Does Merger and Acquisition benefit the shareholders of the acquiring firm? The case of Microsoft and LinkedIn

Author Details:
Bassam Mansour Alahmadi
ID: 201366541
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I certify that this dissertation is entirely my own work
Supervisor: Dr. Olga Gorelkina
University of Liverpool-Management School, Accounting and Finance
2019-2020
Email: Bassam.mans.a@gmail.com

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"It is not the brains that matter most, but that which guides them — the character, the heart, generous qualities, progressive ideas." ― Fyodor Dostoevsky.
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Highlight

- The acquisition of LinkedIn has not benefited Microsoft's shareholders.
-The impact of the M&A on Microsoft's shareholders was found to be insignificant.
- Microsoft experienced a decline in tax burden, TAT and EBIT margin, which contributed to a lower ROE.
- Microsoft experienced a significant cost reduction in post-acquisition period.

Abstract
Microsoft Corporation completed the acquisition of LinkedIn at the end of December 2016, for a purchase price of $27.0 billion on aggregate. The deal, the largest ever for Microsoft, has been widely criticized on the basis that Microsoft overpaid. This is because previous to the acquisition, LinkedIn had lost more than half of its market value as a result of its slow growth. This study evaluates the post-acquisition performance of Microsoft, to determine whether the acquisition has benefited the shareholders of the acquiring firm (Microsoft). The study also contrasts the Microsoft and LinkedIn deal with other high-tech mergers and acquisitions M&As by scrutinising the return on equity ROE using a DuPont analysis, as well as comparing stock returns. Using the paired sample t-test the study revealed that the acquisition has not benefited Microsoft's shareholders since profitability ratios and stock return plummeted post-acquisition, and hence the influence of the M&A on this was not found to be significant. Furthermore, the following ratios experienced a significant variation in mean values post-acquisition; for example, assets turnover, net working capital turnover, and fixed assets turnover decreased significantly, and leverage ratios jumped significantly due to financing the acquisition with indebtedness. Specifically, the price to research ratio soared significantly, advertising to sales, and selling and general expense to sales decreased significantly, implying that Microsoft experienced a significant cost reduction in post-acquisition period. In addition, Microsoft's ROE exhibited a decline driven mainly by tax burden, TAT, and EBIT margin in a post-acquisition period. Ultimately no significant variation was observed between the mean value of Microsoft stock return prior and subsequent to the acquisition.
Keywords: *Merger, acquisition, financial-ratio, analysis, Microsoft.*
JEL Classification codes: *M000, M400, G30, G34, C00, C10, C12*

1.0.Introduction

In modern corporations, mergers and acquisitions M&As are one of the most notable and important steps taken by firms, with the expectation of significant returns that will benefit the shareholders of both the acquiring and target firms. M&As are prompted by the acquirers' explicit aims and objectives to achieve efficiency through financial synergies. The existing literature is rich with theories that underlie various motives behind M&As, such as monopoly theory, rider theory, and empire building theory (Trautwein, 1990). However, the key motives and the impacts of M&As remain debatable. Research has shown that 25% of M&A deals had no considerable influence on share value and 50% impacted share value negatively (Buckley & Ghauri, 2002). M&As reshape not only the structure of a firm but also of an economy and industry when the deal is large enough to exert such an influence. Furthermore, since an inevitable outcome of M&As is compulsory redundancy for large numbers of employees in order to meet numerous objectives set in a bilateral agreement between acquiring and target firms, M&As may severely harm the financial stability of the acquiring firm and pose a threat to its longevity. (Benou & Madura, 2005) There has been an increase in M&A deals in the high technology (high-tech) sector since 1990, with the primary aim of attaining highly advanced technical expertise in order to instantly enhance technological capability. The purpose of this research is to analyse the post-acquisition financial performance of one of the largest high-tech M&A deals in history - the acquisition of LinkedIn by Microsoft - since it has been overwhelmingly claimed that Microsoft overpaid when it acquired LinkedIn by paying the huge premium of $26.2 billion — $196 per share (Ng, 2014). Following the acquisition announcement, LinkedIn shares exploded instantly, climbing as much as 50%, whereas Microsoft's stock dropped by approximately 3%. The analysis uses an accounting-based approach to seek in-depth insight into the financial outcomes of the Microsoft & LinkedIn acquisition and to investigate whether the incident has benefited Microsoft's shareholders or not. Since Microsoft invested billions of dollars into the acquisition, increasing shareholder value is assumed to be a principle reason for the deal. To the best of the author's knowledge, only two research papers — by (Sachdeva *et al.* 2017; Violeta and Diana 2018) — have discussed the case of Microsoft and LinkedIn. However, neither has addressed the impact of this incident on Microsoft's financial performance nor the effect on shareholder value. Therefore, this study seeks to contribute to research on the effect of M&As on the post-acquisition performance of acquiring firms, and the Microsoft and LinkedIn case in particular. The paper begins by presenting the objectives, sample data, and the methodology. This is followed by an examination of existing literature on post-acquisition value creation, with specific consideration given to post-acquisition financial performance and shareholders value in conjunction with financial ratios analysis and DuPont analysis, followed by a set of testable hypotheses. The third section provides the data analysis and interpretation of the findings. Finally, the paper is concluded with a discussion of the limitations of the study and recommendations for future research.

1.1.Objectives of the Study:

A. To investigate the relationship between M&As and Microsoft's financial performance.
B. To investigate the relationship between M&As and Microsoft's shareholder value.
C. To investigate the relationship between M&As and Microsoft's profitability.
D. To investigate the relationship between M&As and Microsoft's stock return.

1.2.Methodology

A quantitative analysis is conducted using an accounting-based approach with the aim of examining in depth whether M&As benefits the shareholders of the acquiring firm through an assessment of the post-acquisition position of Microsoft subsequent to acquiring LinkedIn . The study also analyses the post-acquisition performance of the Microsoft in relation to similar high-tech M&As in terms of ROE and stock return.

1.3.Data

Secondary data sources are used for the analysis, collected from the annual reports of both companies, published over a ten-year period, as well as 10-K filing related to the acquisition agreement. The data includes market prospect, profitability, growth, leverage, turnover, expenses, and liquidity ratios, which were selected by researchers prior to commencing the study. For the purpose of comparing against industry-

benchmark M&As, the 10-K filing and annual reports for HP, Facebook, and Symantec are utilized. Data regarding the daily index return and daily share price were collected from the Bloomberg terminal.

1.4.Sampling Method and Sample

The sample is comprised of data for the acquiring firm (Microsoft) and the acquired firm (LinkedIn) over the period 2010–2019. The specified period includes seven years prior and three years subsequent to the acquisition, which is 01/01/2010–30/06/2019. The announcement and finalisation of the acquisition were obtained from the companies' websites and the 10K filings. The sample used for the DuPont analysis consists of data for three companies, HP, Facebook, and Symantec, and took into consideration four years preceding acquisition and four years following acquisition. Regarding the stock's return data, this study examined three years pre-acquisition and three years post-acquisition.

1.5.Statistical Method

The study uses SPSS to perform a paired sample T-test, to measure the significance of change in mean's values of financial performance of the acquiring firm (Microsoft) pre- and post-acquisition. The analysis is carried out as follows:

1- Compares financial ratios pre- and post-acquisition. Ratios principally associated with profitability, efficiency, liquidity, leverage and liquidity were used in the study, Namely:
   - A- Liquidity ratios: current, quick, and cash.
   - B- Turnover ratios: receivable turnover, asset turnover, capital turnover, net working capital turnover, receivable days, payable days, current asset turnover, and fixed asset turnover.
   - C- Operating profitability ratios: return on capital employed, return on equity, earnings per share EPS, EBITDA margin, Net profit margin NPM, return on assets, and return on capital.
   - D- Financial leverage ratios: debt, debt to equity, equity, and long-term debt.
   - E- Coverage ratios: dividend coverage and interest coverage.
   - F- Market prospect ratios: price to earnings P/E, price to research, dividend payout, and dividend yield.
   - G- Growth ratios: growth, sales growth, and total asset growth.
   - H- Expense ratios: operating expense, advertising to sales, general expense to sales, and R&D to sales ratio.

2-DuPont analysis system: The DuPont is used to provide an efficient analysis approach to the change of return on equity ROE of Microsoft, HP, Facebook, Symantec pre- and post-acquisition.

3- Measures and compares the pre- and post-acquisition stock's return of Microsoft, HP, Facebook and Symantec.

2.0.Literature review:

2.1.Mergers and acquisition as a value creation approach:

Post-acquisition financial performance is commonly identified in the literature as the additional value generated as a consequence of M&A activity. (King *et al*., 2004) The most well-known theoretical principle of M&A activity is synergy. Synergy occurs when two firms combine and create additional value higher than their individual values, i.e. 2 + 2 = 5 (Cooke, 1986). However, the explicit aim of M&As is to expand a business and to maximize shareholder value. It can be argued that this often does not occur. Indeed, KPMG has reported that more than half of M&As decrease shareholder value, and one third make no contribution (Buckley and Ghauri, 2002).

King *et al*. (2004) attempt to identify the effect of the most frequently researched variables on post-acquisition performance Including return on assets ROA, ROE and ROS. And moderating variables such as related acquisitions, method of payment, and acquisition experience. Using a meta-analysis approach, they concluded that the association between M&As and the performance of acquirers approaches zero or may even be negative following the M&As announcement. In addition, they found no evidence of performance improvement due to M&As activities. The impact on the financial performance of the acquirers was observed to be either insignificant or slightly negative. Thus, the researchers argued that M&As may not be a more effective way of boosting profits than other strategies such as licensing and alliances. The findings of this research can arguably be considered robust since it covered a large number of studies conducted over a

long period of time (1962–1992) with samples ranging from 1790 to 29,050 and comprised largely of US firms.

Similarly, using meta-analysis and considering various factors, such as number of bidders, stock or cash transactions, and relativity of mergers, Datta *et al.* (1992) investigated the determinants of wealth creation for both bidder and target. The findings indicated that target stockholders earn significant amounts from M&As, in contrast to acquirer stockholders who do not benefit from merger activity. This supports the notion that stock payments have a significant impact on the wealth of both parties involved. However, acquirer returns may be affected by the number of bidders and type of acquisition, while target returns may be influenced by changes in regulations and the tender offer.

Moeller *et al.* (2004) examined the effect of firm size by investigating shareholder gains from M&As with different types of target firms (public, private, and subsidiary). Using a sample of US mergers during the period 1980 to 2001. The overall findings of the study indicated that small firms gain significantly higher returns (2.24% points) than larger ones during an acquisition announcement. Large firms also suffer significant loss in shareholder value when announcing acquisitions with public firms regardless of finance method.

Mantravadi and Reddy (2007) examined M&A deals in the Indian market to capture the size effect of acquiring and acquired firms on operating performance over the period of twelve years (1991–2003). Using a paired sample t-test, several ratios were considered to analyse operating outcomes prior to and following mergers. The analyses revealed an insignificant difference between operating profit margin and gross profit margin pre- and post-merger. Nevertheless, NPM ratios fell significantly and statistically, combined with a similar decline in Return on capital employed ROCE post-merger. These findings suggest that increased financial leverage and interest costs following mergers exert a negative effect on the net profit of the acquirers.

Loughran and Vijh (1997) examined the post-acquisition wealth gain of both bidder and target shareholders in deals made from 1970 to 1989. Using a sample of 947 firms delisted from NYSE, AMEX, and Nasdaq. The stock returns of the acquiring firms when the transactions paid in cash were on average shown to be higher than the corresponding stock returns when the acquisition offer was made using stock. The observed difference was somewhat significant, ranging from 25% for stock mergers and 61% for cash offers. Although the generally accepted notion in finance literature is that target shareholder gains will be significantly positive in all cases, the Loughran and Vijh's (1997) findings show that firms who sell instantly after acquisition make profit, but the reverse occurs and target shareholder value decreases when they hold the bidder's stock obtained as payment.

Although there are numerous factors that can impact post-acquisition performance, it can be assumed that an economic downturn is a key factor in an unsuccessful merger deal. Lakstutiene *et al.* (2012) evaluated the spillover effect of acquisitions on the corporate performance outcomes of public Lithuanian companies trading on the NASDAQ OMX Vilnius Stock Exchange during the 2008 to 2010 period of economic slowdown. By evaluating the economic value added (EVA) and profitability ratios, the authors found that profitability ratios and EVA declined in the post-acquisition period, with a creeping recovery within the fourth quarter. This suggests that acquisition might have a favourable effect during economic downturns. Nevertheless, the outcome is negative rather than positive in the short term. This implies that firms should devote relatively more resources to assessing an acquisition strategy over a longer time span prior to considering such a decision.

The impacts of M&As on shareholder value and financial performance have been empirically recognized by scholars from various perspectives, but few studies have focused on marketing performance. Rahman and Lambkin (2015) investigated the post-acquisition performance of firms from a marketing perspective, using multiple measurements of marketing performance so as to gain a better understanding of the value sources. The research tested a sample of 45 M&A transactions that occurred between 1990 and 2000 in the USA, and

found that revenue increased, but the ratios of sales and management expense to sales revenue decreased following acquisition. This revealed the occurrence of an enhancement in merchandising efficiency, whereby firms combined through M&As generated economies of scope and scale. Nevertheless, this did not lead to an improvement in return on sales. The authors observed an equivalent increase in production costs which offset the gains from sales and marketing.

Choi and Harmatuck (2006) scrutinized the long-run operating performance of the firms that engaged in M&As from 1980 to 2000. Using an operating cash flow model as a measurement, operating performance was found to be insignificantly higher in the post-acquisition period as synergetic gains were very low. In addition, a comparison of enhancement in operating performance and changes in firm size revealed that the firm managers tended to maximize their self-interest rather than shareholder value.

M&As literature indicates that the relatedness factor between acquiring and acquired firms can lead to desirable outcomes. Krishnan *et al.* (1997) investigated a sample of 174 US based, publicly traded major acquisition deals completed in the period 1992 to 1998. They used a mediated regression to analyze the association between workforce reductions following M&As and premiums paid, as workforce reduction is an essential factor in achieving economies of scales and operational synergies. The study results pinpoint that superfluous workforce reduction affects a firms' performance significantly, and the outcome of this reduction is extremely negative instead of the positive outcome desired by managers.

In relation to high-tech industries, the post-M&A innovation capabilities of 256 American firms, 45 European firms, and 46 Asian firms were analysed by Cloodt *et al.* (2006) using a binomial regression model. They found that non-technological M&As did not contribute to post-merger innovation efficiency. In addition, although high-tech acquisitions with a large knowledge basis contributed positively to innovation performance in the short-run, thereafter they appeared to exert a negative effect. This suggests that if the knowledge basis of a target is comparatively large in comparison to the acquiring firm, this can pose serious problems for the post-M&A performance of the acquiring firm.

An empirical study conducted by Bena and Li (2014) to explore the role of innovation activities as a major driver of M&As, using a cross-sectional sample of finalized US mergers from 1984 to 2006 to perform a conditional logit regression. The results suggest that mergers are more likely to occur between firms that overlap technologically, and firms with high spending on research and product development and sluggish growth in innovation are liable to be acquired; thus, improvement in post-merger innovation activities is positively related to synergetic acquisitions. This is akin to the LinkedIn case, as the company invested heavily in the period preceding the acquisition, which is discussed in further detail in Section 4.1.

Seth (1990) investigated whether acquisitions that consider numerous strategies create economic value. The author considered the relatedness in a sample of 104 M&A offers over the period 1962 to 1979. Using event study methodology as a basis for calculating synergy gains, both relevant and irrelevant acquisitions were shown to generate significant synergies. Surprisingly, the relevant mergers were not observed to create higher value than irrelevant ones.

Agrawal *et al.,* (1992) reexamine the peculiarity of negative post-acquisition which had been investigated initially by Jensen and Ruback (1983) to offer more evidence about the effect of M&As on the performance of acquirers. The research was undertaken after modifying for the size effect and considering a thoroughgoing sample of acquisitions extracted from NYSE (acquiring firms) and NYSE / AM:EX (acquired firms) over the period from 1955 to 1987. The findings confirmed that shareholders of acquirers having undergone a statistically significant loss account to approximately 10% over five years following the acquisition finalization date. The result posits that the efficient-market peculiarity is not redressed.

In measuring the post-M&A financial performance and abnormal return of 267 Canadian's acquirer firms which occurred in the merger wave in the late 1990s, André, *et al.,* (2004) apply three-factor model (Fama and French, 1993). It is observed that in the short run (three-year post-merger) the returns of acquirers

decline significantly, and abnormal returns are positive and driven by a larger acquirer. However, the returns on Canadian firms that are not overlapping have largely exacerbated over the short run. Further evidence was found which supports the method of payment hypothesis that states that M&As funded completely by equity underperform comparing to cash.

Antoniou et al. (2008) investigated whether long-run underperformance of M&As is a result of high premiums using a sample of successful mergers between publicly traded UK firms that occurred between 1985 and 2004. The Fama (1998), Mitchell and Stafford (2000) approach was applied using calendar-time portfolio regression (CTPR). Although the study results suggest that mergers do not profit stakeholders in the long-run, no evidence was found pertaining to high premiums as a key cause of this underperformance. In addition, short-run performance analyses have implied that merger premiums might be a good proxy for achieving synergy between bidders and targets.

2.2.Financial ratios analysis in M&As literature:

Numerous distinctive methods have been used in M&A research to assess post-acquisition performance. Wang and Moini (2012) identified five generally used performance evaluation methods related to M&As: event studies, accounting-based measures, objective management evaluation, expert informed evaluation, and divesture. Zollo and Meier (2008) categorized three different levels of post-acquisition performance: transactions, long-run performance, and singling out the short-run window case.

Harvey (2015) scrutinised the corporate performance of oil companies in Ghana by implementing a t-test to determine whether the pre- and post-acquisition performance of the acquiring firm was significantly different. Several variables were used to measure the financial performance: expense ratios, financial leverage ratios, profitability ratios, growth ratios, liquidity ratios, and return on investment ratios. The findings revealed a worsening performance across all profitability indicators apart from gross operating margin, which was attributed to exogenous factors such as competition rather than the merger. In addition, subsequent to the merger, synergies led to a continued decline in the expense ratios and improvement in combined firm growth. Furthermore, shareholder value increased through earnings and dividends per share during the post-merger period. This implies that acquisition is a value-maximizing method for shareholders and growth.

Similarly, Alhroot (2016) analysed the post-merger efficiency, profitability, liquidity and leverage of combined firms in Jordan. A paired t-test was used on various merger deals from different sectors encompassing chemical, engineering, construction, pharmaceutical, medical, and cigarette industries. The study found that the post-merger financial performance of the acquirers exhibited an insignificant improvement in all variables used.

By utilizing paired sample t-test and descriptive statistics Jallow *et al*. (2017) studied the financial performance of a sample of forty UK firms listed under the London Stock Exchange to determine the effect of M&As on their performance. It is found that the firms encountered a significant decrease in ROA, ROE, NPM prior and subsequent to mergers, while EPS increased significantly post-merger.

In the banking industry, Moctar and Xiaofang (2014) measure the impact of M&As on the financial performance of four banks in West African States. Three categories of variables were used: performance ratios, liquidity ratios, and earnings per share. The results showed that Current ratio increased post-M&As. In addition, although ROA, ROE, and EPS declined during the merger, they increased in the long term to a higher state than their initial level. This suggests that M&As may have a negative impact on the financial performance in the short term, yet in the long term, firms can recoup and benefit from M&As.

Similarly, Gadzo *et al.* (2014) analysed the post-merger financial performance of Societe Generale – Social Security Bank (SG-SSB) in Ghana. Data from a ten-year period (2004 to 2013) was used for an analysis of variance (ANOVA) and f-test to measure the firm's financial performance and to verify the significance of the influencing factors. The variables used were ROA, ROE, cost to income ratio C/I, loan loss reserve to

gross loans LRGL, equity to asset ratio, and macroeconomic indicators. Using a form of regression analysis to delineate the performance of both pre- and post-acquisition periods, the study found that the merger positively impacted the acquiring firm performance, even though the macroeconomic factors had a detrimental effect. Furthermore, the poor financial performance of the target firm impacted post-acquisition performance, in addition to legislative frameworks and competition in the banking sector. The findings suggest that the benefits of M&As remain insignificant.

In contrast to the outcomes of M&A cases in the African Banking Industry, Patel (2018) conducted a study with the aim of identifying the long-term financial performance of Indian banks pre- and post- merger with regard to profitability. An analyses of the financial performance was undertaken over five years pre- and post-merger using nine financial indicators: ROE, EPS, and yield on advances. A paired t-test revealed a decrease in profitability across all four banks. Whereas EPS, (property, plant, and equipment PPE), equity, assets, and investment advances exhibited an increase post-merger. Due to the efficient utilization of human assets, business per employee and profit per employee noticeably improved.

2.3. DuPont analysis in M&As Literature:

Ross, Westerfield, and Jordan (1999) define the DuPont identity by breaking down ROE into three fundamental elements: operating efficiency (as represented by NPM), efficient asset utilization (as represented by asset turnover), and financial leverage. The DuPont analysis distinguishes between ROE and return on assets ROA, as the former reflects the usage of financial leverage. While the latter ROA is measured by multiplying NPM by total asset turnover, a deficiency in either component may weaken ROA. However, a firm is able to boost its ROE by increasing leverage. Therefore, if ROE is unsatisfactory, then the DuPont formula identifies the rationales for this performance.

In financial statement analysis literature, the DuPont model is used to measure the changes in drivers of ROE over time. Studies have shown that an increase in profit margin will result in a higher overall ROE, and assuming that asset turnover grows, further sales will be generated, thereby contributing to a higher ROE; the same is also true for equity multipliers. As one of the DuPont elements, total asset turnover TAT measures a firm's capability to yield revenue in relation to its assets i.e. an efficiency measurement. Under US GAAP, total assets value is reported at modified historical cost, accounting indicators may be biased when assets' value are appreciated.

Curtis *et al*. (2015) examined how using modified historical cost of assets influences financial ratios. By applying multivariate regressions of the DuPont, for forecast errors of asset utilization to a sample of US firms who completed M&As during the period 1964 to 2012. Asset age was found to have a significant positive relationship with TAT. In particular, firms with comparatively older assets had considerably greater asset turnover than firms with newer assets, and TAT forecast errors were positively related to differences in average asset age. These findings suggest that asset age may be a biased measurement which decreases reported asset value and therefore increases TAT. Curtis et al. (2015) argued that DuPont ratios lack efficiency, as the analysis includes information that is not estimated using a consistent base.

Soliman (2008) examined the use of DuPont by investors and analysts and found that long-window stock returns were positively related to variances in TAT. And markets reacted favourably to TAT in terms of short-term returns. Additionally, TAT was effective in forecasting future returns.

The effect of M&As on the long-term performance of acquiring firms investigated by Rani *et al.* (2013) through analysing a sample of 305 M&As deals pre- and post-merger over a span of five years from 2003 to 2008. A ratio analysis was conducted using fourteen ratios related to efficiency, liquidity, profitability, and leverage. Operating performance ratios were also decomposed in order to determine the root of long-term M&As benefits. The study found that M&As appeared to be lucrative in the long-run for the acquiring firms examined, thereby implying an improvement in profitability, liquidity, and synergetic gains. On the other hand, the rate of TAT was low and indebtedness ratios rose in the post-acquisition period. Overall, the DuPont revealed an enhancement in the long-run operating profit margin of the acquirers.

Both the short and long-run impacts of M&As in the shipping industry during the period 1994 to 2003 by implementing a DuPont model were analysed by Cabanda *et al.* (2007). Various ratios were employed to measure profitability, capital investment, leverage, solvency, and operation efficiency. Although the short-run post-merger performance showed a severe decline in profitability and capital investment spending, the long-run performance indicators demonstrated a significant rebound, particularly TAT, acid-test ratio, and net revenue.

Sheela and Karthikeyan (2012) disaggregated the return on equity to analyse the profitability of pharmaceutical industry firms in India during the period 2003 to 2012. Three firms with dominant positions were used as the sample. The study reports that the ROE and ROI of the sample firms were the highest, and expense reduction was a key factor in the increase of ROE. The findings suggest that an absolute indicator might not be a determining factor of profitability. Hence, a common basis of comparison between different firms in an industry ought to consider the relative size and rank when computing ratios.

Botika (2012) examined the three DuPont components in relation to abnormal daily returns in the Romanian stock market (Bucharest Stock Exchange). Using the least squares (LS) method, a three-testation regression model was built for return and ROE, ROA and financial leverage FL, NPM, TAT. In 2007, a pronounced dependence was observed between ROA (profitability) and accumulated abnormal returns prior to the financial crisis. Whereas in 2008, investors gave heed to the DuPont elements and overlooked accumulated returns due to an acceleration in market conditions. The findings indicate that DuPont components play a major role in investment decision making.

Using a sample of Romanian furniture companies Burja and Marginean (2014) examine factors that impact the DuPont model. A Pearson correlation coefficient revealed that TAT, NPM, and total equity and assets were significantly and positively correlated with the DuPont system. ROE demonstrated by the sample firms had robust positive correlations with net income, return on sales, ROA, and TAT, but a lower negative correlation was found with financial leverage. This suggests that seeking to improve profitability by increasing the value of the elements mentioned earlier is more effective than increasing external borrowing.

In contrast to previous research, Chang et al. (2014) investigated the practicality of the news included within the DuPont system in predicting the profitability of healthcare sector firms during the period 1984 to 2010 by disintegrating ROA into NPM and TAT. The findings suggest that DuPont factors as accounting signals are less informative in the healthcare sector. In addition, variation in NPM is significantly more consistent than TAT in interpreting the change in investors' and analysts' use of information incorporated in the DuPont elements.

By adopting the DuPont identity, Collier *et al.* (2010) investigated the impacts of the Asian financial crisis that occurred in 1997-1998 on the financial performance of a Malaysian bank (AFFIN). They found that during the crisis, total assets played a crucial role in decreasing ROE due to an increase in customer loan accounts accompanied with a sharp decline in securities and deposits. However, the impact on ROE became apparent during the period that followed the crisis, as NPM and ROE decreased simultaneously by 70%.

The traditional DuPont model consists of three factors that are contingent upon each other. For instance, additional debt increases equity multiplier EM, which consequently increases interest expense, which in turn decreases NPM. Angell and Brewer (2003) argued that EM does not adequately measure the effect of financial leverage on ROE, as it measures only the positive impact of increasing debt ratio on ROE. Therefore, they introduced a new measurement (a four-factor model) that considers both the negative and positive impact of increasing debt.

The Angell and Brewer (2003) proposed model replaces the net income (numerator) in NPM by EBIT. And divides EM into two elements (net income/EBIT) and (assets/equity), which the authors referred to as the net leverage multiplier NLM ratio. According to this model, the effect on ROE is a function of variation in both components of NLM. The errors observed with the employment of EM as a measurement of the impact

of a higher debt ratio during the period 1996 to 2000 were found to be significant for a sample of 1138 firms.

A significant majority of DuPont studies have investigated corporations and publicly traded firms, but few researchers have examined small and medium-sized enterprises (SMEs). The role of the DuPont method as an educational tool in small business courses were probed by Liesz and Maranville (2008). They reclassified the model as a five-factor model, according to which the first two factors capture the operating decision's effect through NPM and capital turnover (sales/invested capital). The third and fourth factors represent the financial leverage decision with financial cost ratio (EBT/EBIT) and financial structure (invested capital/equity) And the final factor measures the business taxation effect and tax effect (earnings after tax/EBT). Liesz and Maranville (2008) argued that this model ought to be named the 'Really modified DuPont model', since it mitigates the drawbacks of the traditional DuPont model by using invested capital and earnings before interest and tax EBIT to provide a deeper insight into ROE drivers.

Firer (1999) stated that the DuPont model should be used in classrooms as a basis for financial performance analysis, by considering ROE as a main driver of financial performance. Furthermore, by extending DuPont cascades from three into five-factors (operating profit margin, asset turnover, equity multiplier, interest burden, tax burden) it allows analysts to separate operating activities from financing activities.

In line with Firer's (1999) proposal, Sur et al. (2014) applied a five-factor DuPont model to data for Tata Steel Co. taken from 1996 to 2010 in order to assess the effect of the DuPont elements on the firm's ROE. By regressing the five components (explanatory variables) of the DuPont model to ROE (dependent variable), it was reported that asset turnover, interest burden, and tax burden were highly correlated with ROE.

2.4.Hypothesis:

The following hypotheses have been developed according to the existing literature:
H0a: There is no significant difference between the pre- and post-M&A profitability ratios.
H0b: There is no significant difference between the pre- and post-M&A efficiency ratios.
H0c: There is no significant difference between the pre- and post-M&A liquidity ratios.
H0d: There is no significant difference between the pre- and post-M&A leverage ratios.
H0e: There is no significant difference between the pre- and post-M&A coverage ratios.
H0f: There is no significant difference between the pre-and post-M&A market prospect ratios.
H0g: There is no significant difference between the pre- and post-M&A growth ratios.
H0h: There is no significant difference between the pre- and post-M&A expense ratios.
H0i: There is no significant difference between the pre- and post-M&A shareholders' value.
H0j: There is no significant difference between the pre- and post-M&A stock return.
H1: In the absence of phenomena when the null hypothesis is rejected, the alternative hypothesis is that a significant difference exists in the respective measure.

3.0.Background of the Microsoft and LinkedIn acquisition, and related studies:

LinkedIn is an American company founded in 2002 by Reid Hoffman, Allen Blue, Konstantin Guericke, Eric Ly, and Jean-Luc Vaillant (LinkedIn, 2019). It is considered the world's largest professional online platform with approximately 400 million members in over 200 countries. The platform enables members to pursue successful careers by managing and sharing their curriculum vitae and broadening their professional networks. LinkedIn creates its value through several channels, including its talent solutions, hiring, training and improvement, marketing solutions and premium subscriptions.

Microsoft is an American multinational company founded in 1975 by Bill Gates and Paul Allen. The company's core business is developing, manufacturing, gaming, licensing, developing and selling computer software, customer electronics, personal computers and related devices and services. On 13 June 2016, Microsoft Corp announced it had entered an agreement with LinkedIn Corporation which stated it would acquire LinkedIn for $26.2 billion in a cash deal, including LinkedIn's net cash. On 8 December 2016,

Microsoft completed the acquisition, which is considered its largest-ever deal (Microsoft, 2016). Microsoft confirmed that it would include LinkedIn in its consolidated statements of operations after closing the deal, and LinkedIn would retain its distinct brand, culture, and independence. Microsoft also confirmed it would finance the deal through the issuance of debt, even though Microsoft had a strong cash position with approximately 25 billion as a free cash flow and $113,240 billion in total cash and cash equivalent and short-term investment (Microsoft, 2016). This implies that Microsoft sought debt to benefit from low interest rate and the deductible interest. Completed transaction details are illustrated below in Table I, in addition to the financial impact of the deal in Table II.

Transaction Details (In millions)	
Cash and Cash Equivalents	$ 1,328
Short-term investments	2,110
Other current Assets	697
Property and Equipment	1,529
Intangible assets	7,887
Goodwill	16,803
Short-term debt	(1,323)
Other current Liabilities	(1,117)
Short-term debt	(774)
Other	(131)
Total Purchase Price	**$ 27,009**

Table [I] Financial transaction of the acquisition of LinkedIn

Financial Impact
Minimally (~1%) dilutive to non-GAAP EPS in FY17 and FY18 based on expected close data
Accretive to Non-GAAP EPS in FY19 or less than two years post-closing
Non-GAAP includes stock-based compensation expense consistent with Microsoft's reporting practice, and excludes expected impact of purchase accounting adjustments as well as integration and transaction related expenses
$150 million of cost synergies annually by 2018

Table [II] Financial impact of the acquisition of LinkedIn on Microsoft

Walter et al. (1990) identified four mergers types: vertical — in which a selling-buying relationship prevails or might prevail between two parties; horizontal — which occurs between two identical firms in the same industry; concentric — in which extremely similar technology and production firms are merged; and conglomerate — which is a merger between two firms that are not similar and have no relationship under any circumstances.

The type of merger completed between Microsoft and LinkedIn appears vague, as it is not related to any of the types described. Microsoft granted LinkedIn 'independence', which suggests that a complete integration of services and software was expressly excluded. Furthermore, Microsoft did not specify how the merger would create synergies. Gomes-Casseres (2019) argued that Microsoft could attempt to create distinct businesses to service its broad vision.

The value and synergies of the Microsoft and LinkedIn merger identified in Microsoft's 2017 annual report revealed the value of LinkedIn's goodwill as $16.803 billion. Violeta and Diana (2018) investigated the purchase price and anticipated synergies of the deal and argued that as the purchase price of LinkedIn was $27.009 million, Microsoft paid a much greater value than market. At the time of the acquisition announcement, LinkedIn's market capitalization was $17.48 billion. Thus, Microsoft paid a premium of $9,529 billion above LinkedIn's market value.

The high purchase price has been attributed to the desire to harness the target (LinkedIn) and also to achieve synergies and a high degree of overlap through the acquisition. In this way, Violeta and Diana (2018) anticipated that the revenue of forecasted synergies will be higher than the cost of synergies, since economies of scale were foreseen to generate synergies through R&D, sales and marketing, IT, and administration.

However, there are myriad factors that may prevent Microsoft from achieving the merger aims. Sachdeva *et al.* (2017) referred to Microsoft's experience in acquisitions — such as with Nokia and aQuantive, which

ended in Microsoft writing off more than $13 billion — and the high bid price as factors that might limit the extent of the merger's success. Nevertheless, product synergies and the large customer base of both companies may be determining factors in magnifying the goals of the acquisition.

4.0.Analysis and Interpretation:

4.1.Comparative Analysis of LinkedIn's Financial Ratios Pre- acquisition:

In the following sections, a comparative analysis is undertaken with the objective of scrutinizing financial performance in the pre-acquisition period by analysing the balance sheet and income statement of LinkedIn.

(In thousands)

	Financial profile of LinkedIn						
	Pre-acquisition						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Net Profit	3,429	11,912	21,610	26,769	-15,320	-164,761	-156,533
Net Revenue	243,099	522,189	972,309	1,528,545	2,218,767	2,990,911	2,753,151
Total Equity Capital	36,249	624,979	908,424	2,629,394	3,325,392	4,468,643	4,873,819
Total Assets	238,188	873,697	1,382,330	3,352,793	5,427,257	7,011,199	7,556,412

Table [III] (LinkedIn, 2016)

4.1.1. inkedIn's Financial Ratios Analysis Pre-acquisition:

Liquidity Financial Ratios	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Current Ratio	1.633	3.203	2.453	4.292	4.669	3.312	3.256
Cash Ratio	0.881	2.547	1.804	3.628	3.900	2.625	2.670
Turnover Ratios							
Receivable turnover	1.933	2.199	2.281	2.116	1.906	1.827	0.643
Assets turnover	1.021	0.939	0.862	0.646	0.505	0.481	0.129
Net Working Capital Turnover	3.643	1.046	1.611	0.723	0.685	1.089	0.338
Receivable days	188.836	217.928	206.834	206.138	228.968	229.052	557.890
Payable days	104.925	126.451	155.743	120.062	124.604	141.322	576.191
Current assets turnover	1.412	1.163	1.115	0.81	0.645	0.742	0.234
Fixed Asset turnover	4.284	4.547	5.209	4.226	2.995	2.857	0.636
Operating Profitability Ratios							
Return on Capital Employed	0.147	0.039	0.058	0.017	0.008	-0.025	0.003
Return on Equity	42.40%	1.91%	2.38%	1.02%	-0.46%	-3.69%	0.19%
Earnings Per Share	$ 0.08	$ 0.15	$ 0.21	$ 0.24	$-0.13	$ -1.29	$ 0.06
EBITDA Margin	16.10%	13.20%	14.06%	11.93%	12.31%	9.01%	16.77%
Profit Margin	0.0633	0.0228	0.0222	0.0175	-0.0069	-0.0551	0.0095
Return on assets	6.46%	2.14%	1.92%	1.13%	-0.36%	-1.90%	0.12%
Profit per employee	$ 114.89	$ 246.78	$ 277.80	$ 302.98	$ 321.70	$ 319.13	$ 102.41

Table [IV] LinkedIn financial ratios pre-acquisition, Group 1

4.1.2. LinkedIn's Financial Ratios Analysis Pre-acquisition:

Financial Leverage Ratios	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Debt	0.478	0.284	0.342	0.214	0.386	0.358	0.351
Debt to equity	3.143	0.398	0.521	0.273	0.630	0.563	0.544
Equity	15%	72%	66%	78%	61%	64%	64%
Long term debt to equity	n/a	n/a	n/a	n/a	22.19%	25.21%	23.84%
Coverage Ratios							
Dividend coverage	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Interest coverage	19576	25845	56862	47812	5.3163	-2.9665	-1.245
Market Prospect Ratios							
Price to earnings	n/a	595.600	444.714	765.333	n/a	n/a	n/a
Price-to-research	n/a	36.782	46.952	62.281	36.366	54.161	36.782
Dividend payout	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend yield	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Growth Ratios							
Sustainable growth	42.44%	1.91%	2.38%	1.02%	-0.46%	-3.69%	0.19%
Sales growth	102.37%	114.81%	186.20%	157.21%	45.16%	34.80%	11.36%
Assets growth	60.33%	266.81%	58.22%	142.55%	61.87%	29.18%	7.78%
Expenses Ratios							
Operating expense	18.44%	15.60%	12.91%	13.27%	13.24%	14.00%	13.00%
Advertising to sales	24.26%	31.54%	33.41%	34.16%	34.90%	35.04%	33.47%
general expense to sales	14.42%	14.34%	13.16%	14.76%	15.38%	16.01%	13.91%
R&D to sales	26.78%	25.32%	26.45%	25.88%	24.17%	25.93%	26.15%

Table [V] LinkedIn financial ratios pre-acquisition. Group 2

4.1.3. Interpretation of LinkedIn's financial ratios analysis:

Table IV presents an analysis of LinkedIn's financial performance prior to the acquisition in order to provide insight into the drivers of the performance, and to evaluate the financial condition of LinkedIn over a period of seven years from 2010 to 2016. The first part is liquidity ratios, which allow investors and related parties to identify the ability of a firm to convert its assets into cash. The table shows that all liquidity ratios have increased gradually, but then began descending in 2014 due to the rapidly expanding strategy of investment in property, equipment, acquisitions and other investments accompanied with a decrease in the numerator (current assets).

Current ratio, which measures the ability of a company to meet short-term obligations during one fiscal year, increased largely over the first four years and then fell in 2015 to 3.312 from 4.669 in 2014. Similarly, cash ratio, which measures cash and cash equivalents in relation to current liabilities, declined to 2.625 in 2015 from 3.900 in 2014. This decrease in liquidity ratios could be attributed to an increase in current liabilities including deferred revenue, accrued payable, and accounts payable driven by higher transaction volumes.

The second part of ratios illustrated in the table is turnover indicators. Accounts receivable turnover, which assesses the number of times LinkedIn could collect its accounts receivable during a fiscal year, increased until 2013, when it dropped from 2.116 to 0.643 in 2016. This was mainly as a consequence of an increase in accounts receivable (denominator), causing a parallel rise in accounts receivable days. Asset turnover ratio measures how much sales are generated through a firm's assets; in 2014, this ratio sharply declined to 0.481 as the total assets (denominator) dramatically increased at a rate higher than net revenue (numerator). The turnover of assets ratio scored the highest figure of 1.021 in 2010.

Net working capital turnover ratio measures how efficiently a firm is employing its net working capital to generate a given level of revenue; the ratio diminished from 3.643 in 2010 to 0.338 in 2016, as it encountered an increase in current assets driven by a rise in marketable securities (US treasury securities, US agency securities) which was the primary form of investment for LinkedIn (LinkedIn, 2015). A low net working capital turnover ratio implies that LinkedIn was not generating a sufficient amount of sales for every dollar of the net working capital.

The figure for accounts payable days, which indicates how long it takes to pay all pending accounts payable, increased dramatically from 155.74 in 2012 to 576.191 days in 2016. That was due to an increase in

transaction volume (accounts payable and other liabilities). A high value for accounts payable days can be beneficial, as it allows a firm to capitalise on its available cash, but it can also be a negative sign as a firm takes longer time to pay its short-term obligations. Akin to payable ratio, a threefold spike is observed in receivable days ratio from 104.92 in 2012 to 576.19 days in 2016. This indicates a longer time for the company to collect its payment.

Current asset turnover measures how efficiently a company generates revenue by utilising its current assets. As the table depicts, LinkedIn's current asset turnover ratio fluctuated throughout the years investigated and descended to its lowest level 0.234 in 2016 implying a decrease in the productivity of LinkedIn's current assets. In addition, fixed asset turnover ratio, which measures the return on property, plant, and equipment PPE, decreased from 5.209 in 2012 to 0.636 in 2016. Both fixed assets ratio and current assets ratio deteriorated over the years as a result of LinkedIn's PPE investment strategy, which was foreseen to generate additional sales in the long-term. However, as table III illustrates the noticeable increase in total assets, generate no additional sales revenue.

The third part of ratios illustrated in table IV is profitability ratios, which measure how efficiently a firm can yield profits relative to its shareholder equity, revenue, operating costs, and assets over time. As the table shows, most of LinkedIn's profitability ratios experienced a decline during 2014 and 2015 due to a slow growth rate. ROCE was fairly stable for the first four years, but decreased sharply to its lowest point -0.025 in 2015, when LinkedIn made a $150 million net loss from operations. Furthermore, ROE which measures the return generated by an investment for capital contributors, increased to 0.19% in the third quarter of 2016, after recovering from the net loss made in 2015 by -3.69%.

Earning per-share recorded the highest figure in 2013 with $0.24 per share. Earnings before interest, taxes, depreciation, amortization EBITDA margin fluctuated over the years and achieved 16.77% of the company's total revenue in 2016, up from 9.01% in 2015.While profit margin remained stable with the lowest value recorded in 2014 at
-0.0069. ROA, which measures the earnings generated by total assets, dropped sharply in 2011 to 2.14%, and reached its lowest in 2015 at -1.9%. Profit per employee peaked in 2014 with $321.70 and the lowest value was recorded in 2016 at $102.41.

Generally, the increase in revenue was counterbalanced by an increase in headcount-related spending as LinkedIn hired more employees to accommodate its growth (LinkedIn,2015). Cormier *et al.,* (2012) argued that assessing the financial profitability of a firm's adjusted EBITDA allows market participants to assess the firm's earnings more accurately as well as predict future cash flow by discounting some operating costs that are used to calculate EBITDA. LinkedIn's adjusted EBITDA grew over the years investigated at a decreasing rate, and achieved total of $818 million in three quarters in 2016.

Table (V) illustrates the second group of financial indicators, which consist of leverage ratios, coverage ratios, market prospect ratios, growth ratios, and expense ratios. Financial leverage ratios are instruments that show how much of a firm's capital is comprised of loans. The debt ratio measures total liabilities relative to total assets, which the table shows fluctuated over the period presented, with the lowest level at 0.214 recorded in 2013 and the highest 0.478 in 2010, which reveals a healthy business with better sustainability. It is notable that LinkedIn had a low level of liabilities relative to its assets from 2010, as deferred revenue represented half of the liabilities during the period 2010 to 2013, in addition to convertible senior notes (LinkedIn,2015).

Table V shows that LinkedIn's debt to equity ratios during the period were similar to the debt ratios. The highest figure at 3.143 was recorded in 2010, prior to going public, since the company had relatively small equity that accounted for 32% of its total liabilities. In addition to deferred revenue, which dominated liabilities in the period studied, accrued liability made up a significant portion of the liabilities in the form of employee-related expenses. The equity ratio was comparatively stable, with the highest figure of 78% obtained in 2013, which suggests that LinkedIn's total assets were predominantly financed with equity

instead of debt and, as the ratio was closer to 100%, the company was financially stable. The long-term debt liability remained at a low level throughout the period examined, with the highest value of 25.21% recorded in 2015 as the magnitude of debt was also low.

The second part of LinkedIn financial ratios group two portrays coverage ratios which assesses a firm's capability to pay off its debt and honour its financial obligations such as interests' payments or dividends. LinkedIn have never declared or paid any cash dividends on capital; hence the ratio is not applicable N/A. While the Interest coverage ratio has decreased sharply subsequent to 2015 to a negative level as LinkedIn made a net loss before interest and tax, making its ability to meet interest expenses questionable.

The third part of Table V shows Market prospect ratios that consist firstly of price to earnings ratio, which is used in an apple-to-apple comparison by investors to measure the growth prospect of a firm. Price-to-earnings ratio has scored the highest of 765.333 in 2014, after that the ratio is N/A as LinkedIn made a net loss in the next three years. The share price of LinkedIn Class A has been volatile historically, and was subjected to high fluctuations as a result of a slow growth rate of revenue. In essence, LinkedIn's share Price lost more than half of its value in 2015 as it dropped sharply from $250 from down to 100$.

Secondly, price to research & development ratio PRR which was introduced by Fisher (1984) who states that 'firms with PRR at 50 to 200 times research are the hot ones.' However, investors are less likely to gain 3 to 10 times their investments in the long term. PRR, which is obtained simply by dividing market capitalisation by the research and development expenses for a particular period PRRs, determines how much the market participants values a firm's research and development R&D. LinkedIn's PRR rose sharply in 2013 to 62.281 and fluctuated prior to the acquisition as it dropped to 36.366 in 2014.

The next group of ratios presented in Table V is growth ratios, which include three fundamental indicators. The sustainable growth ratio is the growth rate a firm can maintain without funding its growth with further debt or equity, which in LinkedIn's case decreased from 42.44% in 2010 to -3.69% in 2015 due to slow ROE growth. There are numerous potential reasons for this slow growth, one of which is increasing competition in the market for online professional networks as well as competition for talent from other internet and high-growth companies. This includes both publicly traded and privately-held companies. This competition became even more acute as LinkedIn became a public company, leading to a fluctuating operating outcomes and stock price valuations (Linkidin,2015).

Growth in sales and assets are used to assess a firm's overall strength in the marketplace. The growth in total assets plays a pivotal role in determining future abnormal returns (Cooper *et al.,* 2008). LinkedIn's sales growth achieved its highest figure in 2012, as sales growth increased by approximately 186%, while assets growth jumped to 266.81% in the previous year. Prior to the acquisition and during the integration process both indicators show relatively poor signs, with sales growth increasing to 11.36% and assets growth increasing by increments of 7.78%.

The final group of financial indicators presented in Table V relates to expenses, specifically how efficiently expenses generate revenue. LinkedIn's operating expense ratio was considerably stable during the period examined, with the highest figure 15.60% observed after the LinkedIn was publicly listed in 2011, and the lowest 13% observed in 2016. This was due to an increase in cost of revenue although it decreased as a percentage of revenue over the years. The increase in operating cost can be attributed to increased hiring costs, web hosting services expenses, and other direct costs (Linkidin,2015).

Similarly, the advertising to sales ratio did not experience unusual movements, as the lowest value, 24.26%, was recorded prior to trading publicly, and the ratio subsequently remained at a level of approximately 33%. Finally, the general expense to sales ratio and R&D to sales ratio remained stable, ranging between 13.91%–16.01% and 24.17%–26.78%, respectively. The analysis shows that LinkedIn achieved more than 50% of its revenue through advertisings and R&D.

Overall in 2016, prior to the announcement and during the integration process, LinkedIn experienced an increase in liquidity ratios, profitability ratios, financial leverage ratios, and coverage ratios. Table III on page 31 illustrates the changes to the balance sheet and income statement elements that drove most of the changes in the ratios. It ought to be noted that data for 2016 only included three quarters of the fiscal year, as LinkedIn was included in Microsoft's consolidated statements after that.

Prior to its acquisition by Microsoft, LinkedIn's share value deteriorated as a result of its slow growth rate. In fact, following its public listing, the company arguably did not deliver a sufficient return to its shareholders. Tables VI-VII-VIII below depict net revenue, net income and earnings per share of LinkedIn's stockholders. The feeble earnings performance led to a wide selloff of LinkedIn shares, from which the company was not able to recover. The analysis of Microsoft and LinkedIn stock prices is discussed in detail in Section 4.4. It seems that the timing of the acquisition was appropriate, as LinkedIn had encountered difficulty maintaining a stable growth rate in the two years preceding the acquisition.

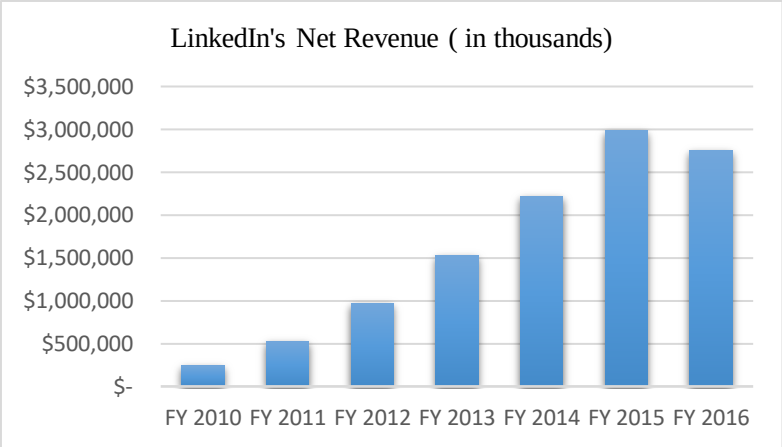


Chart [VI] (LinkedIn, 2015,2016)

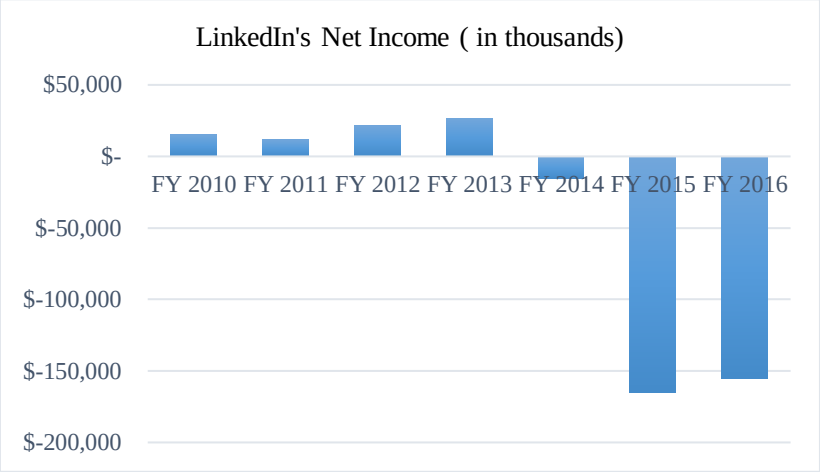


Chart [VII] (LinkedIn, 2015, 2016)

Chart [VIII] (LinkedIn, 2015,2016)

4.2.Analysis of Microsoft performance Post-acquisition

4.2.1. Microsoft's financial performance analysis post-acquisition

Ratios	Mean		Mean diff.	Std. Deviation		t	Sig. (2-tailed)
Liquidity ratios	**Pre**	**Post**		**Pre**	**Post**		
Current ratio	2.445	2.635	-0.190	0.273	0.231	-1.430	0.288
Quick ratio	2.408	2.599	-0.190	0.266	0.223	-1.462	0.281
Cash ratio	0.274	1.463	-1.188	0.087	1.129	-1.929	0.148
Profitability Ratios							
Return on Capital Employed	0.329	0.166	0.162	0.078	0.036	2.476	0.131
Earnings Per Share	2.292	3.334	-1.041	0.379	1.568	-0.964	0.436
EBITDA Margin	0.394	0.467	-0.072	0.053	0.170	-0.565	0.628
Profit margin	0.287	0.232	0.054	0.051	0.080	0.719	0.546
Return on assets	0.204	0.102	0.102	0.049	0.039	2.017	0.181
Return on capital	0.304	0.154	0.149	0.076	0.062	1.897	0.198
Profit per employee	0.754	0.842	-0.088	0.045	0.117	-1.935	0.192
Turnover Ratios							
Inventory turnover	15.246	16.487	-1.241	1.579	1.463	-0.747	0.532
Receivable turnover	2.105	2.029	0.076	0.035	0.109	1.638	0.243
Assets turnover	0.707	0.297	0.409	0.061	0.218	4.321	0.049
Capital turnover	0.916	0.546	0.369	0.110	0.035	4.406	0.047
Net working capital turnover	1.679	1.040	0.638	0.381	0.128	2.277	0.150
Receivable days	183.315	190.956	-7.641	5.591	13.270	-1.004	0.421
Payable days	100.308	80.272	20.036	15.911	1.196	2.031	0.179
Current assets turnover	1.061	0.664	0.396	0.134	0.064	3.451	0.074
Fixed assets turnover	8.597	3.662	4.935	0.422	0.184	14.258	0.004

Table [IX] Paired Sample T-test of Microsoft's financial performance analysis post-acquisition

4.2.2. Microsoft's performance analysis pre- and post-acquisition:

Ratios	Mean		Mean diff.	Std. Deviation		t	Sig. (2-tailed)
Leverage Ratios	**Pre**	**Post**		**Pre**	**Post**		
Debt	0.463	0.665	-0.202	0.011	0.020	-32.734	0.000
Debt to equity	0.865	1.927	-1.062	0.038	0.176	-13.036	0.005
Equity	0.536	0.346	0.189	0.011	0.023	19.764	0.002
Long term debt to equity	0.159	0.797	-0.638	0.050	0.126	-8.065	0.015
Market Prospect Ratios							
Price to earnings	12.060	28.439	-16.379	2.287	9.757	-2.379	0.140
Price-to-research	24.644	48.745	-24.100	1.968	6.832	-8.575	0.013

Dividend payout	0.291	0.450	-0.158	0.090	0.403	-0.558	0.633
Dividend yield	0.024	0.015	0.009	0.004	0.013	0.899	0.464
Coverage Ratios							
Dividend coverage	4.499	3.385	1.113	1.908	1.964	0.631	0.593
Interest coverage	102.977	12.864	90.112	52.023	2.835	2.848	0.104
Growth Ratios							
Growth	0.257	0.184	0.072	0.089	0.177	0.477	0.681
Sales growth	0.080	0.114	-0.033	0.034	0.047	-1.181	0.359
Total asset growth	0.161	0.124	0.036	0.087	0.100	0.349	0.760
Expenses Ratios							
Operating expense	0.814	0.347	0.467	1.012	0.006	0.804	0.506
Advertising to sales	0.199	0.158	0.041	0.011	0.014	31.51	0.001
Selling and general expense to sales	0.262	0.189	0.072	0.013	0.040	4.416	0.047
R&D to sales ratio	0.134	0.137	-0.003	0.010	0.006	-1.220	0.346

Table [X] Paired Sample T-test of Microsoft's financial performance analysis pre- and post-acquisition

4.2.3. Interpretation of Microsoft's financial performance post-acquisition analysis:

This section presents the Interpretation of a statistical analysis of Microsoft's pre- and post-acquisition performance. A paired sample t-test was carried out to test the hypothesis regarding whether Microsoft's ratios pre- and post-acquisition means' value were significantly different. The common practice is to reject the null hypothesis if the p-value (significance) is less than or equal to 0.05 or to retain it otherwise. LinkedIn was included in Microsoft's consolidated financial statements in the 2017 annual report; therefore, in the following sections the 'pre-acquisition period' refers to the years prior to 2017, and 'post-acquisition period' refers to the years from 2017 to 2019.

The results of the paired sample t-test for the liquidity ratios pre- and post-acquisition are presented in Table IX which illustrates that all liquidity ratios demonstrated slight, but not significant changes in the post-acquisition period. The current ratio rose only to M2=2.635 from M1=2.445, which was statistically non-significant (t=-1.431; P=0.288). Similarly, the quick ratio increased to M2=2.599 from M1=2.408, which was also non-significant (t=-1.462; P=0.281). In addition, the cash ratio increased to M2=1.463 from M1=0.274, which again was statistically non-significant (t=-1.929 P=0.148). Hence, the null hypothesis for liquidity ratios is not rejected, as the analysis revealed no significant difference between the mean value of the liquidity ratios prior and subsequent to the acquisition.

The second part of Table IX presents Microsoft's financial performance measurements in terms of profitability. The table shows that apart from EPS , EBITDA margin, and profit per employee, five profitability ratios exhibited a decline that ranged from sharp to trivial, thereby confirming lower profitability subsequent to the acquisition.Although ROCE showed the sharpest decline across all profitability measurements from M1=0.329 to M2=0.166; (t=2.476, p=0.131); this change is not significant enough to reject the null hypothesis. indicating that acquiring LinkedIn neither added value to Microsoft's shareholders nor decreased their wealth significantly.

EPS increased following the acquisition, to M2=3.334 from M1=2.292. Similarly, EBITDA margin increased from M1=0.394 to M2=0.467 and profit per employee increased from M1=0.754 to M2=0.842. While ROA decreased from M1=0.204 to M2=0.102, and ROC decreased from M1=0.304 to M2=0.154 Profit margin declined from M1=0.287 to M2=0.232; Despite the fluctuation in profitability ratios, the null hypothesis is not rejected as the analysis revealed no significant variance in the profitability ratio means before and after the acquisition.

The turnover ratios illustrated in Table IX relate to an annual income statement amount that is divided by an average asset amount for the year. Generally, the higher the turnover the better. With the exception of the inventory turnover and receivable days ratios which exhibited a small increase post-acquisition; the other

turnover ratios demonstrated a sharp decline. An increase in receivable days indicates ineffective credit and collection efforts, which both lead to worsening financial conditions. Receivable days increased slightly from M1=183.315 to M2=190.956 (t=-1.004; P=0.421). Payable days decreased to M2=80.272 from M1=100.308 (t= 2.031; P=0.179). Asset turnover decreased sharply following the acquisition, from M1=0.707 to M2=0.297 (t=4.321; P=0.049). This statistically significant result suggests that Microsoft's ability to generate sales from its assets decreased following the acquisition.

Capital turnover also decreased significantly post-acquisition, from M1=0.916 to M2=0.546 (t=4.406; P=0.047). On the other hand, fixed assets turnover decreased significantly following the merger, from M1=8.597 to M2=3.662 (t=14.258; P=0.004). Net working capital turnover decreased by a mean difference of 0.638 (t=2.277; P=0.150). Current asset turnover ratio declined by mean difference of 0.396 (t=3.451; P=0.074). Inventory turnover increased only by mean difference of -1.241 (t= -0.747; p=0.532), while Receivable turnover decreased only by mean difference of 0.076 (t=1.638; p=0.243).

The results reported in the previous paragraphs depicted a significant and statistical variance for assets turnover, capital turnover, and fixed assets turnover. Thus, the null hypothesis is rejected in favour of the alternative hypothesis for these ratios. For the other turnover ratios, the null hypothesis is not rejected. Since the difference between the mean values prior and subsequent to the acquisition period was not statistically significant.

Table X presents the results for the financial leverage ratios, which measure the overall debt load of a firm compared to its assets or equity. Heavy reliance on debt is more likely to be costly for stakeholders, as they would face financial distress if a firm defaulted on paying interest or principal. As the table shows, all leverage ratios (debt, debt to equity, equity, and long-term debt to equity) demonstrated significant statistical changes across the period of the study.

Solvency ratio significantly increased from M1=0.463 to M2=0.665 (t=-32.735; P=0.00) which implies a significant rise in Microsoft's leverage. In addition, debt to equity ratio increased from M1=0.865 to M2=1.927. (t=-13.037; P=0.005). Equity ratio fell from M1=0.536 to M2=0.346 post-acquisition, (t=19.764; P=0.002). Finally, long term debt to equity increased post-acquisition from M1=0.159 to M2=0.797 (t=-8.065; P=0.015), which indicates a possible increase in default risk.

Following 2016, the combined company, Microsoft, exhibited a significant variation in terms of the value of its financial leverage ratios compared to the preceding period, whereby higher outstanding long-term debt resulting from the acquisition of LinkedIn significantly impacted the leverage conditions of the acquiring firm (Microsoft). Furthermore, this difference was statistically significant, hence the null hypothesis is rejected in favour of the alternative hypothesis.

Microsoft's market prospect ratios for the period are listed in table X shows that the P/E ratio increased from M1=12.060 to M2=28.439 post-merger due to an rise in share price over earnings. However, this increase was statistically non-significant as (t=-2.379; P=0.140). PRR increased significantly post-acquisition, from M1=24.644 to M2=48.745, (t=-8.575; P=0.013). The increase in P/E and PRR implies that investors are anticipating higher future growth. The table shows that dividend payout only increased from M1=0.291 to M2=0.450 (t=-0.558, P=0.633). Post-acquisition dividend yield ratio fell to M2=0.015 from M1=0.024 (t=0.899; P=0.464). Only PRR demonstrated significant difference following the acquisition i.e. $p<0.05$; thus, the null hypothesis is rejected in favour of the alternative hypothesis.

The coverage ratios presented in Table X show a substantial decrease for Microsoft. Dividend coverage decreased from M1=4.499 to M2=3.385 (t=0.631; P=0.593), and interest coverage declined sharply from M1=102.977 to M2=12.864 (t=2.848; P=0.104). Both ratios did not demonstrate a statistically significant change Microsoft ascribed the increase in interest expense primarily due to higher outstanding long-term debt. Accordingly, the null hypothesis is not rejected by the analysis findings (Microsoft, 2018).

Table X shows that growth ratio decreased from M1=0.257 to M2=0.184 (t=0.477; P=0.681). This was mainly due to the dwindling ROE ratio, which is an essential variable in the growth ratio equation. The table also indicates that the increase in sales growth from M1=0.080 to M2=0.114 was not statistically significant (t=-1.181; P=0.359). In addition, this increase in the sales growth ratio was driven by growth in productivity and business processes, primarily the acquisition of LinkedIn and higher revenue from Microsoft Office (Microsoft, 2018,).

Finally, the mean value of total assets growth post-merger slowed insignificantly following the acquisition, from M1=0.161 to M2=0.124, (t=0.349; P=0.760). Thus, the acquisition of LinkedIn did not foster the growth of Microsoft in the period following the acquisition and no significant difference in growth ratios was detected; therefore, the null hypothesis for growth ratios is not rejected.

Table X lists four ratios pertinent to Microsoft's expenses. According to the analysis output, the operating expense ratio decreased insignificantly during the period studied, from M1=0.814 to M2=0.347, (t=0.804; P=0.506). Notably, the advertising to sales ratio decreased from M1=0.199 to M2=0.158, which was a statistically significant change as (t=31.513; P=0.001). Similarly, the selling and general expense ratio was observed to be significantly lower following the acquisition, decreasing to M2=0.189 from M1=0.262 (t=4.416; P=0.047). This decline in the expense ratios implies cost reduction achieved through synergies created by the acquisition of LinkedIn.

R&D to sales ratio increased only from M1=0.134 to M2=0.137, which was not a statistically significant change (t=-1.220 and P=0.346). The increase in research and development expenses can be attributed to the enormous acquisition of LinkedIn. The changes in the mean values of the selling and general expense ratio and the advertising to sales ratio were highly unusual and statistically significant, indicated by their p-values of < 0.05, i.e. close to zero. Thus, the null hypothesis is rejected in favour of the alternative hypothesis with regard to these ratios.

4.2.4. LinkedIn's contributions to Microsoft's performance:

Following the merger in 2017, Microsoft's revenue increased by 5%, driven primarily by the acquisition of LinkedIn and higher revenue from other segments. LinkedIn contributed a revenue of $2.3 billion. Microsoft's gross margin rose by 6% — $3.1 billion. However, Operating income rose by 11% and included a net operating loss of $948 million pertaining to the acquisition of LinkedIn. All were attributed to growth across each segment, including the acquisition of LinkedIn.

In 2018, Microsoft's revenue grew by $13.8 billion (14%), and LinkedIn's contribution increased to $5.3 billion. Microsoft's operating income increased by $6.0 billion (21%) compared to 2017 and included LinkedIn's operating loss, which amount to $987 million. Cost of revenue increased by $4.1 billion (12%), and marketing and R&D expenses increased by $2.0 billion (13%) and $1.7 billion (13%) respectively, mainly due to an increase in investments and LinkedIn spending.

In 2019, Microsoft's revenue experienced slower growth ($33.7 billion — 12%) in comparison to 2018. LinkedIn revenue was up by $371 million 25%, gross margin rose by $1.2 billion 16%, driven by growth in different segments and LinkedIn, and marketing expenses increased by $202 million 4%, driven by investments in LinkedIn and GitHub (a company acquired by Microsoft for $7.5 billion in 2018).

4.3.DuPont model analysis of Microsoft & LinkedIn VS high-tech M&As:

Tax burden (TB)	Company	Mean		Mean Diff.	Std. Deviation		t-value	Sig. (2-tailed)
		Pre	Post		Pre	Post		
(-6, +3)	Microsoft	0.798	0.756	0.042	0.032	0.261	0.318	0.780
(-4, +4)	HP	0.752	0.811	-0.059	0.115	0.092	-4.472	0.020
(-4, +4)	Facebook	0.460	0.764	-0.304	0.236	0.119	-2.067	0.130

(-4, +4)	Symantec	0.343	0.691	-0.348	0.641	0.254	-1.351	0.269
Interest burden (IB)								
(-6, +3)	Microsoft	1.022	1.031	-0.008	0.011	0.012	-2.111	0.169
(-4, +4)	HP	0.975	1.012	-0.037	0.327	0.021	-0.221	0.839
(-4, +4)	Facebook	0.962	1.009	-0.047	0.030	0.011	-3.436	0.041
(-4, +4)	Symantec	2.206	1.179	1.026	2.301	0.135	0.930	0.420
EBIT margin								
(-6, +3)	Microsoft	0.342	0.302	0.040	0.046	0.048	0.791	0.511
(-4, +4)	HP	0.071	0.028	0.042	0.026	0.031	1.807	0.168
(-4, +4)	Facebook	0.333	0.435	-0.101	0.159	0.062	-1.031	0.378
(-4, +4)	Symantec	0.210	-0.195	0.406	0.138	0.571	1.250	0.299
Total Assets Turnover (TAT)								
(-6, +3)	Microsoft	0.707	0.297	0.409	0.061	0.218	4.321	0.049
(-4, +4)	HP	1.318	1.072	0.245	0.078	0.053	5.900	0.009
(-4, +4)	Facebook	0.544	0.510	0.034	0.169	0.090	0.269	0.805
(-4, +4)	Symantec	0.496	0.349	0.146	0.012	0.057	6.345	0.007
Equity Multiplier (EM)								
(-6, +3)	Microsoft	1.845	2.892	-1.047	0.052	0.206	-7.784	0.016
(-4, +4)	HP	2.036	2.009	0.027	0.239	0.056	0.243	0.824
(-4, +4)	Facebook	1.211	1.127	0.084	0.090	0.025	1.477	0.236
(-4, +4)	Symantec	1.774	1.796	-0.021	0.174	0.616	-0.054	0.960
Return on Equity (ROE)								
(-6, +3)	Microsoft	0.280	0.232	0.048	0.050	0.080	1.209	0.350
(-4, +4)	HP	0.060	0.022	0.037	0.034	0.026	1.680	0.191
(-4, +4)	Facebook	0.176	0.340	-0.164	0.115	0.090	-1.882	0.156
(-4, +4)	Symantec	0.139	-0.224	0.363	0.111	0.579	1.154	0.332

Table [XI] Paired Sample T-test of DuPont analysis of Microsoft & LinkedIn against similar acquisitions

Using the method proposed by Firer (1999), ROE was disaggregated in order to provide deep insights into the main drivers of the ROE of the Microsoft and LinkedIn acquisition in comparison to other historical high-tech M&As that have occurred in the last two decades. A comparative analysis of ROE is vital to reaching a logical inference regarding whether M&As add value to acquirers' shareholders. It ought to be noted that the aim is not to compare various companies in terms of their performance, but to attempt to find more evidence regarding the added value of M&As. A sample size of four years pre-acquisition and four years post-acquisition (-4, +4) are used.

The DuPont analysis addresses this concern by disaggregating ROE to discern which characteristics drive its movement. The DuPont formula allows analysists to objectively ascertain whether a firm is creating value for shareholders effectively; that is, it measures how efficiently management employs shareholder equity to generate profits. Technically, ROE measures the net income in comparison to shareholder equity regardless of assets funded by debt. Firms may increase ROE by funding lucrative projects either through raising capital or issuing further debt. The latter, if it is selected, improves ROE without adding value to shareowners. However, it is desirable for a firm to increase ROE through improving either TAT or NPM.

The formula of DuPont disintegrates ROE into three distinct components:
Net profit margin NPM, total asset turnover TAT, and financial leverage FL or equity multiplier EM. It can also be disintegrated further into five-factor model, as equation 4 below demonstrates, by adding interest burden IB, and tax burden TB and using EBIT margin instead of NPM Firer (1999). The five-factor model is employed to provide a deeper understanding of how tax and interest affect ROE.

$$Return\ on\ equity\ (ROE) = \frac{Net\ income}{Shareholders'\ equity} \quad (1)$$

$$Return\ on\ equity\ (ROE) = EBITM\ \times TAT\ \times\ EM \quad (2)$$

$$Return\ on\ equity\ (ROE) = \frac{Profit\ after\ tax}{Turnover} \times \frac{Net\ Revenue}{Total\ assets} \times \frac{Total\ assets}{common\ equity} \quad (3)$$

$$Return\ on\ equity\ (ROE)\ = \frac{Net\ Income}{EBT} \times \frac{EBT}{EBIT} \times \frac{EBIT}{Net\ Revenue} \times \frac{Net\ Revenue}{Total\ assets} \times \frac{Total\ assets}{common\ equity} \quad (4)$$

Table XI presents a comparative analysis of four historical high-tech mergers. These companies were selected according to the similarities between the companies' activities and the availability of data. The sample included eight years — four years pre-acquisition and four years post-acquisition — for each company.

***Brief of the comparative merger's cases:**

Ranking second in size below the Microsoft and LinkedIn acquisition, Hewlett-Packard HP acquired Compaq in 2001 for approximately $25 billion. The acquisition led to a drop in HP's stock prices to less than half, and they have not recovered since (Hewlett-Packard, 2001). Next, Facebook closed its landmark $19 billion acquisition of WhatsApp in 2014, followed by more than a threefold increase in its share price (Olson, 2014). Finally, Symantec Corp. acquired VERITAS Software Corp. for $13.5 Billion, and fluctuations in its share prices lasted for more than five years following the acquisition (Flynn, 2004).

4.3.1. Interpretation of five-factor DuPont model analysis:

Table XI presents the first components of the five-factor DuPont model, the TB ratio, which measures the effect of taxes on a firm's net income. A higher ratio is favourable, since it implies that lower taxes will be paid. The table shows Microsoft's tax burden decreased slightly, from M1=0.798 to M2=0.756; (t=0.318; P=0.780). On the other hand, HP's post acquisition ratio spiked, from M1=0.752 to M2=0.811, which was a statistically significant change t=-4.472; P=0.020. This suggests that that HP kept more of its pretax income. Facebook's tax burden also increased following its acquisition, with a mean difference of -0.304; t=-2.067; P=0.130. Finally, Symantec's tax burden was the lowest compared to the other companies', as it increased post-acquisition with a mean difference of -0.348, (t=-1.351; P=0.269), indicating that Symantec payed more taxes as a percentage of pretax profits than the other companies.

The second DuPont component, IB shows the residual EBIT after subtraction of interest expense. As the table XI demonstrates, Microsoft's IB increased from M1=1.022 to M2=1.031 (t=-2.111; P=0.169). HP's ratio increased only with a mean difference of -0.037, (t=-0.221; P=0.839). Facebook's ratio increased to M2=1.009 over the post-acquisition period compared with M1=0.962, which was a statistically significant change (t=-3.436; P=0.041). This suggests that Facebook reduced its interest expense following the merger. Finally, although Symantec's ratio decreased with a mean difference of 1.026, which was not a significant variance (t=0.930; P=0.420), it scored the healthiest interest burden ratio following the merger with M2=1.179.

Table XI presents a comparison of the third component: OPM or EBIT margin. OPM measures how much profit a firm yields on a dollar of sales, after paying off all variable costs of revenue, such as R&D, sales and marketing, and general and administrative expenses. Microsoft's EBIT margin decreased from M1=0.342 to M2=0.302, which was not found to be a statistically significant change (t=0.791; P=0.511). HP experienced approximately the same reduction as Microsoft, with a mean difference of 0.042 and a non-significant variance was observed (t=1.807; P=0.168). Following the acquisition, Symantec's ratio fell non-significantly below zero, to M2=-0.195 from M1=0.210, (t=1.250; P=0.299). Only Facebook saw a growth in its EBIT margin, with mean difference of -0.101; however, this was also a statistically non-significant change (t=-1.031; P=0.378).

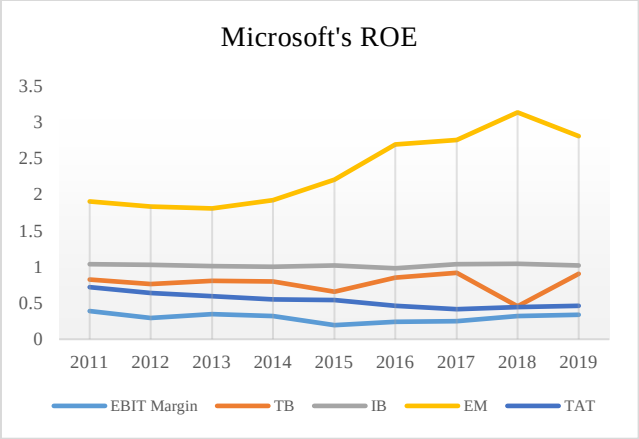
Table XI shows assets turnover ratio (the fourth component), which measures a firm's level of efficiency in utilizing its total assets to generate revenue. Microsoft's ratio decreased following the acquisition, which was statistically significant (t=4.321; P=0.049), this indicates a decrease in the amount of dollars of revenue generated per dollar of assets. Both HP and Symantec experienced a significant deterioration in asset turnover. HP's ratio decreased from M1=1.318 to M2=1.072; (t=5.900; P=0.009). In addition, Symantec's ratio decreased from M1=0.496 to M2=0.349; (t=6.345) and very close to zero P=0.007). Despite the decrease in Facebook's ratio with a mean difference of 0.034, this change was not observed to be statistically significant (t=0.269; P=0.805). HP's post-acquisition turnover ratio was superior to the other companies', implying an efficient utilization of its assets in yielding revenue.

EM ratio in table XI measures the amount of total assets funded by shareholder equity. A high EM enables ROE to be marginally higher, but at the expense of high default risk. Microsoft's EM post-acquisition increased from M1=1.845 to M2=2.892, which was observed to be a significant variance t=-7.784; P=0.016, thereby revealing a positive effect on ROE with an increase in debt and interest. HP's EM following the acquisition only decreased by a mean difference of 0.027, which was not observed to be significant t=0.243; P=0.824, and Facebook's EM decreased non-significantly by a mean difference of 0.084 (t=1.477; P=0.236) causing a slight reduction in the firm's ROE. Finally, Symantec's EM increased only by a mean difference of -0.021 (t=-0.054; P=0.960).

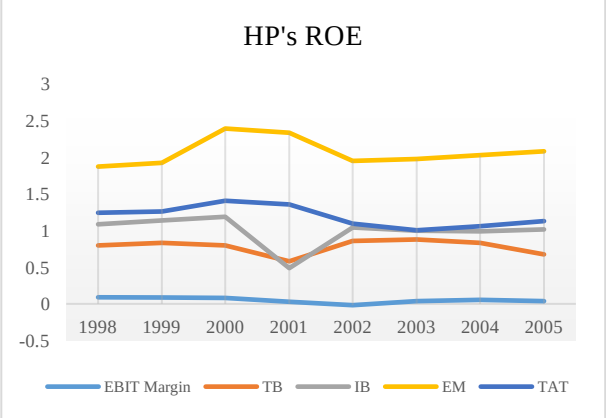
The last part of Table XI presents the result of multiplying the five factors altogether to obtain the ROE values. Apart from Facebook, all companies experienced lower ROE following their mergers. However, neither the decline nor the increase in ROE were perceived to be statistically significant. Microsoft's ROE decreased from M1=0.280 to M2=0.232, with t=1.209 and P=0.350. HP's ROE decreased by a mean difference of 0.037, with t=1.680; P=0.191, and Symantec's ROE fell from M1=0.139 to M2=-0.224, which was observed to be statistically non-significant t=1.154; P=0.332. Only Facebook experienced an increase in ROE after acquiring WhatsApp from M1=0.176 to M2=0.340. Nevertheless, the paired sample t-test confirmed the change to be non-significant t=-1.882; P=0.156.

To conclude, the DuPont analysis revealed that M&As neither added value to shareholders of acquiring firms nor decreased their wealth significantly. Therefore, the null hypothesis with respect to Microsoft's shareholders value is not rejected. Microsoft experienced a decline in tax burden, total asset turnover, and EBIT margin, which contributed to a lower ROE in a post-acquisition period.

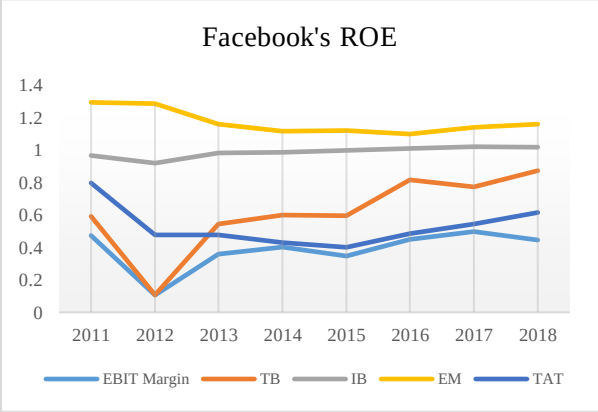
Furthermore, some of the drivers of ROE were observed to have a significant negative impact on ROE (such as asset turnover ratio for Microsoft, HP, and Symantec), whereas a higher EM ratio had a magnifying effect on the profitability of all companies post-acquisition, yet it did not change Microsoft's net income or revenue. This means the additional leverage is not adding any actual value to Microsoft's shareholders. Also, high EM also implies higher interest expense (lower interest burden ratio); hence, companies should attempt to maintain a trade-off between equity and debt. Graphs XII – XIV, below, present the drivers of ROE over the period examined. It can be clearly observed that EM ratio is dominant factor and vastly superior to other ratios in strengthening ROE.



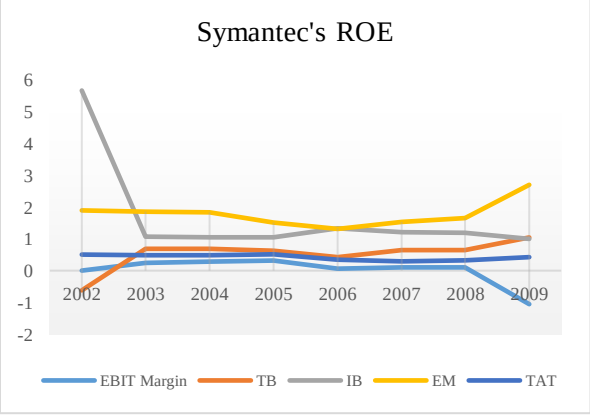
Graph [XII]



Graph [XIII]



Graph [XIV]



Graph [XV]

4.4. Analysis of Pre-and Post-acquisition stock's return of acquiring firms

Stock return $ per share of Microsoft and comparable acquisitions

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	t	Sig. (2-tailed)
Microsoft Pre-acquisition	757	-0.0925	0.1045	0.0008	0.0152	-0.545	0.586
Microsoft Post-acquisition	754	-0.0543	0.0757	0.0012	0.0138		
HP Pre-acquisition	751	-0.1009	0.1104	0.0012	0.0318	0.430	0.667
HP Post-acquisition	756	-0.0744	0.0744	0.0007	0.0212		
Facebook Pre-acquisition	752	-0.1170	0.2961	0.0014	0.0286	0.125	0.901
Facebook Post-acquisition	760	-0.0677	0.1552	0.0012	0.0164		
Symantec Pre-acquisition	756	-0.1646	0.1255	0.0019	0.0295	1.776	0.076
Symantec Post-acquisition	754	-0.1929	0.0911	- 0.000	0.0200		
Valid N (listwise)	751						

Table XVI Descriptive statistics and paired sample t-test of stock return

Table XVI presents descriptive statistics for four high-tech M&As. The daily stock price was considered when calculating daily return pre- and post-acquisition. The sample size consisted of data related to three years prior to and three years following acquisition for each firm. The table shows that apart from Microsoft, all acquisition deals exhibited a lower mean stock return in the post-acquisition period. Prior to the acquisition, the minimum return (loss) for Microsoft was $-0.0925, but this decreased following the acquisition to a minimum of $-0.0543. However, the difference between the minimum return (loss) and the mean decreased from $-0.0917 to $-0.0531. Whereas the mean return increased slightly from $0.0008 to $0.0012; the maximum return declined unfavourably from $0.1045 pre-acquisition to $0.0757 post-acquisition.

HP's minimum price loss=$-0.1009, yet this increased following the acquisition to a minimum of $-0.0744. The difference between the minimum return (loss) and the mean decreased from $-0.0996 to $-0.0737 following the acquisition. The mean return decreased slightly from $0.0012 to $0.0007, and the maximum return declined from $0.1104 pre-acquisition to $0.0744 post-acquisition.

In a similar manner to Microsoft and HP, Facebook's minimum loss declined from $-0.1170 to $-0.0677 following the acquisition. The difference between the minimum return (loss) and the mean decreased from $-0.1156 to $-0.0665. The maximum return achieved by Facebook declined from $0.2961 pre-acquisition to $0.1552 post-acquisition.

Symantec's descriptive statistics reveal an exacerbation of all indicators post-acquisition. The mean dropped below zero -0.0000, the maximum return declined by $0.0343, and the minimum loss worsened from -0.1646 to -0.1929. This suggests a negative effect of the M&A on Symantec's stock return in the long-run.

On average, Microsoft scored better mean post-acquisition, since the mean value was higher post-acquisition which amount to $0,0012. Also, it reported more consistent scores demonstrated by lowest standard deviation among other M&A cases, which equals 0.0138. However, neither Microsoft, nor other acquisition cases examined, have experienced a significant stock return (loss) as P> 0.05. Hence, the null hypothesis with respect to Microsoft's stuck return is not rejected, as the analysis revealed no significant difference between the mean value of the stock return of Microsoft prior and subsequent to the acquisition.

Charts XVII and XVIII, below, illustrate Microsoft and LinkedIn's stock price movements in the period from the acquisition announcement until the deal was closed. It shows that LinkedIn share prices fell steeply from a peak of $250 per share in December 2015 to a minimum of $100 per share in February 2016. However, the firm recovered from this sharp fall in its share price, as its stock price increased to $195 per

share following the acquisition announcement and remained at the same level until the last quarter of the same year. Microsoft's share price increased from $51 per share in June 2016 to $62.14 in December 2016. Over the period 2017–2019, Microsoft's stock price rose gradually to $140.19 — a twofold increase since the acquisition announcement in June 2016.

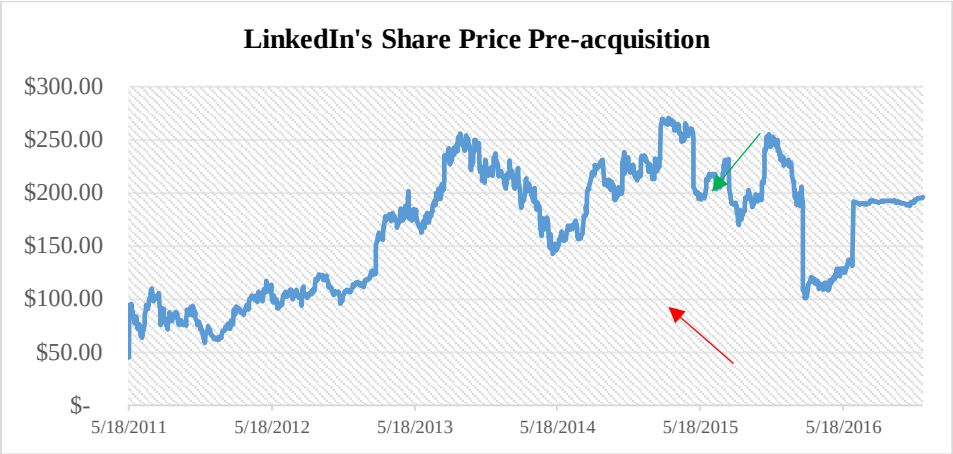


Chart [XVII] (Bloomberg, 2019) per-share

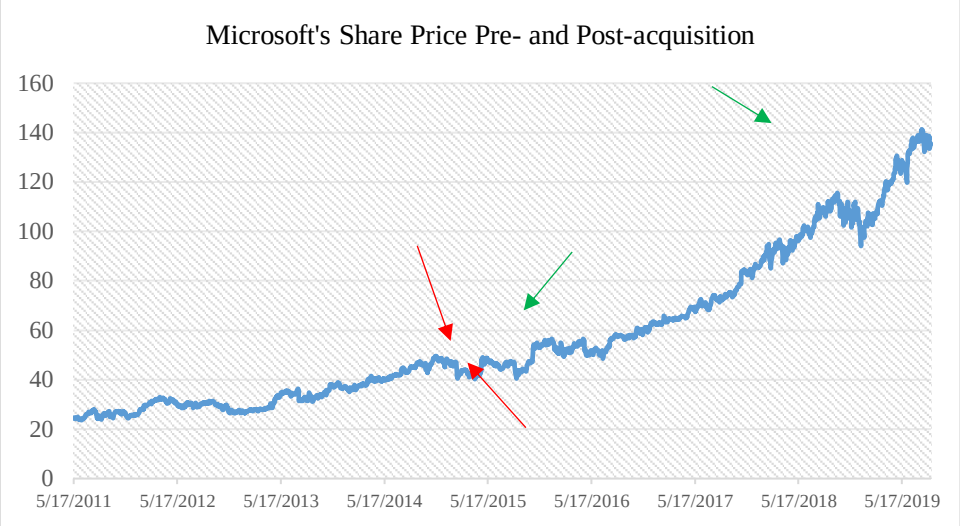
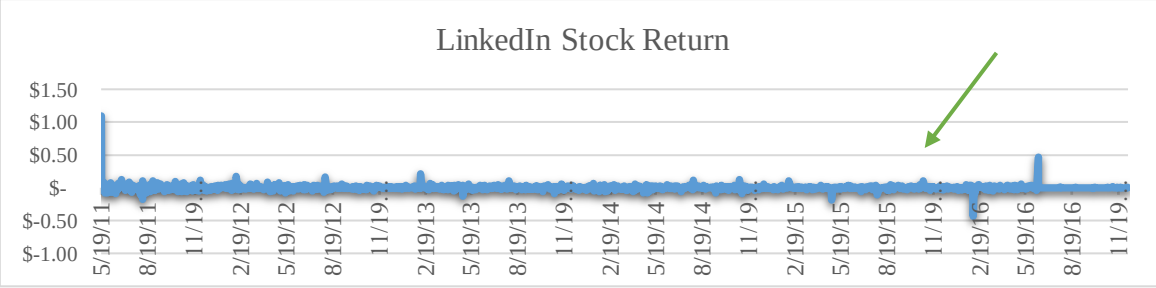
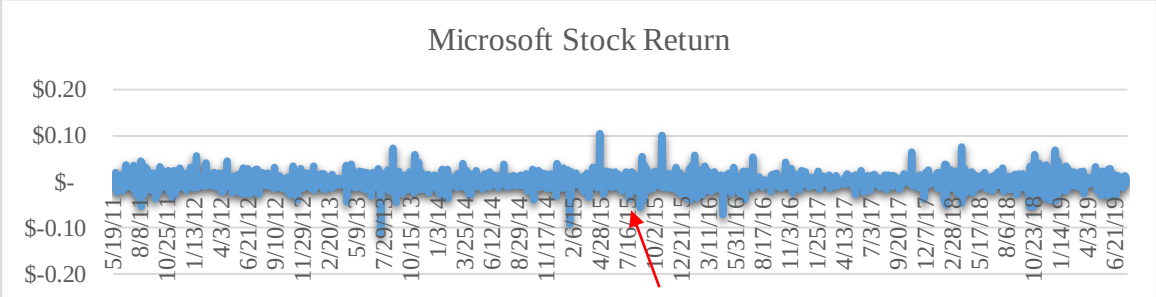


Chart [XVII] (Bloomberg, 2019) per-share



Graph [XIX] Plot of LinkedIn's daily (Return) time-series between May 2011 and November 2016. (Bloomberg, 2019)



Graph [XX] Plot of Microsoft's daily (Return) time-series between May 2011 and July 2019. (Bloomberg, 2019)

Graph XIX illustrates LinkedIn's stock earnings since the company started trading publicly. It can be clearly observed that following the acquisition announcement on 13 June 2016, LinkedIn's shares achieved a return of $0.5 per share. This level has not been reached since the jump in its share price from $45 per share to approximately $95 per share the day after going public. However, Graph XX shows that Microsoft as an acquiring firm experienced a loss that ranged from $0.02 to $0.04 per share, as a result of a drop in its share price from $51 per share to $48.43 per share. No significant return (loss) was observed either when closing the deal or over the long run.

5.0.Conclusion and discussion:

A comprehensive financial analysis was carried out to investigate whether the Microsoft and LinkedIn merger has led to an increase in shareholder value. This acquisition is considered one of the biggest M&As in the high-tech sector and by far the largest deal in Microsoft's history. LinkedIn had only operated for six years as a publicly listed company before being taken over by Microsoft. The investigation showed that prior to the acquisition, LinkedIn's performance had rapidly deteriorated as a result of its heavy investment strategy, which required significant time and management commitment to be successful. However, in 2016, following the acquisition announcement and during the integration process, LinkedIn experienced a slight enhancement in liquidity ratios, profitability ratios, financial leverage ratios, coverage ratios and its share price.

An analysis of the effect of the M&A on Microsoft found that the firm experienced a significant variation in the post-acquisition period in terms of its financial leverage ratios, whereby a higher outstanding long-term debt resulted from acquiring LinkedIn significantly impacted the leverage conditions. In particular, debt ratio, debt to equity ratio, and long-term debt to equity experienced a significant increase, whereas equity ratio exhibited a significant decrease This could have led to a financial difficulties, if LinkedIn performed poorly and Microsoft could not settle its debt. In addition, Microsoft's assets turnover, capital turnover and fixed asset turnover experienced a severe decline after the acquisition of LinkedIn. The analysis also revealed that the acquisition impacted Microsoft's expenses ratios, as the selling and general expenses to sales ratio and advertising expenses to sales ratio were observed to be significantly lower post acquisition, indicating that Microsoft might have reaped part of the benefits of synergies created by this acquisition. With exception of Profit per employee, all profitability ratios have insignificantly decreased post-acquisition. These findings are in fact consistent with the findings of Harvey (2015), Rozen-Bakher (2018) and Patel (2018), who argued that M&As do not lead to improved profitability. The result is also consistent with Prasad (2012), who claimed that M&As reduce profitability and liquidity ratios, and increase leverage ratios.

The breakdown of ROE into five factors revealed that all the acquisition deals discussed did not lead to statistically significant changes in ROE. Microsoft experienced an increase in EM and IB offset by a decline in TB, TAT, and EBIT margin, which contributed to a lower ROE. It was found that EM played a critical role in strengthening ROE in all acquisition cases, due to funding the acquisitions with debt. This result is consistent with the findings of Rani *et al.* (2013) regarding the decrease in TAT and the increase in EM post acquisition. It is also consistent with Collier *et al.* (2010), who found NPM to have a negative effect on ROE, as well as Mantravadi and Reddy (2007), who showed that increase in financial leverage and interest expense impacts ROE negatively.

Finally, these findings are consistent with the work of Moeller *et al.* (2004), which posited that acquiring a public company results in loss of shareholders' wealth for an acquirer. Gurrib (2015) and Datta *et al.*(1992) also found M&As to be more lucrative for target's shareholders than acquiring's shareholders. Thus, all of these findings support the notion that shareholders of an acquiring firm lose out when acquiring a publicly listed firm, as proposed by Fuller *et al.* (2002), and they are also consistent with the work of King *et al.* (2014), which demonstrated that acquiring firms earn a zero or negative return. Indeed, despite the deal being completed totally in cash, the analysis shows that Microsoft's stockholders experienced a reduction in the value of their shares. This is inconsistent with the work of Loughran and Vijh (1997) and André *et al.* (2004), which indicated that M&As financed by cash lead to a positive return for acquiring firms.

In conclusion, although the evidence found in the literature with respect to post-acquisition performance is mixed, the majority of research found M&As to have a negative impact on the acquiring firm. This study shows that the acquisition of LinkedIn by Microsoft impacted the financial performance of Microsoft negatively, and it did not benefit Microsoft's shareholders. Charts XXI-XXV below depict fundamental financial statements elements including: revenue, net income, earnings per share, cash flow, long term debt pre- and post-acquisition LinkedIn's revenue post-acquisition. It is apparent that long-term debt and EPS have largely increased post-acquisition, while other elements have experienced slow growth. In addition, LinkedIn's revenue as a part of Microsoft has been growing in a slow pace as it appears in table XXV. It should be noted that in fiscal year 2017, Microsoft incurred operating loss of $924 million after amortizing $866 million of intangible assets related to LinkedIn. The same occurred in the year 2018, after amortizing $1.5 billion Microsoft made a $987 million operating loss related to LinkedIn, which will proceed for almost 20 years as it was highlighted in Microsoft's 2018 annual report. It seems that Microsoft pinned its hopes on LinkedIn to drive its growth in the tech-sector; however, these hopes might have been raised to unrealistic levels. This might not only hinder Microsoft's ability to achieve its growth goals, it could also lead to negative effects on its financial position. Nevertheless, Microsoft's share price reached its peak of $140 per share, which implies that the market anticipates potential high growth of Microsoft. Perhaps the size effect could have prevailed in Microsoft & LinkedIn acquisition, as the size of Microsoft prior to the acquisition was 12 times larger than LinkedIn (12:1), making the effect of LinkedIn on the financial performance less apparent. Fuller *et al.*, (2002) argued that the size of the acquired firm is relative to the acquirer's return, whereby the larger the acquired firm, the higher the return. In 2018, Microsoft have also acquired Github (software development platform) for 7.5 billion in an all-stock transaction. This might have exerted a positive or negative effect on the financial performance. This means the post-acquisition financial performance cannot be attributed solely to the acquisition of LinkedIn, since Microsoft have a continuous strategy to expand its market share and diversify its services.

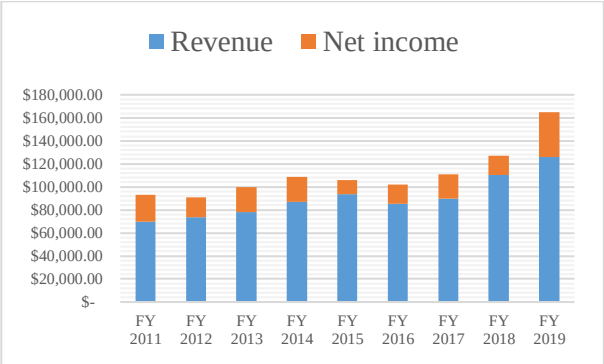


Table XXI Microsoft's Revenue & Net income (in million)

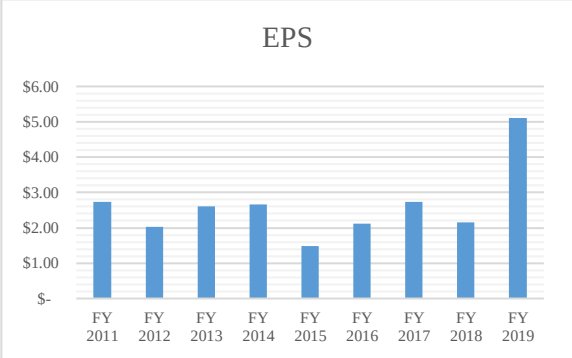


Table XXII Microsoft's EPS

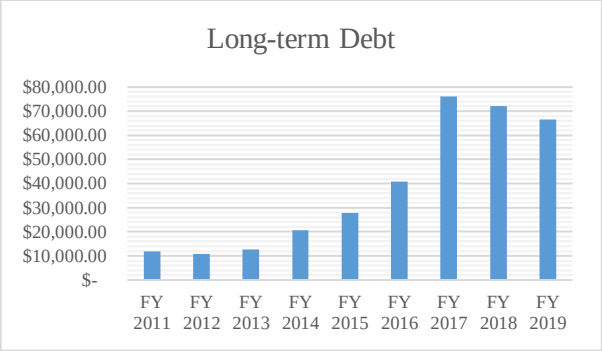


Table XXIII Microsoft's long term-debt (in million)

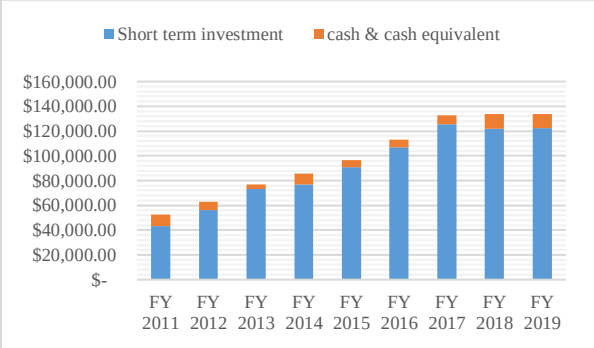


Table XXIV Microsoft's short-term investments cash flow (in million)

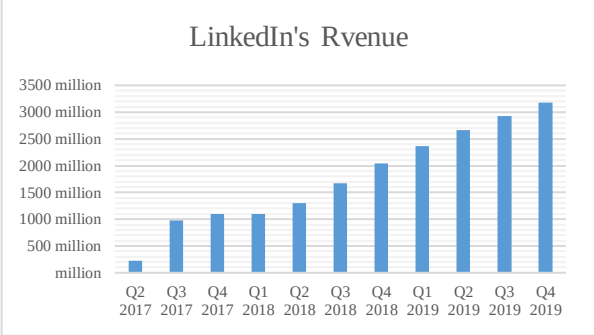


Table XXV LinkedIn's revenue post-acquisition (in million)

6.0.Limitations:

All information used to calculate ratios was extracted from the annual reports of Microsoft and LinkedIn, which genuinely reflect historical results but under no circumstances represent future performance. This research can be considered a case study sample, which restricts the generalization of the findings. Additionally, a further analysis to assess whether managerial objectives have driven the acquisition of LinkedIn by Microsoft could not be performed due to the time constraint.

7.0.Recommendations:

Since only two methodologies were employed to analyse this case study, future studies should consider applying other analysis techniques to evaluate the effect of M&As on the acquirer's performance. Also, by considering macroeconomic factors such as business cycle and rate of inflation, a researcher could draw more comprehensive conclusions regarding the effect of M&As on a firm performance. In addition, the construction of a framework that specified methodologies, sample, benchmarks, and most importantly the definition of performance would be vital steps in reaching a reasonable result.

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9.0.APPENDIX:

Financial ratio equation:

Liquidity ratio:

$$Current\ ratio = \frac{Current\ assets}{Current\ libilities}$$

$$Quick\ ratio = \frac{Current\ assets - Inventory}{Current\ libilities}$$

$$Cash\ Ratio\ = \frac{Cash\ +\ Marketable\ Securities}{Current\ libilities}$$

Turnover Financial Ratio:

$$Inventory\ Turnover = \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory}$$

$$Receivable\ Turnover\ Ratio\ = \frac{Net\ Credit\ Sales}{Average\ Accounts\ Receivable}$$

$$Net\ credit\ sales = (cash\ received - initial\ accounts\ receivable\ + ending\ accounts\ receivable)$$

$$Assets\ Turnover\ Ratio\ = \frac{Net\ Rvenue}{Average\ total\ assets}$$

$$Capital\ Turnover\ Ratio = \frac{Net\ Revenue}{Capital\ Employed}$$

$$Capital\ employed = Total\ assets - Current\ liabilities$$

$$Net\ Working\ Capital\ Turnover\ Ratio = \frac{Net\ Revenue}{Net\ Working\ Capital}$$

$$Net\ Working\ Capital\ Turnover\ Ratio = Current\ assets - current\ liabilities$$

$$Receivable\ days = \frac{Receivables}{Net\ credit\ sales} \times 365\ days$$

$$Net\ credit\ sales = (cash\ received - initial\ accounts\ receivable\ + ending\ accounts\ receivable)$$

$$Payable\ days = \frac{Payables}{Net\ credit\ purchases} \times 365\ days$$

$$Net\ Credit\ Purchases = COGS + Ending\ Inventory - initial\ inventory$$

$$Current\ assets\ turnover\ ratio(CATR) = \frac{Net\ Revenue}{Average\ current\ assets}$$

$$Fixed\ assets\ turnover\ ratio(FATR) = \frac{Net\ Revenue}{Fixed\ assets - accumulated\ depreciation}$$

9.1.1. Profitability Ratios:

$$Return\ on\ capital\ employed\ Ratio = \frac{Profit\ Before\ Interest\ and\ Tax}{Total\ Capital\ Employed}$$

$$Total\ capital\ employed = Total\ assets - Current\ Liabilities$$

$$Return\ on\ Equity\ Ratio = \frac{Profit\ After\ Tax}{Shareholder's\ equity} * 100$$

$$Earnings\ Per\ Share\ Ratio = \frac{Earnings\ After\ Tax - Preference\ Dividends}{Number\ of\ Ordinary\ Shares}$$

$$EBITDA\ margin\ ratio = \frac{EBITDA}{Net\ Revenue}$$

$$Profit\ margin\ ratio = \frac{Net\ income}{Net\ revenue}$$

$$Return\ on\ asset\ ratio(ROA) = \frac{Net\ income}{Average\ total\ assets}$$

$$Return\ on\ capital\ ratio(ROC) = \frac{Net\ income}{Debt + equity}$$

$$Profit\ per\ employee\ ratio(ROC) = \frac{Net\ revenue}{Number\ of\ employee}$$

9.1.2. Financial leverage ratios:

$$Debt\ ratio\ = \frac{Total\ liabilities}{Total\ assets}$$

$$Debt\ to\ equity\ ratio\ = \frac{Total\ liabilities}{Shareholder's\ quity}$$

$$Equity\ ratio\ = \frac{Shareholders'equity}{Total\ assets}$$

$$Long\ term\ debt\ to\ equity\ ratio = \frac{Long\ Term\ Debts}{Shareholder's\ Equity}$$

9.1.3. Coverage ratios:

$$Interest\ Cover = \frac{Net\ Profit\ Before\ Interest\ and\ Tax}{Interest\ Expense}$$

$$Dividend\ Cover = \frac{Net\ Profit\ Before\ Interest\ and\ Tax}{Dividends}$$

9.1.4. Market prospect ratios:

$$Price\ Earnings\ Ratio\ = \frac{Market\ value\ per\ share}{Earnings\ Per\ Share}$$

$$Price\ to\ Research\ Ratio\ = \frac{Market\ Capitalization}{Research\ and\ development\ expenses}$$

$$Dividend\ Payout\ Ratio\ = \frac{Dividend\ Paid}{Net\ income}$$

$$Dividend\ Yield\ Ratio\ = \frac{Annual\ Dividends}{Share\ Price}$$

9.1.5. Growth ratios:

$$Sustainable\ Growth\ Ratio = Return\ on\ equity * (1 - Dividend\ payout\ ratio)$$

$$Sales\ Growth\ Ratio\ = \frac{Sales\ of\ current\ year}{Sales\ of\ previous\ year} - 1$$

Total assets growth Ratio =(Total Assets of current year/Total Assets of Previous year)-1

9.1.6. Expenses ratios:

$$Operating\ Expenses\ Ratio\ = \frac{Operating\ Expenses}{Net\ Revenue}$$

$$Sales\ to\ Administrative\ Expense\ Ratio\ = \frac{Sales\ \ (Revenue)}{Administrative\ Expenses}$$

$$Research\ \&\ development\ to\ Sales\ Ratio\ = \frac{R\ \&D\ expenses}{Sales\ \ (Revenue)}$$

$$Selling\ and\ General\ Expenses\ to\ Sales\ Rati = \frac{General\ Expenses}{Sales\ \ (Revenue)}$$

9.2.DuPont analysis equations:

$$Return\ on\ equity = \frac{Net\ income}{Shareholders'\ equity}$$

$$Return\ on\ Assets = \frac{Profit\ after\ tax}{Average\ total\ assets}$$

$$Return\ on\ Assets\ (ROA) = \frac{Net\ income}{Shareholders'\ equity}$$

$$Leverage\ or\ Equity\ multiplier\ (EM) = \frac{Average\ total\ assets}{Average\ equity}$$

$$Net\ profit\ margin\ (NPM) = \frac{Net\ income}{Turnover}$$

$$Total\ assets\ turnover = \frac{Revenue}{average\ total\ assets}$$

$$Tax\ burden = \frac{Net\ income}{EBT}$$

$$Interest\ burden\ = \frac{EBT}{EBIT}$$

9.3. Microsoft's leverage, market prospect, growth, coverage and expenses ratios:

Ratios	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Financial Leverage ratios										
Debt	0.464	0.475	0.453	0.446	0.479	0.546	0.628	0.674	0.68	0.643
Debt to equity	0.865	0.904	0.827	0.804	0.92	1.201	1.69	1.854	2.129	1.8
Equity	0.536	0.525	0.547	0.554	0.521	0.454	0.372	0.364	0.32	0.357
Long term debt to equity	0.107	0.209	0.161	0.16	0.23	0.347	0.566	0.867	0.873	0.651
Coverage Ratios										
Dividend Cover	5.258	4.999	3.24	3.474	2.986	1.791	1.768	1.848	2.71	5.599
Interest Coverage	159.589	92.071	57.271	62.387	46.497	23.254	16.237	10.048	12.828	15.719
Market prospect ratios										
Price-to-Research	22.425	25.332	26.178	27.793	30.408	30.207	33.827	40.955	51.562	53.719
Price to earning	12.577	9.559	14.045	11.885	13.746	30.258	22.776	22.496	39.7	23.121
Dividend payout	24%	23%	40%	35%	42%	83%	68%	0.57	0.781	0
Dividend Yield	2%	2%	3%	3%	3%	3%	3%	0.025	0.02	0

Growth									
Growth	0.307	0.31	0.155	0.179	0.142	0.026	1.49	0.126	0.044	0.383
Sales growth	0.069	0.119	0.054	0.056	0.115	0.078	-0.088	0.059	0.143	0.14
Total asset growth	0.106	0.262	0.116	0.174	0.21	0.022	0.11	0.234	0.034	0.107
Expenses ratios										
Operating expense	1.984	0.223	0.238	0.26	0.31	0.353	0.384	0.355	0.348	0.341
Sales to Administrative Expense	15.605	16.566	16.135	15.119	18.011	20.295	18.698	20.074	23.214	25.761
Advertising to sales ratio	0.211	0.199	0.188	0.196	0.182	0.168	0.172	0.173	0.158	0.145
Selling and general expense	0.277	0.26	0.25	0.262	0.238	0.217	0.226	0.223	0.201	0.145
R&D to sales	0.145	0.125	0.133	0.134	0.131	0.129	0.141	0.145	0.133	0.134

9.4.Microsoft's liquidity, turnover and profitability ratios:

		Total assets	Total equity	Revenue	Net income	EBT	EBIT
Microsoft	2011	108,704	57083	69943	23,150	28,071	27161
	2012	121,271	66,363	73,723	16978	22267	21763
	2013	142,431	78,944	77,849	21863	27052	26764
	2014	172,384	89,784	86,833	22074	27820	27759
	2015	176,223	80,083	93,580	12,193	18,507	18161
	2016	193,694	71,997	85,320	16,798	19,751	20182
	2017	241,086	87,711	89,950	21,204	23,149	22326
	2018	258,848	82,718	110,360	16,571	36,474	35058
	2019	286556	102330	125843	39240	43688	42959
HP	1998	31,708	16,919	39,419	2,945	3,694	3399
	1999	35,297	18,295	42,370	3,491	4,194	3688
	2000	34,009	14,209	48,782	3,697	4,625	3889
	2001	32,584	13,953	45,226	408	702	1439
	2002	70710	36,262	56588	-903	-1,052	-1012
	2003	74708	37,746	73,061	2,539	2,888	2896
	2004	76,138	37,564	79,905	3,497	4,196	4227
	2005	77,317	37,176	86,696	2,398	3,543	3473
Facebook	2011	6,331	4,899	3,711	1,000	1,695	1756
	2012	15,103	11,755	5,089	53	494	538
	2013	17,895	15,470	7,872	1,500	2,754	2804
	2014	40,184	36,096	12,466	2,940	4,910	4994
	2015	49,407	44,218	17,928	3,688	6,194	6225
	2016	64,961	59,194	27,638	10,217	12,518	12427
	2017	84,524	74,347	40,653	15,934	20,594	20203
	2018	97,334	84,127	55,838	22,112	25,361	24913
Symantec	2002	2,502,605	1,319,876	1,071,438	-28,151	45,498	8041
	2003	3,265,730	1,764,379	1,406,946	248,438	363,631	341512
	2004	4,456,498	2,426,208	1,870,129	370,619	542,222	513585
	2005	5,614,221	3,705,453	2,582,849	536,159	858,128	819266
	2006	17,913,183	13,668,471	4,143,392	156,852	362,723	273965
	2007	17,750,870	11,601,513	5,199,366	404,380	631,622	519742
	2008	18,092,094	10,973,183	5,874,419	463,850	712,523	602280
	2009	10,645,130	3,947,988	6,149,854	-6,728,870	-6,454,178	-6,469,910

		Ni/EBIT	Assets/equity	NLM	EBIT/Revenue	Tax burden	Interest burden	Equity multiplier	Assets turnover	ROE
Microsoft	2011	0.8523	1.90431477	1.623095	0.388330498	0.82469452	1.033503921	1.90431477	0.718037954	0.452577
	2012	0.7801	1.827388756	1.425603	0.295199598	0.76247362	1.023158572	1.827388756	0.641139254	0.269815
	2013	0.8169	1.804202979	1.473819	0.343793755	0.80818424	1.010760723	1.804202979	0.590431624	0.299166
	2014	0.7952	1.919985744	1.526776	0.319682609	0.79345794	1.002197486	1.919985744	0.551644617	0.269249
	2015	0.6714	2.200504477	1.477383	0.194069246	0.65883179	1.019051814	2.200504477	0.536879638	0.153931
	2016	0.8323	2.690306541	2.239212	0.236544773	0.85048858	0.978644337	2.690306541	0.461292668	0.244335
	2017	0.9497	2.748640421	2.610507	0.248204558	0.91597909	1.03686285	2.748640421	0.413987675	0.268239
	2018	0.4727	3.129282623	1.47913	0.317669445	0.45432363	1.040390211	3.129282623	0.441498278	0.207449
	2019	0.9134	2.800312714	2.557887	0.341369802	0.89818715	1.016969669	2.800312714	0.461467096	0.402946
HP	1998	0.8664	1.874106035	1.623784	0.086227454	0.79723877	1.086790232	1.874106035	1.242384607	0.173952
	1999	0.9466	1.929324952	1.826267	0.087042719	0.83237959	1.137201735	1.929324952	1.26468174	0.201038
	2000	0.9506	2.393483004	2.275317	0.079722029	0.79935135	1.189251736	2.393483004	1.407728047	0.255352
	2001	0.2835	2.335268401	0.662119	0.031817981	0.58119658	0.487838777	2.335268401	1.3582809	0.028615
	2002	0.8923	1.949975181	1.739948	-0.01788365	0.85836502	1.039525692	1.949975181	1.095668674	-0.03409
	2003	0.8767	1.979229587	1.735243	0.039638111	0.87915512	0.997237569	1.979229587	1.004841216	0.069115
	2004	0.8273	2.026887445	1.676845	0.052900319	0.83341277	0.992666194	2.026887445	1.059424844	0.093977
	2005	0.6905	2.079755756	1.436008	0.040059518	0.67682755	1.020155485	2.079755756	1.129920824	0.065
Facebook	2011	0.5695	1.292304552	0.735937	0.47318782	0.5899705	0.965261959	1.292304552	0.796266495	0.277289
	2012	0.0985	1.284814972	0.126571	0.105718216	0.10728745	0.918215613	1.284814972	0.474853037	0.006354
	2013	0.535	1.15675501	0.618806	0.356199187	0.54466231	0.982168331	1.15675501	0.477119825	0.105166
	2014	0.5887	1.113253546	0.65538	0.400609658	0.598778	0.983179816	1.113253546	0.429277364	0.112707
	2015	0.5924	1.1173504	0.661974	0.347222222	0.59541492	0.99502008	1.1173504	0.400218772	0.091991
	2016	0.8222	1.097425415	0.902261	0.449634561	0.81618469	1.007322765	1.097425415	0.483317012	0.196076
	2017	0.7887	1.136885147	0.896655	0.496962094	0.7737205	1.019353561	1.136885147	0.543907415	0.242367
	2018	0.8876	1.156988838	1.026907	0.446165694	0.87188991	1.017982579	1.156988838	0.614083516	0.281355
Symantec	2002	-3.5009	1.896090996	-6.63809	0.007504867	-0.6187305	5.658251461	1.896090996	0.499017975	-0.02486
	2003	0.7275	1.850923186	1.346482	0.242732841	0.68321458	1.064767856	1.850923186	0.487817022	0.159436
	2004	0.7216	1.836816134	1.325504	0.27462544	0.68351893	1.055759027	1.836816134	0.484349594	0.176312
	2005	0.6544	1.515124062	0.991555	0.317194695	0.62480073	1.047435143	1.515124062	0.512942323	0.161329
	2006	0.5725	1.310547683	0.750322	0.066120946	0.43242915	1.32397569	1.310547683	0.352218375	0.017474
	2007	0.778	1.530047848	1.190438	0.099962572	0.64022469	1.215260649	1.530047848	0.2915746	0.034697
	2008	0.7702	1.648755334	1.2698	0.102525884	0.65099653	1.183042771	1.648755334	0.327786452	0.042674
	2009	1.04	2.696343049	2.804265	-1.052042862	1.04256034	0.997568436	2.696343049	0.428006129	-1.26271