

Project Dissertation Report on

**EVALUATION OF THE PERFORMANCE OF
COMPANIES POST MERGERS AND
ACQUISITIONS DEALS IN TECHNOLOGY
SECTOR**

Submitted By

Prachi Bhatt

2K18/MBA/078

Under the Guidance of

Dr. Sonal Thukral

Assistant Professor



DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

CERTIFICATE FROM MENTOR

Date:

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Major Research Project, Titled *Evaluation of the Performance of Companies post Mergers and Acquisitions Deals in Technology Sector* submitted by Ms *Prachi Bhatt* as partial fulfilment of requirement of the two-year MBA course is a bonafide work carried out by the student at our Institute.

This Dissertation Study is her original work and has not been submitted to any other University/Institute.

Signature:

Name:

Designation:

DECLARATION

This is to certify that I have completed the research project titled “*Evaluation of the Performance of Companies post Mergers and Acquisitions Deals in Technology Sector*”.

This work was done under the guidance of Dr. Sonal Thukral in the partial fulfilment of the requirement for the award of the degree of “Masters of Business Administration” from “Delhi School of Management, Delhi Technological University”.

It is also certified that the project of mine is an original work and the same has not been submitted earlier elsewhere.

Prachi Bhatt
2K18/MBA/078

ACKNOWLEDGMENT

After weeks of deliberation, research and perseverance, this report has finally reached a successful conclusion. I would like to express my appreciation and acknowledge the support and guidance provided to me over the course of preparation of this report. Without guidance, help, cooperation and encouragement, I would not have made headway in the project.

I would like to thank my mentor, Dr. Sonal Thukral, without whom this report would not have reached its fruition. Her guidance, knowledge and insights have proved to be invaluable to this text.

I would like to express my gratitude to *Delhi School of Management* for giving me this opportunity.

I would also like to thank my family and friends for their endless encouragement, patience and support.

EXECUTIVE SUMMARY

Growth is one of the most powerful tools to measure the success of a company. Companies try to make the most out of the resources and opportunities available in order to achieve an optimum level of growth. Companies foray into organic and inorganic growth in order to increase their output and achieve profitability.

This report examines the effect of mergers and acquisitions on the financial performance of companies in the technological sector. In tech sector, M&A has become a strategy to improve the core competencies and reduce the competitors to achieve sustainable growth. Companies looking for aggressive growth and profitability are participating in high valuation deals both domestically as well as globally. For the purpose of this report, 40 companies of the tech sector involved in M&A deals over the last decade have been listed. Our study employs a sample of 40 international mergers and acquisitions in technology sector between 2011 and 2017 with firm level financial data compiled from online databases. The value of these deals falls in the range of US\$ 0.125 billion to US\$ 65 billion. The study uses seven financial parameters to measure the performance of the acquiring company. These are Revenue, Earnings per share, and five accounting ratios – Current Ratio, Debt-Equity Ratio, Return on Investment, Return on Equity and Asset Turnover Ratio. For each deal, we have focused on the acquiring firm's principle financial data for a period of seven years: 3 years before the merger or acquisition, the year of the deal, and 3 years after the deal was completed. The performance of the aforementioned parameters for the seven has been observed on the charts. Correlation and Regression tests have been used on the ratios in the year the deal took place.

On the basis of performances, observed from the charts, a conclusion has been arrived at. It focuses on the movement of the Revenue, EPS and different ratios such as liquidity, profitability, efficiency and leverage. A limitation to the study is that the qualitative factors affecting the ratios have been overlooked and the unavailability of data for certain companies.

Table of Contents

Title	Page No.
CHAPTER 1: INTRODUCTION	7
Background	8-10
History	11-15
Objectives for Mergers and Acquisitions	16-20
Mergers and Acquisitions in Technology Sector	21-24
CHAPTER 2: LITERATURE REVIEW	25-28
CHAPTER 3: RESEARCH PROCESS	29
Objectives and Scope of Study	30
Research Methodology	31-33
Limitations	34
CHAPTER 4: ANALYSIS AN INTERPRETATION	35-41
CHAPTER 5: RECOMMENDATION AND CONCLUSION	42-43
REFERNCES	44-45
APPENDIX	46
Appendix 1: List of Companies	47-48
Appendix 2: Data analysis on SPSS	49-58
Appendix 3: Charts	59-62

Figure/Table	Page No.
Table 1.1 Summarized Mergers and Acquisition Waves	14
Fig. 1.1 M&A Deal Value	21
Fig. 1.2 Steps of M&A	24

CHAPTER 1: INTRODUCTION

BACKGROUND

Growth is often seen as the most powerful tool to measure the success of a company. The different parameters of growth can be measured in terms of revenue earned, market value, market share or portfolio offered by the company. Businesses try to make the most out of the resources and opportunities available in order to achieve an optimum level of growth. Companies try to foray into the opportunities with minimum risk. Further, the pace at which growth is achieved is often determined by the persistence of the company. The ability of the company to withstand the changes necessitated by the requirement of growth and the ease with which it can endure the risk determines the progression of its growth.

Growth, on the basis of its inception, can be divided into two categories. Organic growth is the rate at which a company achieves growth by increasing the production output and boosting sales. The companies seek to grow from within, by optimizing their processes, reallocating resources, changing product offerings, etc. These strategies require careful examination of the internal capabilities and resource constraints of a company. Slower organic growth can put pressure on companies to get involved in high-risk inorganic growth. A lack of growth in the primary markets, followed by an increase in the number of competitors can create challenges to achieve faster growth.

Inorganic growth, on the other hand, is the rate at which growth is achieved by acquiring new business segments. Here, the advantage lies in the immediacy of benefits achieved through inorganic growth, since this growth occurs through transaction. This sudden increase in assets, knowledge, capital can pose a greater risk, in terms of complexities associated with cost, management and operational challenges. M&As are a much more appealing alternative to re-

inventing a company's archaic business model. Furthermore, many consider M&As majorly as a means to increase the size of their business.

While either of these may be effective, the opportunities, threats and trade-offs must be identified and carefully weighed in before the strategy is formulated. Most successful companies have a balance between inorganic and organic strategies. They must, wherever needed, adopt both to further their objective.

The terms "merger" and "acquisitions" are often confused with each other and assumed to be the same. However, they both have significant differences. A merger is the amalgamation, or union, of two or more independent business entities for "pooling of interests". In mergers, the two companies combine to form a new entity in order to enhance its strength and capabilities. The two companies can also consolidate by means of absorption of one company into another. In this, one of the businesses may transfer all its assets to the other, thereby ceasing to exist independently. However, the shareholders of both companies continue to exist.

An acquisition, deemed friendly or hostile, involves taking over of one business entity by another. The target company, tends to purchase all the shares of the company being acquired in order to gain control over it. This includes direct purchase of assets, functional units, product lines and other company-owned resources. Often, acquisitions also include transfer of debt.

Another way in which mergers can be said to differ from acquisitions is that, in mergers, one can assume the involvement of two or more firms with roughly the same size and reach or proportionate/identical resources. However, when one of the two firms involved in a deal is much smaller, the inclination is to categorize their union as an acquisition (J M Pennings, 1996).

According to a report published by Baker Mckenzie, global economic uncertainty and the risk for recession can have a major impact on worldwide M&A deals. It has projected a decline of M&A deals by approximately 25 percent from 2019 to 2020. Asia-Pacific region witnessed slowdown in cross-border activity post the deals in 2018. The forecast predicts M&A activity declining 18% from \$634 billion in 2019 to \$529 billion in 2020 (Baker McKenzie, 2019). However, it is predicted that amidst the global slowdown, companies will try to improve their core competency by means of technological advancements.

With Asia having re-surfaced as a dynamic growth center, India has witnessed robust growth in the past few years. It is needless to say that strong economic fundamentals can lead to an upward trajectory in merger and acquisition activity. The main driving force for inorganic growth, or M&A activity, in India has primarily been the need to reduce the current debt or for the purpose of sector-centered consolidation.

HISTORY

Historically, Merger and Acquisition activity has been known to follow a cyclical path. Often, these periods of activity last for a few years of extensive inorganic growth and is usually followed by a drastic slump. These slumps have been known to cause economic stagnation to the extent of the Great Depression of the 1930s. This cyclical activity is termed as a *wave*.

There have been six major waves of M&A till now. The first wave commenced in 1893 and ended in 1904. The second, third and fourth waves lasted 1910s-1929, 1955-1975 and 1984-1989. The fifth wave, lasting from 1993-2000 was special in the sense that globalization could be observed at the helm. The sixth and final wave lasted 2003-2008. The current M&A activity could very well prove to be the seventh wave.

The first wave was characterized by the simultaneous consolidation of a number of manufacturing firms within the oil and energy industry. This was the start of formation of giant conglomerates within industries and marked by considerable horizontal consolidation. During this period, laws and regulation on concerning incorporations were evolving, meaning that industrialists and entrepreneurs still had unlimited liability on their assets (Sudarshan, 2003). Monopolies were established in markets all over the world. Although probable cause for this activity is as yet unconfirmed, it can certainly be considered an antecedent to future growth surges. This period was also characterized by friendly deals that were carried out primarily by cash.

The second wave commenced in the 1910s and followed the economic downturn caused by the First World War. The primary focus in this wave was on the food, printing, paper and iron industries. Invariably, the impact of the second wave wasn't felt as deeply as that of the first wave. In fact, while the first wave is said to have exceeded more than 15 per cent of assets in

the US market, the second one managed only 10 per cent. A characteristic element of this was the formation of oligopolies. An oligopoly is a market wherein a limited and small number of competitors function within the boundaries of a state. The primary source of financing in this wave was equity, a prominent shift from the cash-based first wave. Vertical integration was a particular endeavor for many businesses. The end of the second wave is marked by one of the biggest events in the history of economic failures, the Great Depression of the 1930s, which hit one of USA's most treasured cities and influenced businesses worldwide.

The third wave came after a considerable period of gap, what with the effects of the Great Depression and the Second World War lasting longer than anticipated. The 1950s were a time when countries became independent and new markets emerged from them. This period was further characterized by restrictions on anticompetitive M&A activity, thereby leading to a number of consolidations between unrelated businesses, such as General Electric's foray into healthcare, transportation and energy. This brought about the beginning of an era of diversification, which was now being seen as a mean of reducing cash flow volatility. Similar to the first wave, the third wave led to the formation of conglomerates. Diversification completely changed the countenance of doing business. These were seen as a means of reducing risk, because insurgencies in unrelated industries would not influence other businesses of a company, thereby allowing them to maintain and generate income even in troubling times. In addition, it allowed companies to exploit growth opportunities in discrete business units and to create their internal capital to fulfill requirements. The latter is extremely useful as external financing is, more often than not, expensive and difficult.

The fourth wave was a short period of 6 years in which the concept of leveraged buyout and "bust-up" takeovers emerged. In leveraged buyout (LBO), the company's own management purchases the business, in part or in entirety, and then proceeds to make a sale of its assets to

meet debt requirements. Both these practices were a means of clearing up the company's debt or meeting capital requirements. The wave is seen by many as a reaction to a weakened stock market. Selling off subsidiaries, or divestitures, represented 20 to 40 per cent of the entire M&A activity. Many companies established their competitive position through divestitures. Financing, too, changed. Businesses began utilizing debt and cash financing compared to equity. In a considerable shift from the third wave, unrelated diversifications were looked down upon. Bids by acquiring firms on targets that were similar in their nature of business were treated with a positive attitude and generally favoured. The stock market crashed soon, signaling the end of the fourth wave.

The fifth wave was a period of radical changes in the world. Countries opened up to each other and trade flowed freely. FDI, a boon for companies seeking geographical expansion, saw a booming presence. As a result, cross-border M&A activity flourished. Technological innovations and growth, which were the leading drivers of this wave, meant that companies had to maintain not just offline presence but also establish an online position. In search of sustainable competitive advantage, companies began focusing more on their core competencies and a resource-based view of the firm. The potential of individual and company resources and capabilities and careful distribution meant that the company was more focused on its long-term gains rather than a short-term picture. Mega mergers, such as Daimler-Chrysler, Exxon-Mobil, and Citibank-Traveler dotted the scenario. Yet again, equity became the favored means of financing. The end of the fifth wave was characterized by the dot com bust.

Table 1.1 – Summarized Mergers and Acquisition Waves

	WAVE 1	WAVE 2	WAVE 3	WAVE 4	WAVE 5	WAVE 6
Period	1893- 1904	1910s- 1929	1955- 1975	1984- 1989	1993- 2000	2003- 2008
Predominant means of payment	Cash	Equity	Equity	Cash/Debt	Equity	Cash/Debt
M&A outcomes	Creation of monopolies	Creation of oligopolies	Diversification and formation of conglomerates	Leveraged Buyouts and “Buts-up” takeover	Globalization	Rise of Private Equity funds
Predominant Nature of M&A	Friendly	Friendly	Friendly	Hostile	Friendly	
Beginning of Wave	Economic expansion, new laws on incorporation, technological innovation	Economic recovery, improved enforcement of antitrust laws	Stronger laws on anticompetitive M&As, economic recovery after World War II	Deregulation of financial sector economic recovery	Strong economic growth, deregulation and privatization	Availability of abundant liquidity, 2001 recession,
End of Wave	Stock market crash, World War I	The Great Depression	Market crash due to oil crisis	Stock market crash	Dot com bust, 9/11 attacks	Subprime mortgage crisis

The sixth wave is characterized by Private Equity (PE) investments, globalization and close shareholder involvement. It closely followed the fifth wave and established a set-up where the shareholders were actively engaged in the running of the company. A key point in this wave was the eagerness of companies to reach to a global market. Lower interest rates, PE involvement and Government support were the key propellers to this wave. The subprime mortgage crisis and the economic recession in the US, the shocks of which could be felt all over the world, marked an end to this wave.

Many academicians mark the period beginning from 2011 as the seventh wave, with M&A activity peaking in 2018. While it is difficult to ascertain the character of M&A in the upcoming years, one may expect cross-border M&As, industrial consolidation and LBOs to continue.

OBJECTIVES FOR MERGERS AND ACQUISITIONS

Companies enter into M&A to maximize their potential of growth by enhancing their production and output. The primary objective for any company pursuing M&A is value creation, or enhancement of the current value derived from the company's operations. From leveraging on the combined strength, reducing competitors, experiencing fast paced growth etc, there are numerous reasons for companies to engage in M&A. While there are multiple reasons, we can characterize them into six major categories:

1. SYNERGY

Synergy means that the combined effect of two entities will be greater than their discrete parts. When two or more companies join forces, they are able to increase their strength and accomplish the one of the two goals of a standard business practice – they either reduce cost or they increase profit. Companies consider synergy as an objective for M&A to enhance their business activities. With combined strength and resources, it becomes easier to achieve the goal that they were unable to do individually. They also believe that coalescing with each other tends to yield more benefits than doing the same separately.

Three types of synergies exist in M&As, namely, revenue, cost and financial. The companies try to find out the one which best fits their goal, vision and mission. Often, companies are able to achieve maximum two types of synergies. These three synergies may imply similar denotations, but their connotations are diverse.

(i) Revenue synergy –

In accounting terms, revenue happens to have the same connotation as sales. Thus, companies that focus on achieving revenue synergy tend to focus on selling products.

Companies that aim to increase their market size in domestic and international markets often look for revenue synergy. The main objective is to increase the market share, thereby targeting more consumers and generating more revenue. Competitors with low market share may also merge to achieve greater performance.

(ii) Cost Synergy

In cost synergy, companies aim to reduce their individual costs as a result of their merger. When it becomes difficult to increase revenue, companies tend to look for methods to decrease their cost to generate more profits. Cost reduction is an indispensable aspect of doing business. With multiple tiers in the production level, cost reduction can be a major advantage. In this case, merging entities may opt for cost synergy as an objective. It also becomes easier to gain access to new market segment without incurring additional costs. For example, the cost for research and development can be reduced by running a common lab, this cost synergy is achieved by the amalgamation of the two companies. Similarly, for inventory, production houses, staff expenses, the costs can be reduced. Cost synergy is quite effective when the merging companies recognize each other's core competencies

(iii) Financial Synergy –

The third and final type of synergy that tends to be achieved by M&A is financial synergy. It is a common phenomenon for companies with smaller base to merge together to create a larger entity in order to carry the wholesome debt as a bigger entity. It is easier than carrying individual debt, which is not only expensive, but also detrimental in case of economic downturns. By doing this, the debt capacity of the combined entity is lowered compared to their individual capacities, and their combined cost of capital is reduced. Additionally, they are

able to obtain additional tax benefits. Often, financial synergies also arise from the managed revenue streams of the combined entity.

However, it is one thing to aim for synergy, and a completely different thing to be able to achieve it. Thus, not all M&As are capable of achieving greater benefits.

2. DIVERSIFICATION

Companies often tend to minimize their risks by entering into different segments and diversifying their portfolio. Many companies pursue multiple business segments to hedge off their risk. Companies employ diversification as an M&A strategy to obtain a mix of investments in their portfolio. Diversification helps in expanding the product services and offerings. Firms with complementary products often have an objective of diversifying their portfolio.

Diversification is an important motto of companies that pursue geographical expansion without the additional cost of setup. Furthermore, it is more convenient to acquire an established business with goodwill than to create a competing business from scratch. Companies that acquire to diversify may procure a business in an unrelated industry.

3. MARKET POWER AND STRATEGIC REALIGNMENT

Market power can be defined as the capability of a business or firm to elevate and conserve price exceeding the level that would predominate under a competitive environment. Aiming for market power implies that firms have the ability to manipulate price points, supply level or demand to an extent that benefits them.

Companies that aim for market power tend to purchase smaller competing firms, in order to increase their market share. In addition to this, companies may aim to strategically realign

themselves in the market, as well as re-position themselves. It becomes difficult to set up businesses from scratch, but much easier and productive to acquire a pre-established business. M&As collude to maximize the benefits attributed to businesses and, thus, through a strategic realignment focused M&A, firms can achieve it.

4. COMPLEMENTARY RESOURCES AND SURPLUS FUNDS

Companies have shifted to a resource-based model of operations. In this, the company's activities are carried out based on the availability of resources (man, material, money, information). However, it is rare for a company to have all resources available. Further, often times, it is not prudent for a company to maintain all capabilities. For instance, a technology company should focus on its core competency of creating software than to create resources for its supply chain. Frequently, companies outsource such operations. Other times, one company purchases another with complementary resources to supplement its current functioning. Here, the focus of the M&A remains on capabilities. Procuring businesses with complementary resources also enables a company to improve its process engineering and technology (when the target company has better resources) and to increase the scale of production in existing product lines.

By purchasing one of its suppliers or distributors, companies can cut down on a large number of costs. Such vertical mergers enable a company to save on the margins that would otherwise be given to the separate acquired entity.

There also arise circumstances when firms have a surplus of cash available for operations. However, it is rare for the company to be able to utilize the cash in its entirety. Sedentary funds are wasteful for a company which could otherwise be utilizing them into useful investments.

Thus, companies will pursue M&A in order to consume its extra resources and accomplish something worthwhile.

5. ELIMINATE COMPETITION

Business today takes place in a VUCA environment – volatile, uncertain, complex and ambiguous. The dynamic nature of the marketplace can be characterized by the ease of entry and exit for companies and the sheer number of competitors in the market. The cannibalistic nature of competition ensures that no one firm is ahead of its contemporaries for a long time.

It is not unusual for competitors to unite and create a single entity in order to face the market together. While Joint ventures are common, for the purpose of this report, we shall focus on M&As only.

In this objective, the acquiring company usually has to pay a large premium to the target company so as to obtain their willingness to parlay. From the future perspective, if the premium to be paid enhances values and overcomes the risk of the future, then it might be worth it. The market share of the combined entity becomes more than that of the separate entities.

6. ENHANCE SHAREHOLDER WEALTH/GROWTH

M&As can give the acquiring company an opportunity to enter into new markets, domestic as well as global, with reduced costs as they will get access to established businesses. Usually, these are called horizontal mergers.

MERGERS AND ACQUISITIONS IN TECHNOLOGICAL SECTOR

The Indian M&A activity has recently experienced a hike. While there has been considerable foreign involvement in the overall movement, acquisition of foreign entities by Indian companies has also been on the rise. Cross border M&A saw more activity. Academician and research points to a strong upturn in M&A in upcoming years but, historical data, especially when we consider the studies carried out on waves of M&A, points out towards the considerable slump. The analysts expect a downturn in M&A activity by 2020 after witnessing a rise in the activity in 2017-18 in the developed and emerging markets.

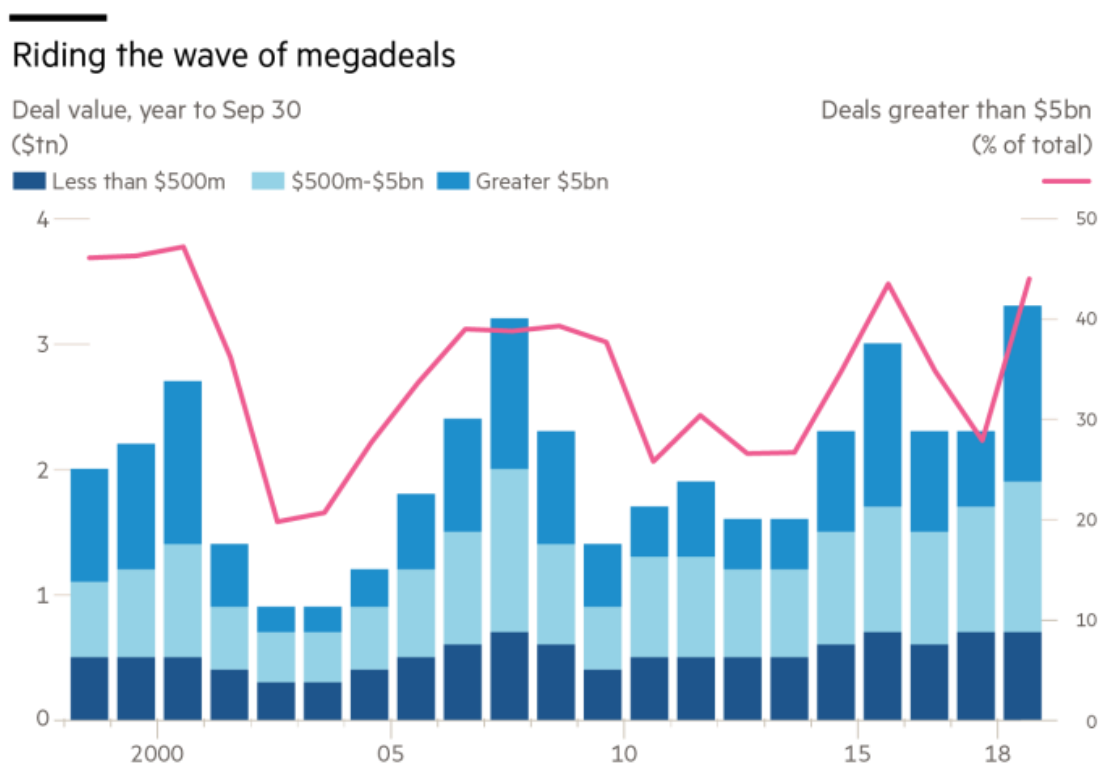


Fig 1.1 M&A Deal Value (Source: Thomson Reuters)

In tech sector, M&A has become a strategy to improve the core competencies and reduce the competitors to achieve sustainable growth. Enhancement in knowledge and skills is a main motive for M&A in the IT sector. IT companies with small base and insufficient resources find

it difficult to enter into a new market. So, the acquisition of these small companies by large companies becomes an efficient way to achieve growth. Mergers and acquisitions in the technological sector have proved to be of significant worth over the years, companies looking for aggressive growth and profitability will continue to rely on M&A deals.

Worldwide tech deals have increased over the past five years, witnessing a growth of more than \$500 billion in 2018 than \$150 billion in 2013 (Bain and Co. 2019). Also it has been observed that high value deals, when occur frequently, have a high probability of delivering greater returns. Over the years, emerging markets became more business friendly in terms of their ease of doing business, trade regulations, intellectual property rights, legal structure and political stability.

Several of the key drivers such as optimistic global outlook, improvement in cash flows, low cost of debt and investor sentiment continue to promote M&A activities. The constant need for growth, innovation and disruption across industries and various organizations has also accelerated M&A strategies. A change in the consumption pattern has resulted in new business models amongst the tech companies. Companies are trying to eliminate competition by means of various strategies. With constant changes to meet the ever-changing demands, the M&A share of tech sector has risen from 6% in 2007 to 17% in 2018 (J.P Morgan, 2019).

The Indian technological industry has been actively involved in M&As over the years. The year 2019 observed a growth of 6.1% and the valuation of US\$176 billion in the tech sector. The industry is expected to grow to almost double by 2025 (IBEF, 2020). The power and capabilities of the Indian IT sector has attracted numerous investments from other countries.

Between April 2000 and June 2019, Foreign Direct Investment (FDI) inflows worth US \$ 42.5 billion has been noted for both the computer software and hardware sector. These inflows were the second highest, as per data released by the Department for Promotion of Industry and Internal Trade (DPIIT).

The Indian government has also played a major role in increasing the number of investment opportunities in India. According to a PwC report on M&A, the government has revamped all the relevant corporate laws and regulations, be it the Takeover Code, legal dimension of Valuation and Evaluation, Competition Law, Companies Act, etc. Tax laws are constantly developing and this has impacted both domestic and foreign investments.

A major number merger deals start showing signs of failure, such as loss of funds, within the first two years of completion of the deal. This failure is attributed primarily to lack of integration in processes and overlooking the importance of people and culture. Conducting thorough due diligence, an activity whose importance has recently been recognized, may yet fail if the correct integration planning is not carried out.

The main objectives that companies hope to achieve in technology mergers are, but not limited to, the following –

1. Eliminating competitors
2. Operational synergies
3. Geographical expansion
4. Economies of scale (Production and service scales)
5. Access to niche Technology
6. Strengthen the brand

The steps of a standard M&A process are outlined in the flowchart below –

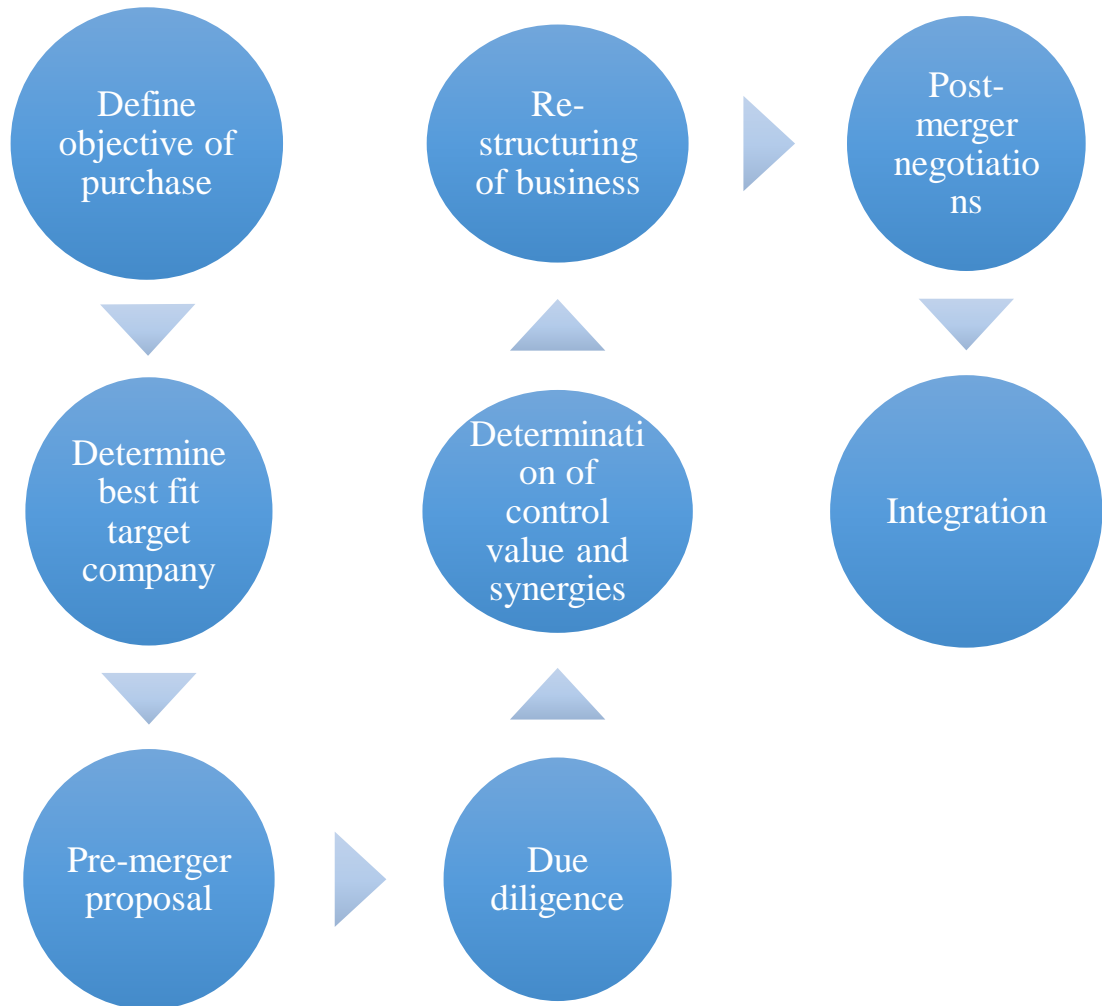


Fig. 1.2

CHAPTER 2: LITERATURE REVIEW

The character of Mergers and Acquisitions (M&As) can be deemed as interesting at best. Transactional activities that occur during M&As involves either direct purchase (via cash) or share purchase. The resultant price and profits associated with mergers and acquisitions may have a positive or negative affect on the firm's performance (Healy and Ruback ,1992). There are numerous reasons for which companies may indulge in M&As. Mergers and acquisitions are often used as a strategy to gain competitive advantage, penetrate new market, diversify business portfolio, increase market share and capitalize on economies of scale etc.

M&A has increasingly been utilized as a mode of expansion and growth. For most companies, it acts as a strategy to strengthen their assets and gain competitive advantage in the market. Although the clear correlation and complex environment has not been clearly defined, most companies use M&A for the said activities. Human resource factors also add value to the M&A deals and they can even act as a key element in cross border M&A's (Aguilera, et al., 2004). Other literature also recognizes the importance of human resource management for successful incorporation of firms (Rodriguez-Sanchez, et al., 2018).

There are multiple reasons such as synergy, diversification, competitive advantage etc. to propel firms to engage in M&A activities. In order to prevent exploitation of the target company, emerging economies which observe huge participation in such large-scale strategic alliances have strong anti- takeover acts and anti-trust policies to safeguard the rights of the target companies. This ensures a healthy competitive environment, prevent establishment of monopolies and increase the economic and welfare gains for all (Bris, et al.).

Studies done on the Indian M&A movement identify various reasons for companies to pursue M&A. Various factors such as consolidation of operating structure, increase operating synergies, debt transfer, increasing competency, increasing market share and aggressive growth have been observed to be the leading motivations (Prasad V, et al., 2018). It is easier

for firms in emerging economies like India to enter into mature markets via acquisition. The acquisition by Indian firms are enabling them to move to a higher value in the industry by increasing skills and technologies by means of M&A (Duppati, et al., 2015).

Post-war and post-liberalization M&As have been many (Kar, et al.), and multiple factors underlying impetuses can be ascribed to them. There are numerous reasons to go for M&A deals but the major motive for firms is to increase long-term profit (Khemani, 1990). This is considering that financial constraints that the acquired firm/target experiences prior to being acquired are eased once the transaction is carried out (Erel, et al., 2012).

Source material also suggests the inclination of benefit in the transaction. It has been found that acquisitions tend to be more, almost twice as, advantageous for the acquiring firm compared to the acquired firm, both in terms of synergy and dominance (da Graca, et al., 2017). It was also observed that global deals with a high valuation have outperformed domestic and low valuation deals. Studies carried out to measure the impact of M&A using EV/EBITDA ratio as a measure of firm's value observed negative short-run and positive long-run impact on firm's value (Bianconi, et al., 2019).

Excellent strategic communication has been observed as an important method to overcome any uncertainty associated with the deal. It can prove to be effective when used throughout the M&A process (Angwin, et al., 2016). Interaction between participating firms has been viewed as an indispensable part of integration in M&As. A recent report has identified effective integration as vital to long-term success of M&A (Deloitte, 2019). Due diligence is another important aspect that holds the lever to success and failure of M&A transactions (Varottil, 2017). When carried out properly, it enhances the value for the target as well as the shareholders.

Communication helps companies in discussing relevant information, which is important in terms of conducting due diligence. Due diligence helps firms minimize risk as the companies are better prepared for the forthcoming transactions (Wright, et al., 2002). There's also a high tendency for misuse to occur. Due diligence has often lead to insider trading and so, for it to be successful, it is important to share information while ensuring security and prohibiting violation (Varottil, 2017). Due diligence may be overlooked because of its complexity but it is always better to indulge in pre-transaction certainty to avoid hassles in future (Davis, 2009).

Due diligence provides necessary information required to assess the deals and negotiate accordingly. It mainly looks at the financial, legal and commercial aspect. Apart from the financial statements, emphasis is also given to the organization and culture of the company (Savović & Slađana, 2013). The former focuses on the strategy, leadership, organization structure while the latter focuses on cultural aspects to identify problems that might emerge because of amalgamation. In order to avoid any risk, the companies are going for detailed information and background checks. They are seeking out information on various aspects such as fundamental, legal, financial, operational, structural, etc.

Another important aspect, revolving around the global M&A deals, is the cultural difference and the socio-cultural influences that exist within two organizations and their portfolios (Hajro, 2015). The formation of interpersonal relationships, faith and a sense of shared identity has a major effect on the cultural and work environment of the organization which may further affect the behavior of the employees. A positive attitude can result in good results in the longer run.

There is a strong opinion amongst the academia that, despite abundant research on the fundamental causes of successes and failures in M&A across transactions in multiple fields, there has been no palpable impact on the M&A evaluations and failure rates continue to be disturbingly high (McGaughn, 2019).

CHAPTER 3: RESEARCH PROCESS

OBJECTIVES AND SCOPE OF STUDY

- To identify prominent mergers and acquisitions in the technology sector and determine their financial performance three years before the transaction, during the transaction and three years after the transaction
- To identify the leading factors that act as motivation for mergers and acquisitions in the technology sector
- To create a cause and effect relationship between the factors influencing mergers and acquisitions in the technology sector

The study uses seven financial parameters to measure the performance of the acquiring company. These are Revenue, Earnings per share, and five accounting ratios – Current Ratio, Debt-Equity Ratio, Return on Investment, Return on Equity and Asset Turnover Ratio.

RESEARCH METHODOLOGY

The report aims to obtain a quantitative picture of companies that have undertaken mergers and acquisitions as a means of growth for their organization.

Businesses are typically valued on the basis of their cash flows. Cash flows refer to the incoming and outgoing funds from operations, capital expenditure and working capital requirements. It represents the amount of money available for meeting immediate and long-term requisites. An assessment of the financials of a company is indicative of its general health.

For this report, we have utilized the technique of descriptive research, based on the objective. This type of research is characterized by the description of a particular entity or group of entities and involves an explanatory account of their activities.

Further, purposive sampling has been employed in the selection of data for quantitative analysis. Purposive sampling is a statistical method of selecting representative data based on their suitability to the purpose of study. However, due to constraints in availability of data, a part of the sampling may also be attributed to convenience sampling.

Our study employs a sample of 40 international mergers and acquisitions in technology sector between 2011 and 2017 with firm level financial data compiled from online databases. The value of these deals falls in the range of US\$ 0.125 billion to US\$ 65 billion.

For each deal, we have focused on the acquiring firm's principle financial data for a period of seven years: 3 years before the merger or acquisition, the year of the deal, and 3 years after the deal was completed. M&A activities having insufficient data have been eliminated from the dataset.

We have also, for our study, calculated various financial ratios and the company's profit as an allocation per share (earnings per share, or EPS). Financial ratios can be fundamentally classified as –

1. Liquidity ratios, which are a means of determining the short term financial strength of a company and whether it is capable of meeting of its short term monetary requirements. As a representative of liquidity ratios, we have considered current ratio as a means of measurement.

2. Efficiency ratios, which help in determining utilization of assets and liabilities by the company. They also help in assessing management and operational efficiency. Asset turnover ratio is an important tool to measure efficiency.

3. Leverage ratio, which determine a company's ability to accommodate debt. It also determines a company's liability coverage. Debt-equity ratio is an important measure of a company's dependency on external borrowing for its operational requirements.

4. Profitability ratios, which indicate a company's ability to retain the proportion of revenue and is a general indication of how well it is able to produce the value for shareholders by utilizing apt amount of resources. A good profitability ratio indicates stability and lower sensitivity to fluctuations in earnings. Return on investment and return on equity are important profitability ratios.

	Formula	Notes
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\text{Current assets} = \text{Current investments} + \text{inventories} + \text{cash and cash equivalents} + \text{short-term loans}$

		Current Liabilities = short-term borrowings + trade payables + short-term provisions
Debt – Equity Ratio	Debt/Equity	Equity = Shareholder’s funds = share capital + reserves + surplus Debt = Long-term borrowings + long-term provisions
Asset Turnover Ratio	Net sales/Average total assets	Net sales = Revenue from operations
Return on Investment	(Profit before interest and tax/Capital Employed) * 100	Capital employed = share capital + reserves + surplus + long-term borrowings + other long- term provisions
Return on Equity	Net income/Equity	Net Income = Profit = Revenue from operations – cost of revenue from operations Equity = Shareholder’s funds = share capital + reserves + surplus

Further, in order to determine how one ratio impacts the other and whether the change in one ratio is an indication of a parallel transformation in another ratio, correlation studies have been carried out. These indicate the extent of a linear relationship between accounting ratios.

We shall also generate a regression model to predict the value of one variable based on the other, based on how strong the significance of correlation between the variables is obtained.

LIMITATIONS

An important consideration for our research is that analysis of accounting ratios has been carried out for successful firms only, as an indicator of the usualness of operating efficiencies.

Using correlation and regression comes with certain pertinent assumptions. One assumption is that a linear relationship should exist between the variables. Further, it assumes that variables are normally distributed (bivariate normality) and that the variations in the dependent variable are constant across all groups studied.

For regression, in addition to the assumptions considered for correlation, the observations must be independent of each other. It also required for data to show homoscedasticity. It is also assumed that residuals remain normally distributed.

The limitation with financial ratios is that, since they are purely quantitative in their handling, they tend to overlook the qualitative factors that directly or indirectly influence them. Furthermore, there is no single, standardised ratio against which we may compare and measure the computed ratios. We do not take into account the price level changes, which may inadvertently influence them. Last, but not the least, accounting ratios tend to be a victim of manipulation. This involves presentation of facts in a positive light, since incidence of a particular ratio may be an indicator of poor management and inefficiencies.

**CHAPTER 4: ANALYSIS AND INTERPRETATION
OF DATA**

Analysis of the frequencies computes that Cisco has had more success in acquisitions than its contemporaries, when judged on a standardised scale. During the period of 2011-2017, Cisco has partaken in eight acquisitions, with total valuation of US \$ 296.63 billion. Of these eight acquisitions, all have been successful. After Cisco, Microsoft has the next high number, i.e. 4 acquisitions worth US \$ 235.47 billion. Out of these four, 3 have been successful and one has been a failure.

The study uses seven financial parameters to measure the performance of the acquiring company. These are Revenue, Earnings per share, and five accounting ratios – Current Ratio, Debt-Equity Ratio, Return on Investment, Return on Equity and Asset Turnover Ratio. This is a simplification of otherwise challenging methods of analyzing the financial statements.

For the short-term period under consideration, it has been observed that the Revenue of acquiring firms post-M&A has either increased or it tends to be stable. The increase in revenue can be attributed to the fact that the amalgamation of two or more firms increased synergies, thereby increasing revenue. The increase in the short-term can be because of rapid access to new market, technology, product, machinery etc.

The next factor is the Earnings per share, or EPS, of companies. It has been observed that EPS usually increases a year prior to the deal or the year when the deal is being sanctioned. This can be attributed to the hype created around the deal. As the news spreads, the sentiment towards the target company changes, thereby changing the price of the share. A positive outlook of the market/investors can lead to the increase.

Post that, EPS depends on the performance of the company. Most companies simply had a downward curve post the year of the deal, after which, a slight increase was observed in general.

There are multiple reasons why the EPS of the acquiring company may dilute post-M&A, such as (i) target company incurs loss, (ii) the EPS of the target company is more than that of the acquiring company, (iii) intangible assets gained via transactions need to be paid off, (iv) increase in debt increases interest expense, (v) dysergy, and (vi) low cash on the balance sheet.

The study of accounting ratio over the years helps in understanding the performance of the company. The main motive of two companies to come together is to reap the benefits of synergy. The challenges with transaction may overpower the perceived benefits in the short-run. Financial ratios are often used to measure the benefits that the companies have achieved over a period of time.

From our analysis of financial ratios of acquiring companies over a seven-year period, it has been noted that liquidity, profitability, efficiency and leverage usually decreases immediately after the M&A deal has been concluded. This can be considered as the challenges and complexities faced by the target company during the acquisition.

The first ratio under consideration is asset turnover ratio. This ratio signifies how quickly assets are turning over, i.e., being employed for business processes. Higher ratio indicates better efficiency of the management in utilizing its assets. From our data, it has been observed that asset turnover ratio increases just before the deal is sought, falls slightly during the year of the deal, and then gradually stabilizes in the next three years. However, it did not increase. Decreasing asset turnover implies that the merger or acquisition has generated weak asset returns, or that too many assets have accompanied the purchased company.

Pearson's correlation coefficient is a measure of the degree to which two metric variables are linearly related. Its value lies between -1 and 1. From correlation analysis, it has been observed that asset turnover shares a high linear correlation with ROI, with a value of 0.663.

ROI functions as a returns ratio, measuring the efficiency with which the company is utilizing assets to its optimal level and generating revenue. The efficiency can be used as measure to calculate the profitability of the company.

Return on investment (ROI) and Return on Equity (ROE) are two types of profitability ratios to assess the overall performance of a business. It is a measurement of the efficiency of use of resources. It shows the relationship between profit derived from a particular investment or exchange of equity. Profitability ratios are computed as a percentage, as a representation of how much profit (PBIT) is obtained per unit.

ROI and ROE of acquiring firms usually increases the year the deal has been concluded. This implies that the immediate results of M&A are positive, the increase can be attributed to the rise in investments and added equity. Most companies go for M&A to increase their returns in the longer-run. ROI can be affected by different parameters such as organization process, culture etc.

Majority of the companies experienced a growth in their ROE within three years of the M&A deals being signed. However, ROI increased during the year of the deal and did not show a significant growth for majority of the companies. For some companies, it showed a significant increase over the next three years.

For majority, the ROE decreased after the year of the deal. The decrease in ROE tends to be attributed to the decreased profit, but that may not be absolute. Increasing capital also changes the ratio of profit to working capital.

Correlation tests conducted between these ratios for the year of the deal indicate strong positive correlation between ROI and ROE. A value of 0.872 has been obtained, signifying an

ascending linear relationship. This means that, should either of them increase, the other factor will invariably increase. The charts for these ratios also show a similar trend.

It can be challenging to assess the debt-equity ratios. In most M&A deals, the target company carries over the debt as well and this can result in an increase in the ratio. If the transaction occurs through equity exchange then the ratio will decrease. High ratios imply a higher dependency on the lenders. It doesn't seem to be of much concern when the company is doing good, however, in case of negative income, high debt-equity ratios can lead to bankruptcies.

Financial leverage of firms could increase in pre-merger years either due to increased debt capacity. It may decrease after the merger due to reduced debt capacity. Further, debt goes up when the acquiring company pays a premium for purchase of its target.

Leverage ratios (debt-equity ratio in particular) are strongly correlated with Profitability ratios (ROE in particular). With a value of 0.717, there is the indication of linear ascending association. Thus, for a company to be profitable, it needs to be able to meet its financial obligations fully.

Current ratio demonstrates the short-term financial stability of the company. However, too high ratios can indicate inefficient usage of assets. In our observations, it has been determined that the ratio of companies either increased or remained stable; post their involvement in M&A deals. Perhaps some view M&As as a means of utilising extra funds.

However, it may also mean that the company, in preparation of the anticipated deal, is increasing its capacity to meet the upcoming financial obligations and is, thus, accumulating assets. A current ratio of 2 is considered as a good ratio. Current ratios less than 1 indicate that

current liabilities are greater than current assets and, should need arise, the company would find it very difficult to meet its immediate financial requirements.

Current ratios have shown a weak correlation to leverage and asset turnover ratio. A weak correlation means that an upward or downward movement of other ratios will not have a major impact on the current ratio.

Correlation between ROI and asset turnover ratio have a significance level of 0.000. This means that the correlation between them is significant, i.e., the risk on the assumption that correlation exists between them, when actually correlation might not exist at all, is low. Since asset turnover generally stabilises after a period of time, it was taken as the independent variable in regression analysis, while ROI was to be predicted. For similar purpose, debt-equity was taken as the independent variable and ROE was taken as the dependent variable.

The R value (under model summary) computes the “quality of prediction”, i.e., how well the dependent variable can be predicted based on the independent variable. The model has an approximate R value of 44 per cent. However, as can be determined from the coefficient of determination, or the R squared value, the model is able to account for only approximately 42 per cent of the variations experienced by ROI.

The model obtained is as follows –

$$\mathbf{ROI = 1.8 + 5.22 * Asset\ turnover\ ratio}$$

The R value for regression analysis between ROE and Debt-Equity ratio is 51.4 per cent. This means that quality of prediction is somewhat moderate. Further, the model is able to account for 49 per cent of variations in the dependent factor. Debt-equity ratio can be used to determine how the ROE will function.

The model obtained is as follows –

$$ROE = -2.049 + 25.19 * Debt-equity ratio$$

From these, we observe that we may predict the occurrence of profitability ratios based on how the leverage ratios function.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

Few observations of point can be made from the analysis –

- Revenue increases post-merger or tends to stay stable
- Earnings per share decrease post-merger, but picks up pace within the next three years.
- Profitability ratios of companies usually tend to decrease. But within the next three years, they tend to start rising at a considerably slow tempo.
- Current Ratio may increase post-merger. No major decline was observed post the year of the deal.
- The leverage capacity and liquidity of companies usually decrease post-merger. It tends to show an increase within the next three years.
- There exists correlation between profitability and leverage ratios, and profitability and efficiency ratios.
- We may predict the occurrence of profitability ratios based on how the leverage ratios function.

REFERENCES

- Aguilera, R. V., & Dencker, J. C. (2004). The role of human resource management in cross-border mergers and acquisitions. *International journal of HUMAN Resource Management*, 1355-1370.
- Angwin, D. N., Mellahi, K., Gomes, E., & Peter, E. (2016). How communication approaches impact mergers and acquisitions outcomes. *The international journal of Human Resource Management*, 2370-2397.
- Bain and Co. (2019) *The New Realities of Tech M&A*
- Baker Mckenzie. (2019). *Global Transaction Forecasts 2019*. Oxford Economics.
- Baker McKenzie (2019) *M&A to drop 25% in 2020 in the Face of an Uncertain Global Economic Landscape*
- Bianconi, M., & Tan, C. M. (2019). Evaluating the instantaneous and medium-run impact of mergers and acquisitions on firm values. *International review of Economics and Finance*, 71-87.
- Bris, A., Cabolis, C., & Janowski, V. (n.d.). THE EFFECT OF MERGER LAWS ON MERGER ACTIVITY.
- da Graca, T., & Masson, R. (2017). Acquirers gain twice as much as targets in M&As: a different perspective on a longstanding. *Quantitative Finance Letters*, 71-76.
- Davis, W. B. (2009). The Importance of Due Diligence: Failed Mergers and Acquisitions of the United States Companies. *Ankara Bar Review*.
- Deloitte (2019) *M&A Trends 2019*
- Deloitte. (2019). *The State of the Deal - M&A Trends*. Deloitte.
- Duppati, G. R., & Rao, N. V. (2015). Cross-border mergers and acquisitions: Mature markets vs emerging markets. *Cogent Business and Management*.
- Erel, I., Jang, Y., & Weisbach, M. S. (2012). Financing-motivated acquisitions. *National Bureau of Economic Research*.
- Hajro, A. (2015). Cultural influences and the mediating role of socio-cultural integration processes on the performance of cross-border mergers and acquisitions. *The International Journal of Human Resource Management*, 192-215.
- IBEF (2020) *IT & ITeS Industry in India*
- J M Pennings, K. L. (1996). Mergers and acquisitions: Strategic-Organizational fit and outcomes.

Jensen, M. C., & Ruback, R. (1983). The Market for Corporate Control; The Science Evidence. *Journal of Economics*, 5-50.

J.P. Morgan (2019) *Global M&A outlook*

Kar, R. N., & Soni, A. (n.d.). Mergers and Acquisitions in India: A strategic impact analysis for the corporate enterprises in the post liberalization period.

Khemani, R. S. (1990). Recent Trends in Merger and Acquisition Activity in Canada and Selected Countries. *Investment Canada Conference*. Toronto.

McGaughn, J. A. (2019). Using Prior Probabilities for the Evaluation of Mergers and Acquisition. *Hawaii International Conference on System Sciences*, (pp. 1791-1802). Hawaii.

Prasad V, K., & Sahay, M. (2018). Mergers and Acquisitions: Analysis on Indian merger and acquisitions with reference from 2005-2015. *International Journal of Pure and Applied Mathematics*, 4411-4417.

Rodriguez-Sanchez, J.-L., Ortiz-de-Urbina-Criado, M., & Mora-Valentin, E.-M. (2018). Thinking about People in Mergers and Acquisitions. *International Journal of Manpower*.

Savović, Slađana. (2013). Due diligence as a key success factor of mergers and acquisitions. *Actual Problems of Economics*. 6. 424-434

Varottil, U. (2017). Due diligence in share acquisitions. *Journal of Business Law*.

Wright, M., Lockett, A., & Pruthi, S. (2002). Internationalization of Western Venture Capitalists into Emerging Markets: Risk assessment and information in India. *Small Business Economics*, 13-29.

APPENDIX

APPENDIX 1: LIST OF COMPANIES

Year	Acquiring Company	Target Company	Success/Failure	Value (In Billion USD)
2017	Cisco	SD-WAN	Success	0.61
2017	Hewlett Packard Enterprise	Westborough	Success	0.65
2017	Hewlett Packard Enterprise	Nimble Storage	Success	1
2017	Tech Data	Avnet's Technology Solutions	Success	2.6
2017	Cisco	AppDynamics	Success	3.7
2017	Verizon	Yahoo	Failure	4.48
2017	Intel	MobilEye	Success	15.3
2017	CenturyLink	Level 3 Communications	Success	34
2016	Salesforce	Demandware	Success	2.8
2016	Symantec	Blue Coat Systems	Success	4.65
2016	Microsoft	LinkedIn	Success	26.2
2016	Oracle	NetSuite	Success	9.3
2016	KKR & Co.	Optiv Security	Success	2
2016	Tech Data	Avnet Technology Solutions	Success	2.6
2016	Broadcom	Brocade	Success	5.9
2016	Dell	EMC	Success	65
2015	Hewlett-Packard	Aruba Networks	Success	3
2015	Intel	Altera	Success	16.7
2015	Charter Communications	Time Warner Cable	Success	56
2014	SAP	Concur	Success	8.3
2014	Lenovo	Motorola Mobility	Failure	2.91
2014	VMware	Airwatch	Success	1.5
2014	Lenovo	IBM x86 Server Business	Success	2.1
2013	IBM	Trusteer	Success	1
2013	Oracle	Acme Packet	Success	2.1
2013	Cisco	Insieme Networks	Success	3.7
2013	Salesforce	ExactTarget	Success	2.5
2013	Cisco	Sourcefire	Success	2.7
2013	Microsoft	Nokia	Failure	7.2
2012	Microsoft	Yammer	Success	1.2

2012	IBM	Kenexa	Success	1.3
2012	Cisco	Cariden	Success	0.141
2012	Cisco	Cloupia	Success	0.125
2012	Cisco	Meraki	Success	1.2
2012	Oracle	Taleo	Success	1.9
2012	Cisco	Lightwire	Success	0.271
2012	Intel	Qlogic Infiniband assets	Success	0.125
2011	Microsoft	Skype	Success	8.5
2011	Verizon	Terremark	Failure	1.4
2011	Google	Motorola Mobility	Failure	12.5

APPENDIX 2: DATA ANALYSIS ON SPSS

Frequencies

Statistics

		Acquiring Company	Target Company	Year
N	Valid	40	40	40
	Missing	0	0	0

Acquiring Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hewlett-Packard	1	2.5	2.5	2.5
	Broadcom	1	2.5	2.5	5.0
	CenturyLink	1	2.5	2.5	7.5
	Charter Communications	1	2.5	2.5	10.0
	Cisco	8	20.0	20.0	30.0
	Dell	1	2.5	2.5	32.5
	Google	1	2.5	2.5	35.0
	Hewlett Packard Enterprise	2	5.0	5.0	40.0
	IBM	2	5.0	5.0	45.0
	Intel	2	5.0	5.0	50.0
	Intel	1	2.5	2.5	52.5
	KKR & Co.	1	2.5	2.5	55.0
	Lenovo	2	5.0	5.0	60.0
	Microsoft	4	10.0	10.0	70.0
	Oracle	3	7.5	7.5	77.5
	Salesforce	2	5.0	5.0	82.5
	SAP	1	2.5	2.5	85.0
	Symantec	1	2.5	2.5	87.5
	Tech Data	2	5.0	5.0	92.5
	Verizon	2	5.0	5.0	97.5
	VMware	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

Target Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Airwatch	1	2.5	2.5	2.5
	Level 3 Communications	1	2.5	2.5	5.0
	Acme Packet	1	2.5	2.5	7.5
	Altera	1	2.5	2.5	10.0
	AppDynamics	1	2.5	2.5	12.5
	Aruba Networks	1	2.5	2.5	15.0
	Avnet Technology Solutions	1	2.5	2.5	17.5
	Avnet's Technology Solutions	1	2.5	2.5	20.0
	Blue Coat Systems	1	2.5	2.5	22.5
	Brocade	1	2.5	2.5	25.0
	Cariden	1	2.5	2.5	27.5
	Cloupia	1	2.5	2.5	30.0
	Concur	1	2.5	2.5	32.5
	Demandware	1	2.5	2.5	35.0
	EMC	1	2.5	2.5	37.5
	ExactTarget	1	2.5	2.5	40.0
	IBM x86 Server Business	1	2.5	2.5	42.5
	Insieme Networks	1	2.5	2.5	45.0
	Kenexa	1	2.5	2.5	47.5
	Lightwire	1	2.5	2.5	50.0
	LinkedIn	1	2.5	2.5	52.5
	Meraki	1	2.5	2.5	55.0
	MobilEye	1	2.5	2.5	57.5
	Motorola Mobility	2	5.0	5.0	62.5
	NetSuite	1	2.5	2.5	65.0
	Nimble Storage	1	2.5	2.5	67.5
	Nokia	1	2.5	2.5	70.0
	Optiv Security	1	2.5	2.5	72.5
	Qlogic Infiniband assets	1	2.5	2.5	75.0
	SD-WAN	1	2.5	2.5	77.5
	Skype	1	2.5	2.5	80.0
	Sourcefire	1	2.5	2.5	82.5
	Taleo	1	2.5	2.5	85.0
	Terremark	1	2.5	2.5	87.5
	Time Warner Cable	1	2.5	2.5	90.0
	Trusteer	1	2.5	2.5	92.5
	Westborough	1	2.5	2.5	95.0
	Yahoo	1	2.5	2.5	97.5
	Yammer	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Current Ratio	25	2.1304	1.19126	1.365	.464	2.738	.902
Debt-Equity Ratio	25	.65364	.473850	1.805	.464	4.161	.902
Rol	25	9.80304	10.693476	-.199	.464	.139	.902
RoE	25	14.41940	16.656213	1.228	.464	6.133	.902
Asset Turnover Ratio	25	1.52600	1.357294	.946	.464	.040	.902
Valid N (listwise)	25						

Correlation

➤ **Year of the Deal**

Correlations

		Current Ratio	Debt-Equity Ratio	Rol	RoE	Asset Turnover Ratio
Current Ratio	Pearson Correlation	1	.093	.304	.177	-.048
	Sig. (2-tailed)		.658	.140	.396	.820
	Sum of Squares and Cross-products	34.058	1.260	92.806	84.474	-1.861
	Covariance	1.419	.052	3.867	3.520	-.078
	N	25	25	25	25	25
Debt-Equity Ratio	Pearson Correlation	.093	1	.504*	.717**	.477*
	Sig. (2-tailed)	.658		.010	.000	.016
	Sum of Squares and Cross-products	1.260	5.389	61.266	135.774	7.363
	Covariance	.052	.225	2.553	5.657	.307
	N	25	25	25	25	25
Rol	Pearson Correlation	.304	.504*	1	.872**	.663**
	Sig. (2-tailed)	.140	.010		.000	.000
	Sum of Squares and Cross-products	92.806	61.266	2744.410	3726.882	231.072
	Covariance	3.867	2.553	114.350	155.287	9.628
	N	25	25	25	25	25
RoE	Pearson Correlation	.177	.717**	.872**	1	.638**
	Sig. (2-tailed)	.396	.000	.000		.001
	Sum of Squares and Cross-products	84.474	135.774	3726.882	6658.307	346.292
	Covariance	3.520	5.657	155.287	277.429	14.429
	N	25	25	25	25	25
Asset Turnover Ratio	Pearson Correlation	-.048	.477*	.663**	.638**	1
	Sig. (2-tailed)	.820	.016	.000	.001	
	Sum of Squares and Cross-products	-1.861	7.363	231.072	346.292	44.214
	Covariance	-.078	.307	9.628	14.429	1.842
	N	25	25	25	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Current Ratio	Debt-Equity Ratio	RoI	RoE	Asset Turnover Ratio
Kendal's tau_b	Current Ratio	Correlation Coefficient	1.000	.272	.311*	.284*	.111
		Sig. (2-tailed)	.	.058	.030	.047	.441
		N	25	25	25	25	25
	Debt-Equity Ratio	Correlation Coefficient	.272	1.000	.396**	.430**	.263
		Sig. (2-tailed)	.058	.	.006	.003	.068
		N	25	25	25	25	25
	RoI	Correlation Coefficient	.311*	.396**	1.000	.773**	.522**
		Sig. (2-tailed)	.030	.006	.	.000	.000
		N	25	25	25	25	25
	RoE	Correlation Coefficient	.284*	.430**	.773**	1.000	.415**
		Sig. (2-tailed)	.047	.003	.000	.	.004
		N	25	25	25	25	25
	Asset Turnover Ratio	Correlation Coefficient	.111	.263	.522**	.415**	1.000
		Sig. (2-tailed)	.441	.068	.000	.004	.
		N	25	25	25	25	25
Spearman's rho	Current Ratio	Correlation Coefficient	1.000	.381	.434*	.451*	.201
		Sig. (2-tailed)	.	.060	.030	.024	.336
		N	25	25	25	25	25
	Debt-Equity Ratio	Correlation Coefficient	.381	1.000	.485*	.594**	.342
		Sig. (2-tailed)	.060	.	.014	.002	.095
		N	25	25	25	25	25
	RoI	Correlation Coefficient	.434*	.485*	1.000	.912**	.691**
		Sig. (2-tailed)	.030	.014	.	.000	.000
		N	25	25	25	25	25
	RoE	Correlation Coefficient	.451*	.594**	.912**	1.000	.588**
		Sig. (2-tailed)	.024	.002	.000	.	.002
		N	25	25	25	25	25
	Asset Turnover Ratio	Correlation Coefficient	.201	.342	.691**	.588**	1.000
		Sig. (2-tailed)	.336	.095	.000	.002	.
		N	25	25	25	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

- Year of the Deal

Between ROI and Asset Turnover Ratio

Descriptive Statistics

	N	Mean	Std. Deviation
Rol	25	9.80304	10.693476
Asset Turnover Ratio	25	1.52600	1.357294
Valid N (listwise)	25		

Correlations

		Rol	Asset Turnover Ratio
Rol	Pearson Correlation	1	.663**
	Sig. (1-tailed)		.000
	Sum of Squares and Cross-products	2744.410	231.072
	Covariance	114.350	9.628
	N	25	25
Asset Turnover Ratio	Pearson Correlation	.663**	1
	Sig. (1-tailed)	.000	
	Sum of Squares and Cross-products	231.072	44.214
	Covariance	9.628	1.842
	N	25	25

** . Correlation is significant at the 0.01 level (1-tailed).

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Asset Turnover Ratio ^b	.	Enter

a. Dependent Variable: Rol

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.663 ^a	.440	.416	8.174119

a. Predictors: (Constant), Asset Turnover Ratio

b. Dependent Variable: Rol

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1207.637	1	1207.637	18.074	.000 ^b
	Residual	1536.773	23	66.816		
	Total	2744.410	24			

a. Dependent Variable: Rol

b. Predictors: (Constant), Asset Turnover Ratio

Coefficients^a

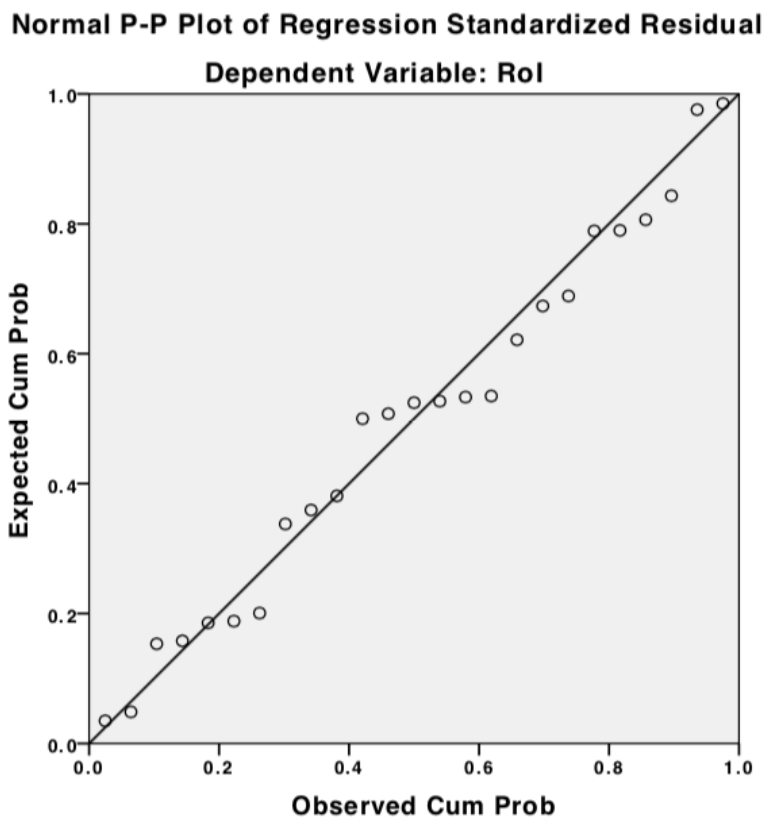
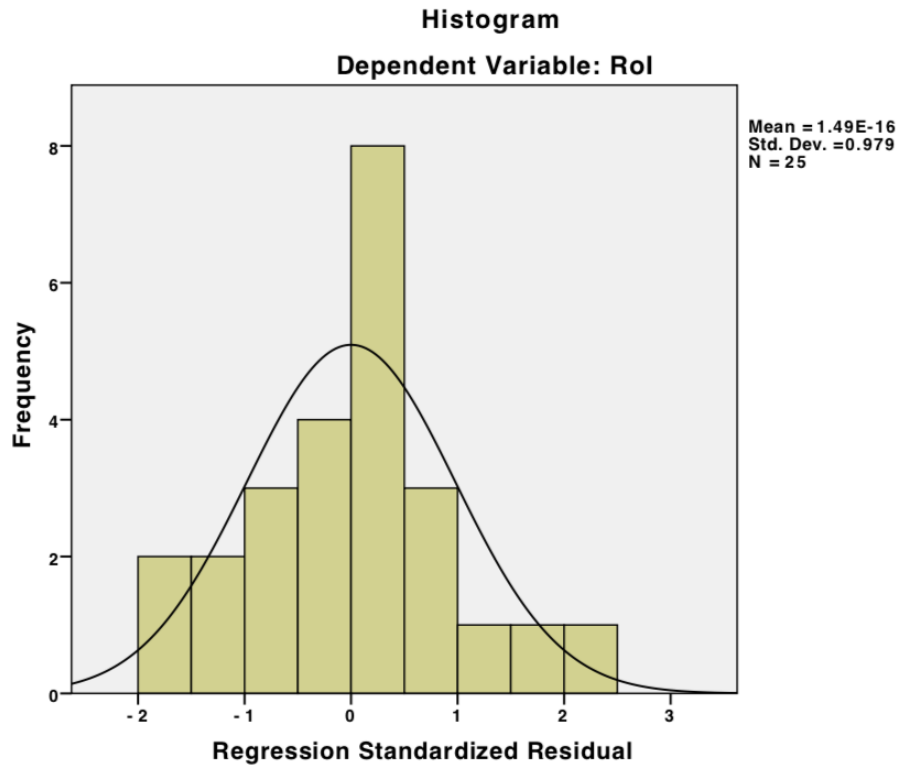
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.828	2.488		.735	.470
	Asset Turnover Ratio	5.226	1.229	.663	4.251	.000

a. Dependent Variable: Rol

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.95847	27.17503	9.80304	7.093533	25
Residual	-14.823059	17.766678	.000000	8.002013	25
Std. Predicted Value	-1.106	2.449	.000	1.000	25
Std. Residual	-1.813	2.174	.000	.979	25

a. Dependent Variable: Rol



Regression between ROE and Debt-Equity Ratio

Correlations

		RoE	Debt-Equity Ratio
RoE	Pearson Correlation	1	.717**
	Sig. (1-tailed)		.000
	Sum of Squares and Cross-products	6658.307	135.774
	Covariance	277.429	5.657
	N	25	25
Debt-Equity Ratio	Pearson Correlation	.717**	1
	Sig. (1-tailed)	.000	
	Sum of Squares and Cross-products	135.774	5.389
	Covariance	5.657	.225
	N	25	25

** . Correlation is significant at the 0.01 level (1-tailed).

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Debt-Equity Ratio ^b	.	Enter

a. Dependent Variable: RoE

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717 ^a	.514	.493	11.864069

a. Predictors: (Constant), Debt-Equity Ratio

b. Dependent Variable: RoE

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3420.915	1	3420.915	24.304	.000 ^b
	Residual	3237.391	23	140.756		
	Total	6658.307	24			

a. Dependent Variable: RoE

b. Predictors: (Constant), Debt-Equity Ratio

Coefficients^a

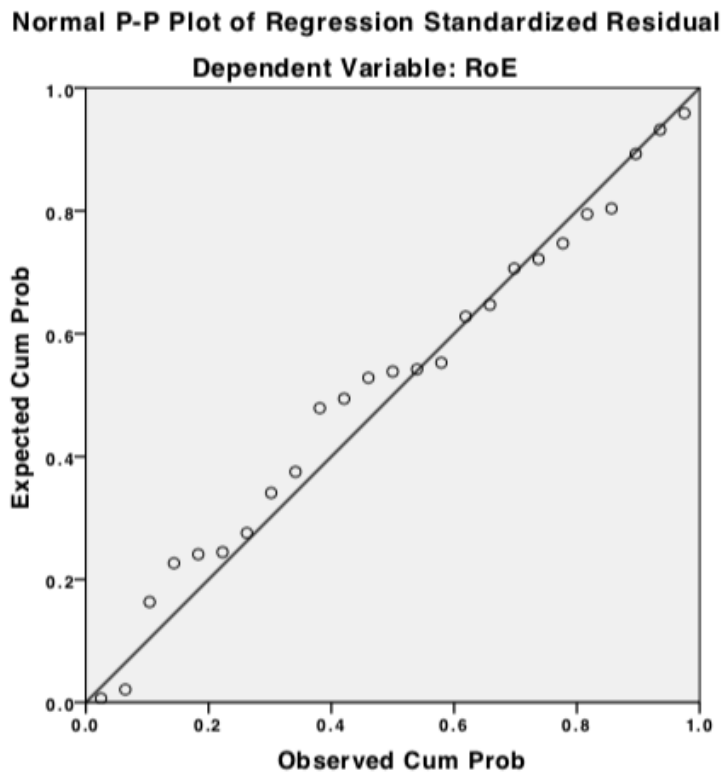
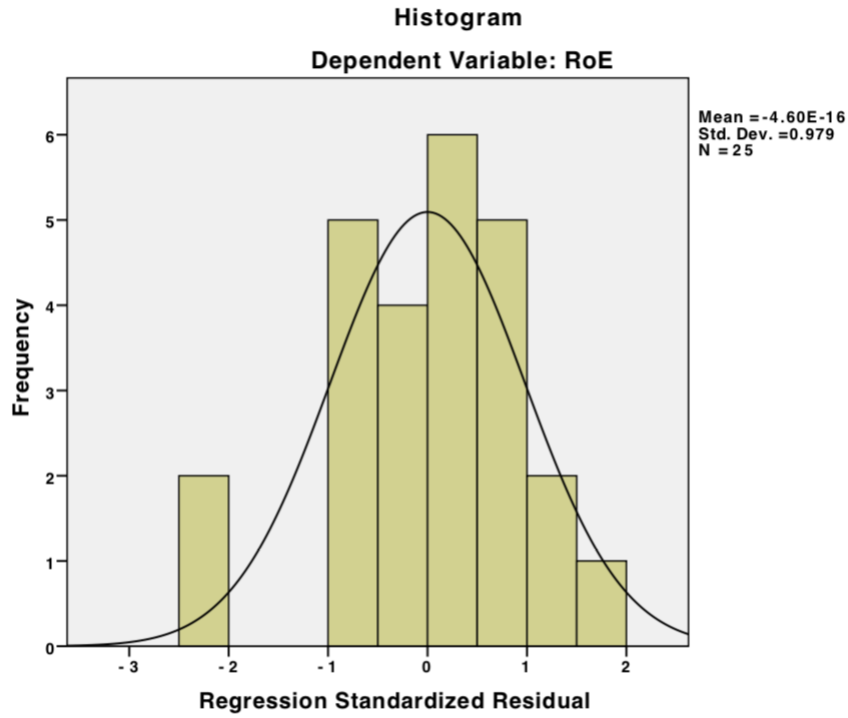
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.049	4.098		-.500	.622
	Debt-Equity Ratio	25.196	5.111	.717	4.930	.000

a. Dependent Variable: RoE

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.67951	51.86909	14.41940	11.938934	25
Residual	-29.498465	20.590908	.000000	11.614272	25
Std. Predicted Value	-1.067	3.137	.000	1.000	25
Std. Residual	-2.486	1.736	.000	.979	25

a. Dependent Variable: RoE



APPENDIX 3: CHARTS

