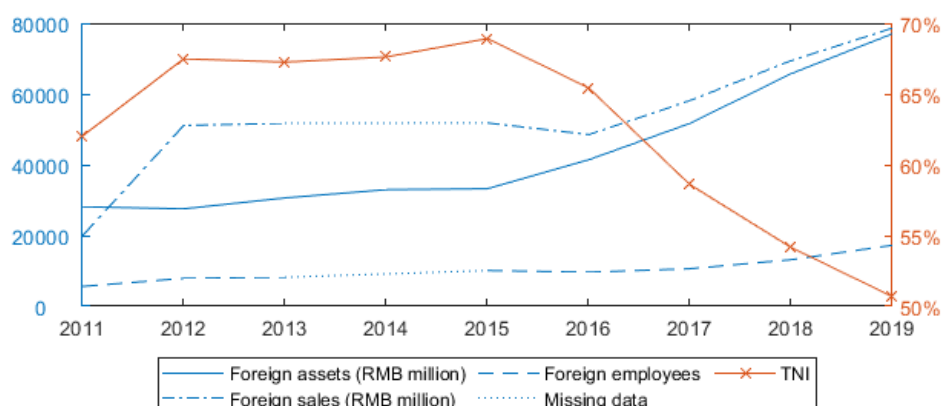


Figure 8. Brand internationalization

Table 4. Internationalization performance of Geely Holding

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ranking on list	9	9	10	10	13	19	19	14	13
Foreign assets (RMB million)	70,332.8	68,852.4	76,565.1	82,395.7	83,050.9	103,503.9	129,202.9	164,290.8	192,505.2
Foreign sales (RMB million)	49,847.2	127,760.5	129,278.0	N/A	129,513.4	121,319.6	145,296.9	173,487.3	196,461.0
Foreign employees	14,042	19,800	20,530	N/A	25,260	24,112	26,546	32,932	43,107
TNI	62.03%	67.48%	67.25%	67.61%	68.91%	65.43%	58.60%	54.16%	50.69%
TNI ranking	1	1	1	1	1	1	4	5	5
Chinese top 100 average TNI	13.37%	12.93%	13.98%	13.60%	13.66%	14.40%	14.85%	15.80%	15.96%

In summary, the modest share price changes, negative AR and CAR indicated the market's passive reaction to the acquisition of Volvo which depressed the shareholder value in the short term of the announcement. The acquisition did not significantly increase the profitability of Geely within the first five years, but the situation reversed in recent years.

As the efficiency performance was susceptible to the external factor of vehicle demand apart from the pure managerial efficiency, the acquisition's impact on it was not that obvious. Although the liquidity benefit of this

acquisition had faded away, Geely managed well its long-term solvency after the acquisition despite taking over all of Volvo's debts through the acquisition.

In terms of the deal's non-financial achievements, Volvo did boost Geely's innovative capability and international presence substantially through technological partnership, expanded overseas market, and brand image influence. However, with the acquisition's effect diluted after 2015, the brand internationalization performance of Geely weakened in recent years.

6. Conclusion

This study aims at tracing the post-acquisition performance of the acquirer (Geely) to examine whether this astonishing deal at that time succeeded in improving the buying group's performance as expected over a long-time span. In particular, it develops a post-acquisition performance evaluation framework for the Chinese automobile industry's overseas M&As; and assesses the short-term and long-term post-acquisition firm performance respectively.

We found that the modest share price changes, negative AR and CAR indicated the acquisition did not significantly increase the shareholder value. However, the short-term stock price changes cannot reflect the acquisition synergy impact on firm performance.

In terms of the long-term financial performance, the acquisition of Volvo did not bring much profitability to Geely instantly in the first five years, after which, however, the profitability of the group improved more quickly than before. Geely compromised some operating and net profits initially to strive for resource integration with Volvo, while the profitability of its main business activities was not largely affected due to the steady gross profit margin. The EPS grew quickly after 2015, indicating that the acquisition was rewarding for shareholders especially when the synergy effect started paying off.

Besides, the acquisition had a slightly negative impact on the acquirer's operating efficiency in the short term but recovered gradually later on. Geely should particularly focus on monitoring the volatile inventory turnover level to improve the efficiency of the group. The acquisition also did not bring many benefits to the short-term liquidity of Geely, while the long-term solvency performance of Geely remained relatively healthy after the acquisition. Geely still has room to improve its liquidity by managing the working capital.

Regarding the long-term non-financial performance, there was a one-year delay in huge improvements of R&D in proportion to sales. This means the technological cooperation with Volvo needed some time to take actions such as establishing R&D centres. Although the R&D intensity experienced a two-year fall from 2016 to 2017, it increased quickly in general with the annual R&D costs, revealing that Geely was seeking to generate its homegrown sustainable innovation capabilities apart from the support from Volvo.

As the Transnationality Index was not released before 2011, we cannot compare Geely's pre-acquisition internationalization with its current performance. Nevertheless, according to the available data, Geely performed well in the five years after the acquisition, but its international presence became decreasingly competitive in recent years. Therefore, Geely has to seek its international expansion more independently.

Our main contribution is that we have designed an evaluation framework aligning with the acquirer's multidimensional acquisition motives. The framework consists of the traditional event study and accounting-based measures that are most widely adopted in the M&A-related literature. Additionally, the framework also introduces two non-financial branches of the acquisition performance and corresponding indicators, in terms of innovation performance and brand internationalization. All of the above make this study among the few pieces of research integrating both the event study and non-financial indicators into the mainstream accounting-based analysis by Chinese domestic researchers of post-acquisition performance in the Geely-Volvo case. The case of Geely is expected to set an example of M&As in the ongoing economic recession and provide experience for Chinese private automobile enterprises that seek cross-border M&As and accelerate global expansion in the future.

Like any other studies, our study has limitations. The consolidated annual reports of the acquirer Geely Holding were not available. This increased the difficulty of evaluating the overall synergy effects after acquisition. However, this was overcome to a large extent by using the annual reports of its listed subsidiary, Geely Auto's annual reports instead to reflect the synergy benefits, as Geely Auto contains the acquirer group's only three auto brands (i.e. Geely Auto, Lynk & Co, and Geometry) that are developed independently or jointly with Volvo. In other words, the other auto brands within the group were obtained by acquisitions. Therefore, the acquirer's listed entity, Geely Auto, could be most directly affected by the acquisition in our case study, in terms of for example sales, R&D, and brand internationalization.

Additionally, our study focused only on one single case of a Chinese automobile company acquiring another Swedish car manufacturer. The case study strategy determines the limitation that the findings and experience in this study might not be generalized to all Chinese automobile enterprises' cross-border M&As.

Future studies should replicate and extend this study to include other cases of automobile enterprises in China and/or other emerging markets. Future studies should also use patenting frequency, which refers to the number of newly granted patents per year (Granstrand and Holgersson 2012), to evaluate the innovation performance in technology-motivated M&As.

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