

Financial Risks in Mergers and Acquisitions (M&A): A Case Study of SolarCity's Acquisition by Tesla

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Abstract: Mergers and acquisitions have morphed into a gateway for financial prosperity. However, research shows that a significant number of these deals do not pan out well thus introducing an element of risk. With Tesla geared at maintaining its position as a leader in the renewables market, its acquisition of SolarCity in 2016 is worth appraising. With quarterly data from Tesla, the study employs a mixed approach to ascertain the changes in various aspects of financial risk for the company. Results show that liquidity risk and solvency risk characterize Tesla's post-acquisition period. This is further corroborated by insights from the profitability ratio analysis. As much as Tesla's seems to be generating steady cash and posting high returns on its equity, the high lever is what seems to be playing a significant role. However, the silver lining in Tesla's case is that the solvency ratios appear to be improving over time.

Keywords: M&As, Financial Risk, Financial Ratio Analysis.

1. Introduction

With the advent of globalization and the proliferation of trade through liberalization, Mergers and Acquisitions (M&As) have morphed into one of the plausible avenues to improve performance and maximize shareholders' wealth. Such a connotation owes its relevance to the strategy's frequency of utilization and interlinkages with competitive advantage. Khayanga and Karau (2018), for instance, found that external economies of scale, market power and combined complimentary resources contributed positively to competitive advantage. Nevertheless, according to collated research and a Harvard Business Review report, the failure rate for M&A sits between

70 percent and 90 percent (McMorris, 2015). Adolph et al. (2016) coincides with such findings by statistically situating the variation in results that half of all mergers fail to meet the expectations of the merger decision. Needless to say that there is a higher chance that such a process may go awry and work to the detriment of the firms involved and the industry at large.

Howbeit, such a bleak picture has not dissuaded companies – both domestic and multinational- from utilizing this strategy. If anything, the overall volume trend in execution of M&As has maintained an upward trajectory. According to Shi (2023), companies worldwide in 2022 struck 44,377 merger deals totaling \$4.7 trillion, marking the second-best year for M&A, as per PitchBook data. While the total deal value was 13.7% lower than the record set in the prior year, it topped historic levels. According to Fenandez (2023) in 2016, the transaction value of M&As in the renewable sector amounted to more than 110 billion U.S. dollars and as of 2022 solar accounted for the largest share of renewable energy merger and acquisition deals worldwide, at roughly 400 deals. This growing trend ought to be appraised within the confines of global market competitiveness and the risks thereto. Financial integration has enabled firms to engage in cross-border M&A deals that have reshaped the market and revolutionized the attainment of competitive and comparative advantage. One of such firms, that needs little or no introduction, is Tesla. As a leader in the green energy industry, Tesla has quickly

morphed into a household name associated with eco-friendly innovations such as electric cars.

Tesla's introduction and the eventual rise to prominence, in the automotive industry, has coincided with the growing emphasis on the carbon economy in the global market. This has, in essence, brought about a paradigm shift in how companies envisage their competitive strategies. The carbon footprint of companies, for instance, has become a crucial factor that underlines success or failure of participants in the global economy. Using clusters of Indian and American firms, Rastogi et al. (2020) found significant evidence to suggest that the performance of companies in the renewable energy sector is influenced by government policy thus recommending the need for policy adjustment to motivate such companies to scale up investment in cleaner sources of energy. It then follows that, to thrive in such an industry would imply that a company's competitive positioning accounts for such green energy metrics and that is what Tesla has been doing. As postulated by Prahad and Jovidan (1998), senior management plays a crucial role in ensuring that a company focusses not only on internal growth but also value creation by way of building core competencies to accrue competitive advantages. As pondered on, M&As have catapulted to the helm of value creation.

Nevertheless, the success or failure rate of M&As in the global market underscores an important aspect of due diligence or lack thereof. Due diligence pertains to the steps taken before a buyer firm acquires a target firm. If not done well and comprehensively, a number of risks may arise which tend to affect performance of the new firm. Risk pertaining to market, liquidity and credit are some of the most prevalent in such kind of transactions. With the acquisition between Tesla and SolarCity happening in 2016 which was particularly characterized by downtrends in most global macroeconomic aggregates. It stands to reason that this case be properly appraised more so as it involves a crucial sector in the global market. As such, this study aims at appraising this case by aid of a mixed approach with data from Tesla's quarterly reports from 2011 to 2021.

This study departs from the usual rhetoric on M&As as

posited in literature where the focus has mainly been on their impact on the financial performance of the respective companies. Instead, this current study focusses on the financial risks involved and if there has been a change following the deal between the two companies. Additionally, the study will also have some policy implication for the regulating bodies. A consequent significant increase in the level of financial risk would denote laxity in due diligence by the regulating bodies. This has been the case for most M&As in different jurisdictions and across borders. The grave ramifications that follow from improper screening of potential risk inherent in an M&A deal have been the downfall of once great corporations. Hence, zeroing in on such risks in the case of Tesla will innately help appraise the level of due diligence done by the respective regulators and if there is need to adjust for better performance.

2. Literature Review

(1) Brief Background of Tesla and SolarCity

Named after the Serbian American inventor Nikola Tesla, Tesla was founded by American entrepreneurs Martin Eberhard and Marc Tarpenning. Their goal to build an electric automobile that could compete with conventional gasoline-powered cars in terms of performance and range gave rise to the idea for Tesla. They set out to create a high-performance electric sports automobile after realizing the possibilities of electric propulsion technologies. Eberhard and Tarpenning formed Tesla in San Carlos, California, with the intention of transforming the automobile sector. They did so out of a shared enthusiasm for renewable energy and dedication to lowering carbon emissions. Entrepreneur and business tycoon Elon Musk was essential to the growth of Tesla. Musk assumed the roles of chief investor and board chairman for the business in 2004. His engagement gave the company's goal a new degree of aspiration and fervor. Musk set out to broaden Tesla's product range beyond sports cars with the eventual goal of creating an electric vehicle for every market sector after seeing the need for electric vehicles to be more affordable for the general public.

In 2008, the firm achieved a huge advancement in the electric car sector with the release of the Tesla Roadster. The Roadster shook preconceived notions about electric automobiles by providing great performance and a remarkable range. It was a demonstration of the potential of electric propulsion. It sparked broad attention and acted as a catalyst for change, paving the way for Tesla's succeeding models. In order to meet the needs of various market groups and consumer preferences, Tesla has since expanded its product range to include the Model S, Model 3, Model X, and Model Y. Tesla has always had the goal of expediting the global switch to renewable energy sources in order to contribute to the solution of this issue. Energy must be produced in a sustainable way, stored for future use, and used for transportation. Furthermore, for the process to be efficient, the technologies utilized for production, storage, and transportation must all be seamlessly linked.

SolarCity, established in 2006 by Peter and Lyndon Rive, previously held the top spot for home solar installation businesses in the United States. Due in large part to the growth of regional, smaller installation companies gaining solar business, SolarCity experienced bad financial outcomes in its final years as a standalone organization. In 2016, SolarCity and Tesla joined, ostensibly as part of Elon Musk's

strategy to move society away from fossil fuels and toward pure solar energy. Since the acquisition, Tesla has radically altered the SolarCity concept, turning it into an entirely online platform that is connected with its lineup of vehicles and batteries. Currently, "SolarCity" is now a division of Tesla Energy.

(2) Motivations for M&As

1. Synergy

Synergy is the notion that states that two companies will attain greater value by operating together as opposed to the said companies operating independently (Duksaitė & Tamošiūnienė, 2019). There are two types of synergy that are created, namely, operating synergy and financial synergy (DePemphilis, 2017). The latter refers to the possibility that combining one or more companies may lower the cost of capital. Operating synergy comes in two forms; revenue enhancements and cost reductions. In operating synergy, revenue-enhancing synergies may be more difficult to achieve than cost reduction synergies (Gaughan, 2011). There are many potential sources of revenue enhancements, and they may vary from deal to deal. They may derive from a sharing of market opportunities by cross marketing each merger partner's products, they may derive from a company with a major brand name lending its reputation and status to an upcoming product line of a merger partner, and they may derive from a company with a strong distribution network merging with a company that has products with potentials but low ability to get them to the market before rivals can react. Most certainly integrating SolarCity into Tesla accrues more benefits than if these both companies were to continue as a going concern individually.

2. Diversification

The restructuring aspect of Acquisitions aids in diversifying away risk. Such a motive explains why some of the most popular acquisitions have involved companies that are financially distressed. Companies can reduce their risk in the market by adding new products to their line or by entering other markets. Also, if the growth rate in the industry where the core products are slowing, then the merging or acquiring company seeking to diversify, can invest in products that are located in industries that are experiencing a high growth rate. Needless to say that SolarCity's downturn in performance might have played a role in opting for an acquisition as a way of providing financial relief.

3. Growth and Management

In profit-oriented firms, the onus is on the management to create value for the company's shareholders. When the demand for a company's products or services slows down, it becomes more difficult to continue to grow. In such instances where organic growth in the market share of a company may not be possible or is very limited because the industry is concentrated or highly regulated, a merger or an acquisition may be the preferred option to jump-start growth and increase market share (Gaughan, 2011). As Tesla looks forward to solidifying its position in the renewable energy sector on the global market, acquiring SolarCity seems one of the plausible ways to increase its market share. However, such a motive presents a room for manipulation as some managers may deviate from their core duty of loyalty to their clients, which is to generate returns for both shareholders and the board, and rather engage in M&As that end up underperforming.

Tesla's acquisition of SolarCity seems to have embraced all

the above mentioned motives. The benefits commensurate with the new entity “Tesla Energy” were envisaged to outweigh the individual benefits of both companies thus prompting shareholders to give the go-ahead. As underscored, literature posits that SolarCity was going through some financial difficulties in its last year prior to the M&A thus making the deal plausible for execution. Additionally, being a leading company in the renewable sector, this M&A provided an ample opportunity for Tesla to expand its market share.

(3) Financial risk

Financial risk refers to the possibility of losing money on an investment due to either internally or externally induced factors. Literature on financial risk involved in M&As is extensive thus this current study will not detail every type. Particularly most of the studies have been on the due diligence done in the three stages of the deal like: preparation stage; operational stage and post-integration stage. However, this study focusses more on the risks inherent in the acquirer’s financial performance before and after the event. Below are some of the key aspects intrinsic in financial risk.

1. Liquidity

As per the Basel Committee of Banking supervision, funding liquidity, liquidity referred to therein, is the ability of banks to meet their liabilities, unwind or settle their positions as they come due (BIS, 2008). Failure to meet such obligations may result into bankruptcy. Ratios like current ratio, quick ratio and cash turnover ratio are some of the ratios used to ascertain this aspect of risk. With Tesla acquiring SolarCity, it is imperative to find out if there has been a change in such metrics and if so what that spells for the future of the company. Liquidity or lack thereof is further substantiated by profitability ratios.

2. Solvency

Solvency refers to a company’s ability to meet financial obligations in the long run. Unlike with liquidity risk where the time frame is short term, solvency ensures that the company continues as a going concern. This aspect is best appraised by leverage ratios like: total debt ratio, asset-to-equity ratio and debt-to-equity ratio.

3. Profitability and Efficiency

Not only does the profitability of a company elucidate to growth in shareholders’ wealth but also in sustainable growth of the company and the ability to pay back debts. As such a decline in this aspect is most likely to portend liquidity and solvency risks. Profitability ratios can either be in margin or return form and include but not limited to: return on assets (ROA); return on equity (ROE) and operating profit margin. Changes in these ratios are commensurate with changes in efficiency ratios like: cash turnover ratio and asset turnover ratio.

Congruency in these four metrics of financial health of the company will help reveal if the acquisition of SolarCity by Tesla was risky or not. A caveat needs to be taken, however, when interpreting the trends in these metrics as global macroeconomic performance might play a role in influencing how companies in the renewable sector fared after 2016.

(3) Empirical Literature

A number of studies have been conducted with regards to the impact of M&As on the performance of companies from a variety of sectors. Some findings support the proliferation of its use as a gateway to financial prosperity and others have

painted a gloomy picture. In a study on the economic effects by merger and acquisition types in the renewable energy sector, Yoo, Lee and Heo (2013) found that Homogeneous M&A had the greatest impact on enterprise value, demonstrating the significance of operating synergies and growing market share for renewable energy companies considering M&A. Second, the second-largest impact on enterprise value is shown by M&A with other industries, in which finance organizations participate most frequently. This indicates that renewable energy has promise as an investment product. Further evidence that the wind power industry is considered to have a strong potential for growth as an industry for investment comes from the examination of the sector and the finding that heterogeneous-other M&A shows an even bigger influence.

In cross-border mergers involving the automotive supply business, Mentz and Schiereck (2008) establish highly positive anomalous returns to both the acquirer and the combined entity. On the other hand, acquisitions in high-tech sectors typically have a negative wealth impact on the acquirers. Koerniadi et al. (2014) go on to elaborate, stating that a merger can be viewed as a diversification of a company's operations, reducing the fluctuation of cash flow and, hence, lowering risk. Such ideas can be traced back to Lewellen (1971), who contends that mergers can lower risk and that risk-reducing mergers allow for increasing firm leverage, enabling businesses to benefit from debt's tax benefits.

Bessler et al. (2019) concentrate on the European market by analyzing changes in default risk due to mergers & acquisitions in 531 deals involving European acquirers. Similar to Furfine & Rosen (2011), they discover that M&A deals typically have a negative impact on the default risk of the acquiring firm. Additionally, their findings imply that cross-continental M&A deals may reduce risk and that cross-country M&A deals may increase default risk. The observed increase in credit risk, according to Ismailescu & Col. (2022), can be attributable to the domestic markets of the targets having less robust legal systems and creditor protection than those in the United States.

In contrast, Wang's et al.'s (2021) study on acquisitions and their subsequent effects on debt structures in China reveals a reduced cost of debt from M&A, which is mitigated by a coinsurance impact, which reduces earnings volatility and boosts cash flow predictability.

Needless to point out that the impact of M&As on companies specifically in the renewable sector has not been given much attention as compared to other sectors. This can be attributed to the infancy nature of the renewable energy sector thus not having enough time frame to observe the changes that such a deal heralds. Nonetheless, the notions advanced by the aforementioned studies suffice as a background to zero in on how Tesla has fared after its deal with SolarCity. To that end, this study will contribute to the growing body of knowledge on the topic for the renewable energy sector.

3. Methodology

This study makes use of a mixed approach where both quantitative and descriptive research designs are employed. With the former, the study makes use of financial ratio analysis to capture the trends before and after the event year

(2016). The latter involves narratives to elucidate on the observed trends and also how they relate to the motives and past research. The study period is from 2011 to 2021 making up for a 11-year period. The study makes use of quarterly data extracted from the financial statements of Tesla. The choice of quarterly data suffices as annual interval may smooth out some short-term fluctuations in the metrics thus presenting a rather spurious results. Moreover, since its incorporation in

2010, Tesla has been a growth stock company which makes the short term view of equal importance as the long-term view. SPSS 26 has been utilized as the tool for analysis.

Table 1 below summarizes the key metrics considered in this study and how they are calculated before the trend analysis for before and after M&A periods.

Table 1. Variable Description

Variable	Metrics	Calculation
Liquidity	Current Ratio (CR)	Current assets/Current Liabilities
	Quick Ratio (QR)	(Current Assets – Inventory)/ Current Liabilities
	Cash Coverage Ratio (CCR)	Cash & Cash Equivalents/ Total Liabilities
Solvency	Total Debt Rate (TDR)	Total Liabilities/Total Assets
	Assets-to-Equity Ratio (AER)	Total Assets/Total Equity
Profitability & Efficiency	Return on Assets (ROA)	Net Income/Total Assets
	Return on Equity (ROE)	Net Income/Total Equity
	Cash Turnover Ratio (CTR)	Revenue/Cash & Cash Equivalents
	Asset Turnover Ratio	Revenue/Total Assets

4. Results and Discussions

(1) Summary Statistics

There are few key nuances to note from the table on descriptive statistics above. First, the acceptable threshold for a good Current Ratio (CR) is 1.00 but a higher ratio is more appreciated. This implies that the company has enough working capital to meet its obligations. Tesla has maintained an average ratio above 1.50 mark thus making the company liquid enough. Such sentiments are further cemented by Quick Ratio (QR) value of 0.197302 which exceeds the rule of thumb of 1.00 and also the cash turnover ratio. Secondly,

the profitability ratio of Operating Profit Margin suggests that Tesla has been incurring significant variable costs thus the meagre profit margin over time. Such a connotation is further corroborated by the average Earnings per Share (EPS) the company has been posting. However, a high return on its equity shares does suggest that the company has been maximizing the shareholder's wealth. As per the Du Pont decomposition method of the ROE, such a high value vis-à-vis a low ROA could be attributed to high leverage ratios. The leverage ratios of Total Debt Rate (TDR) and Asset-Equity ratio coincide with such postulations as they show that Tesla is highly leveraged. The proceeding sections will help elucidate on such nuances by aid of trend analysis.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Skewness	Kurtosis
CR	44	1.585202	0.6714312	0.8770663	3.260607
QR	44	1.197302	0.6523968	0.83346	3.206182
OperProf	44	0.0336756	0.0186293	0.7403738	4.522061
ROE	44	0.1597318	0.1053875	1.446766	6.308678
EPS	44	-0.8472727	1.58241	-0.510874	2.975775
TDR	44	0.7341595	0.1290926	-0.5425233	2.875581
Ass-EqR	44	3.736338	5.36861	-5.270368	33.08736
CshTurnR	44	0.8165211	0.5433205	1.604084	5.811815
CshCverR	44	3.8024	2.054136	0.3583068	1.713248

(2) Trend Analysis

In the production process of traditional embroidery art, many styles have their own meanings, which leads to the pattern can only be used for specific scenes or only for minority groups.

1. Liquidity

The liquidity ratios of current ratio, quick ratio and cash turnover ratio have been collectively plotted in figure 1 below.

It is evident from the trend plot that CR and QR were consistently above the 1.0 mark before the event year (2016) bar the 2012 – 2013 period. The post-acquisition period sees a dipping trend for both ratios as they fall down to the 1.0 threshold and eventually breaks through it. This implies a short term worsening of the liquidity positioning of the

company implying a pending financial risk. Such a high likelihood for Tesla not being able to meet its financial obligations in the immediate future can be attributed to the acquisition as Tesla had to pay off cash commensurate with Tesla's common stock that every shareholder of SolarCity would have been entitled to. For the next 9 quarters, the new entity, Tesla Energy, suffered a liquidity risk. The cash coverage ratio further substantiates such a nuance as it traces the shape that the other two ratios cast.

2. Solvency

Liquidity and Solvency are two sides of the same coin. While as liquidity appraises Tesla's capability of meeting short-term obligations when they come due, solvency looks at this capability in the long run which has a basic premise

within conventional microeconomics. Figure 2 plots the trends in solvency metrics of total debt rate (TDR) and asset-equity ratio over the 2011-2021 period.

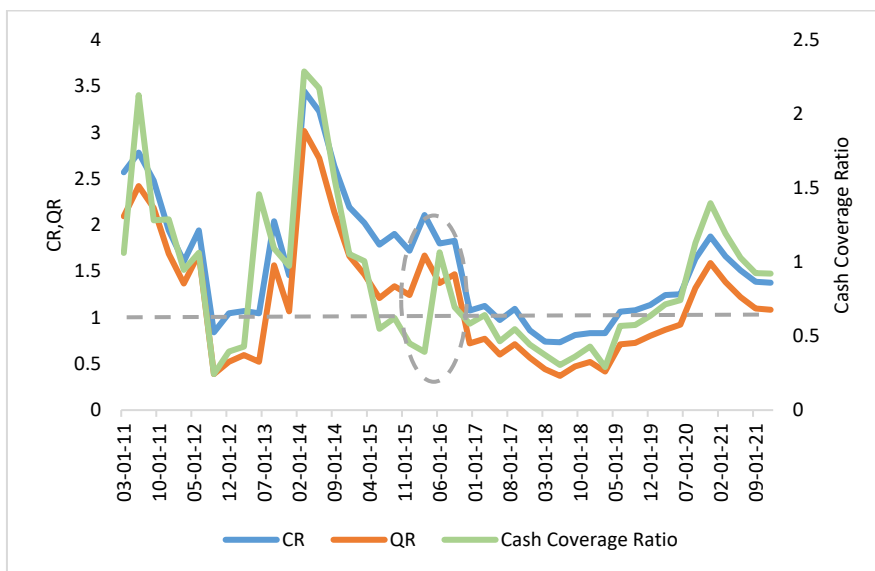


Figure 1. Liquidity Ratios

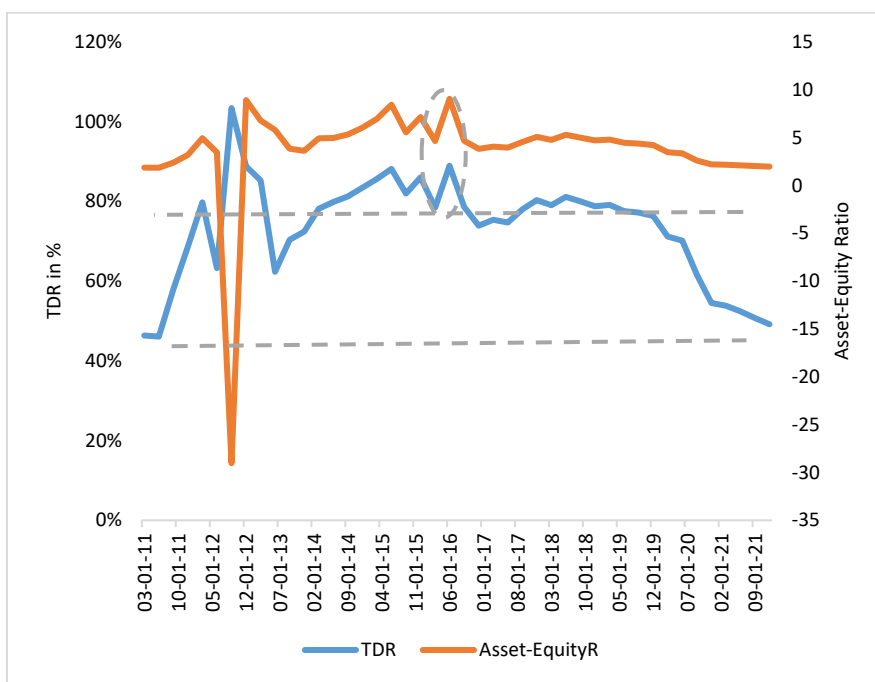


Figure 2. Leverage Ratios

The rule of thumb for a company’s good financial stamina is minimum TDR of 50 percent and an asset-to-equity ratio of 2.0. On one hand, companies that rank lower than these two thresholds are considered conservative thus having more room for financial flex. Financial flex per se denotes more room for a company to use debt funding. On the other hand, companies that rank above the thresholds are perceived as being more leveraged thus exposed to financial risk. As figure 2 shows, Tesla’s leverage ratios have been way above the two thresholds before and after the acquisition of SolarCity. As such, besides facing liquidity risk as depicted in the preceding section, Tesla also faces some solvency risk due to its high

debt funding. Nonetheless, there seems to be a glimpse of hope as both ratios show a downward trajectory after 2020. This could also be attributed to the acquisition since integrating a company with more financial flex would ultimately lower Tesla’s overall leverage. Pertinent to also point out that the dip in Asset-Equity Ratio in 2012 is due to the deficit in equity registered by Tesla in that year.

3. Profitability and Efficiency

To further corroborate the trends noted in both the liquidity and solvency aspects of Tesla, profitability trends are plotted in figure 3 below.

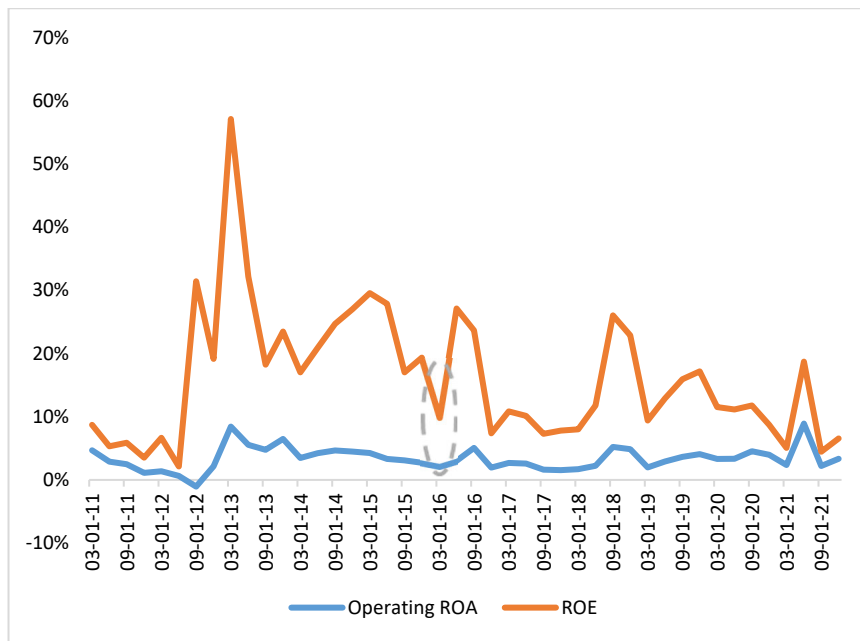


Figure 3. Profitability Ratios

First glance at the visualization of the profit and efficiency metrics would suggest that Tesla has been performing well. The operating ROA, for instance, has been fluctuating above the 10 percent mark despite the ROE being steadily around the 5 percent mark. This then begs the question: How efficient has Tesla been in generating returns on its asset base? The answer lies with the Cash Turnover Ratio (CTR) as shown in figure 4. Bar the spike in 2012-2013, which can be attributed to the deficit equity, Tesla's working capital has been used

efficiently to generate cash as observed by the steady upward trend. This coincides with the trajectory of the ROE which means that there is a lever at play causing the multiplier effect. According to the Du Pont decomposition method, ROE is a product of the Asset Turnover Ratio, Net Profit Margin and the Equity Multiplier (Asset-Equity Ratio). It then follows that with a low Profit Margin as captured by the Operating ROA and a low Asset Turnover Ratio, the high returns on equity stem from the high leverage that Tesla has thus vindicating the notion that the company faces a financial risk.

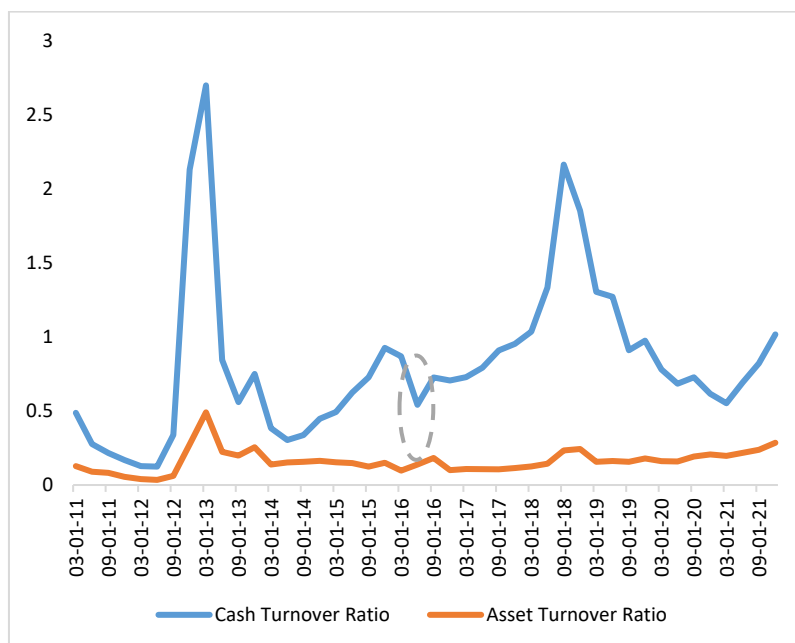


Figure 4. Efficiency Ratios

5. Conclusion

This study was geared at ascertaining the various aspects of financial risk inherent in the acquisition of SolarCity by Tesla in 2016. With aid of quarterly data extracted from the financial statements of Tesla, the study employed a mixed approach of descriptive and quantitative designs. In essence,

the narratives expounded on the trend analysis. Results show that liquidity risk and solvency risk characterize Tesla's post-acquisition period. This is further corroborated by insights from the profitability ratio analysis. As much as Tesla's seems to be generating steady cash and posting high returns on its equity, the high lever is what seems to be playing a significant role. However, the silver lining in Tesla's case is that the

solvency ratios appear to be improving over time. This can be largely attributed to the financial flex of the newly integrated entity.

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