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The IBM – Kyndryl spin-off: a strategic divestiture?

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Notice

This study is based on official information publicly available as of August 20, 2022. The source of information for them is mentioned in the footnotes and in the references.

All the calculations, figures, tables, and graphics, where the source is not mentioned, are author's original elaborations of official and public data.

Forward looking statement that apply to a later date, including any forecast of possible outcomes, are based on author's evaluations, reflect the author's personal opinion, and are not intended to represent in any way a solicitation or a reliable suggestion for others.

Summary

The aim of this study is to apply business evaluation and financial analysis methodologies to investigate effects of International Business Machines Corporation separation of its *IT Managed Infrastructure Business* into Kyndryl Holdings, Inc. (Kyndryl *spin-off*), occurred in 2021, with the objective to respond to the question if it represents a strategic growth opportunity for the companies resulting from the spin-off and an increase in value for IBM stakeholders.

The study uses both structured financial methods and qualitative evaluation to measure tangible and intangible assets of the resulting companies and the benefits that their application intends and possibly will bring to the community of stakeholders.

It also intends to apply both analytical and quantitative methods and empirical but rigorous evaluations, with an original approach, to formulate an evaluation of the values resulting from divestiture from different perspectives, trying to answer to the question if it can have real strategic outcomes or not.

In the first chapter the theoretical bases of corporate transaction which is in object of the case study is discussed, defining what a corporate spin–off is, as well as its purpose and the differences with other forms of corporate divestitures.

The potential principal advantages and disadvantages, as defined in theory, are mentioned as well as the critical factors that increase the likelihood of a successful operation.

The last part of this chapter is dedicated to a literature review of existing academic research about value creation evidence associated to corporate spin offs.

The second chapter is dedicated to identifying rationales for the operation and its intended objectives and execution.

Having presented the IBM company profile and culture, a short history of recent paradigmatic IBM divestiture plans is discussed, with strategic reasons, and their correlation to acquisition strategy, setting the bases for the complete evaluation of the one in object.

The IBM execution of the separation is analyzed illustrating the reason as well as the key terms and principal risks associated to the realized transaction, and the reaction of Analysts, Clients, and Investors.

Then the objectives, required actions and potential benefits for Kyndryl are presented along with some progress against the plan from the quarterly reports.

In the following third chapter, dedicated to the discussion of the outcomes of the operation, the *Event Study* methodology is applied to the analysis of performance and dynamics of IBM stock pre and after the announcement, and for Kyndryl, not having historical data, the study is set on the effect of first listing event on two competitor companies, chosen to represent its competitive environment.

The trend of IBM and Kyndryl stock prices is then discussed with a comparison to a panel of selected competitors and to the trend of market and industry indexes.

Then a *financial analysis* is carried out including profitability and solvency dimensions, based on IBM financial statements for years 2020, 2021 and forecasts for year 2022.

For the profitability part, the following accounting ratios are included:

ROE, ROIC, ROS, Asset Turnover, Duration of the Working Capital.

As regard the solvency part the financial equilibrium on a short-term perspective is checked calculating *current ratio, quick ratio, cash ratio* and on a long-term perspective calculating *equity to fixed asset ratio, long term obligations to fixed assets ratio, total debts to equity ratio and debts to equity ratio.*

Operating and Financial risks are evaluated too.

For all these analyses the results are compared to a panel of similar companies.

The next paragraph treats the qualifying aspect of the separation that cannot be made directly evident with the financial analysis and propose a way to evaluate them with a *Balanced Scorecard* and comparison with competitors and state of the art of the technology service market.

Finally, after having discussed the findings and the limits of the analysis carried out, the perspectives for the two companies are briefly discussed and a summary of the evaluation

conducted is presented that can demonstrate the global value of the operation for all the parties involved, answering the dissertation question.

1. Corporate spin–off and value creation

1.1 What a corporate spin–off is

> *"a process of reorganizing a corporate structure whereby the capital stock of a division or subsidiary of a corporation or of a newly affiliated company is transferred to the stockholders of the parent corporation without an exchange of any part of the stock of the latter.[1]" (© Collins 2022)*

Among techniques used by companies to manage equity and venture goals the ***spin-off,*** also named ***hive-off,*** is one of the most frequently used, so that it has been of widely analyzed by market makers and investor, and its popularity has been widened by publicist that forged terms like ***'starburst revival'*** in recent times when the practice became widely adopted[2]. ***(****The Economist 2011****)***

Technically a *spin-off* is any corporate action that generates a secondary independent business from a part of the acting company, by establishing a new identity respecting legal, financial, enterprise and technical aspects and assigning to them employees, capital, assets, resources, market opportunities according to the redefined missions of the parts. With a slightly different meaning the term *spin-out* is used for separation that do not imply necessarily divesture, like separation into a new subsidiary.

It may be considered the antithetic action respect to a merger and acquisition and compared to a more generic action of divesture it is characterized by the fact that it doesn't represent a simple reduction, transfer or sold-off of part of the equity capital.

[1] Spin off, collinsdictionary.com [https://www.collinsdictionary.com/dictionary/english/spin-off]
[2] *Starbusting, The Economist, March 24, 2011*, retrieved in economist.com [https://www.economist.com/business/2011/03/24/starbursting]

In contrast to merger and acquisition that are often used to boost integration and market share growth, the spin-off may effectively boost diversification and focalization strategies.

In general, what characterize a fair spin-off is the genuine intention of protecting or rather increasing the equity value of the parts object of the spin-off by applying separate mission to the redefined enterprises.

A corporate spin–off may thus be defined as a method of divestment by separation that companies may pursue with the ultimate objective to increase total (considering parent and spun-off) shareholder value. In that sense the correct evaluation of the parent and generated parties is a key factor to examine success of a spin-off.

Regulatory agencies define corporate spin-off more strictly.

According to the *U.S. Securities and Exchange Commission (SEC*) a spin-off is characterized by the fact that "in a *spin-off*, a parent company distributes shares of a subsidiary to the parent company's shareholders." [3]

The main concern about such practice is that it must respect market transparency and anti-fraud prevention provisions.

To respect objectives and regulations the corporate decision process thus requires advanced planning across different disciplines, incorporating elements of capital markets, tax, finance, intellectual property, and mergers and acquisitions.
In a traditional spin–off transaction the board of directors of a parent company authorizes and declares the transfer of a division or of a part of business operations to a new company, with shareholders of the parent receiving shares of the new entity on a pro-rata basis[4].

[3] DIVISION OF CORPORATION FINANCE SECURITIES AND EXCHANGE COMMISSION Staff Legal Bulleting No. 4 (CF), September 16, 1997
[4] Birkeland et. al. (2019), *Spin – offs Unraveled: Complex 'IPOs' with a Sophisticated Tax Overlay,* [https://res.cloudinary.com/hrkcvbvgy/raw/upload/f_auto/v1571939205/advices/pdfLink/advices/5db1e1803b6e510020cb65db/pdfLink/2019%2010%2011%20Spin-offs%20Unraveled%20-%20Complex%20IPOs%20with%20a%20Sophisticated%20Tax%20Overlay_revised2.pdf]

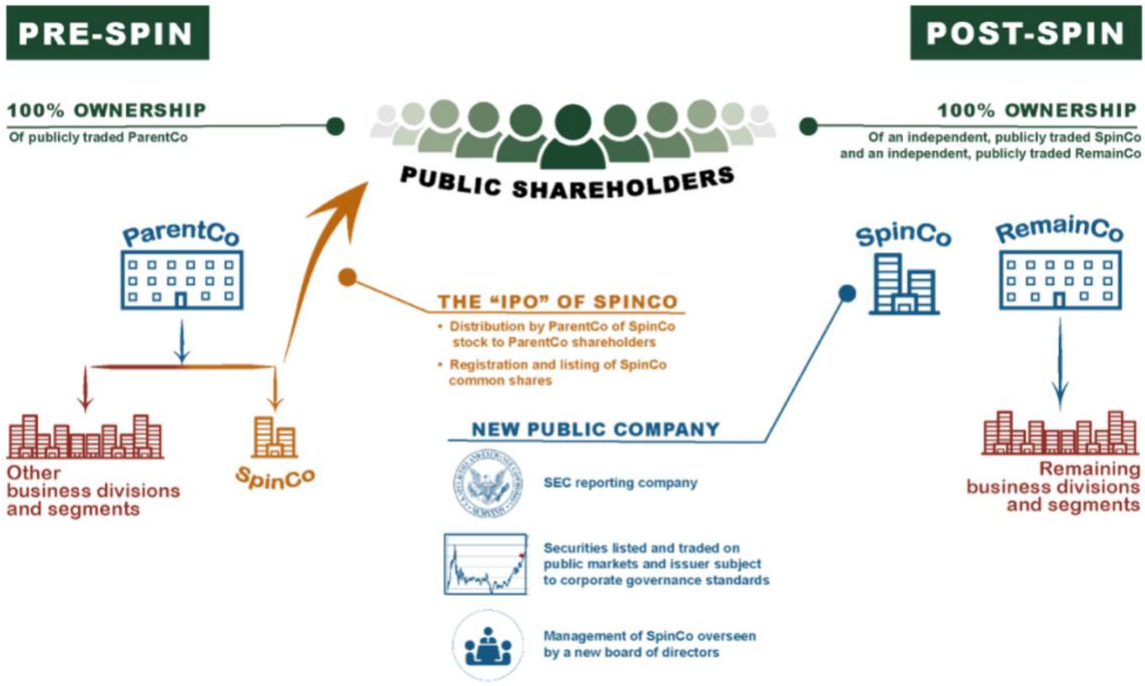

Figure 1 – Sample of Pre and post spin-off corporate structure (*Birkeland et. al.*) [5]

The parent company can decide to spin-off the 100% of the shares of the new subsidiary or a lower percentage maintaining a minority interest in the new entity, if the expectation is that the subsidiary will worth more as independent company.

The parent company typically does not receive any cash consideration for the spin-off, this is one of the reasons why generally spin-offs are tax-free transaction.

Specifically in US a spin-off is qualified as non - taxable when certain conditions provided in the *Section 355* of the *Internal Revenue Code (IRC)* are met.
Regulation sets four categories for requirements:

- *control requirement*
- *device requirement*
- *active trade condition*
- *distributions requirements*

[5] Birkeland et. al. (2019), *Spin – offs Unraveled: Complex 'IPOs' with a Sophisticated Tax Overlay,* [https://res.cloudinary.com/hrkcvbvgy/raw/upload/f_auto/v1571939205/advices/pdfLink/advices/5db1e1803b6e510020cb65db/pdfLink/2019%2010%2011%20Spin-offs%20Unraveled%20-%20Complex%20IPOs%20with%20a%20Sophisticated%20Tax%20Overlay_revised2.pdf]

According to the ***control requirement*** a corporation may implement a tax-free spin-off of a division only if it owns at least 80% of the total combined voting power of all classes of shares of that division.

The ***device requirement***, determined on a case-by-case basis, stipulates that the spin-off cannot be carried out as the sole means of distributing profits.

The ***active trade condition*** provides that the parent and the NewCo will be engaged in active business following the first day of deal finalization.

Finally, the ***distribution requirements*** stipulates that the parent distribute a portion of at least the 80% of the new shares of the existing division to current shareholders on a proportional basis or alternatively give them the possibility to exchange parent company shares to an equivalent amount of NewCo shares or to keep their existing equity position in the parent company[6].

In circumstances when these conditions are not all met, a spin-off transaction is subject to the capital gain taxation.

Once a spin-off is realized the new entity has its own name and management structure, but it may maintain some of the parent assets, employees, product lines, technologies, and intellectual property[7].
Sometimes the spin out company may license technology from the parent or supply it with products or services, this can be an important source of technological diffusion in high - tech industries[8].
In addition, the parent may continue to provide legal advice or financial support, for example investing equity in the new firm or providing loans.

[6] Internal Revenue Code, Section 355 [https://www.law.cornell.edu/uscode/text/26/355]
[7] *What is a Spin – Off?*, corporatefinanceinstitute.com [https://corporatefinanceinstitute.com/resources/knowledge/finance/spin-off-and-split-off/]
[8] *Corporate spin – off*, Wikipedia.com [https://en.wikipedia.org/wiki/Corporate_spin-off]

1.2 Rationales behind a spin–off

A spin-off decision can be motivated by a variety of reasons. The most common are related to:

- ***Poor strategic fit of a division***: A parent company may decide to move out a line of business that no longer fits with its overall strategic plans. This decision may be taken even if the division is performing well but not easily adapting to the strategic plans of the parent, may limit its growth prospects. When the division is performing well the parent can decide also for a sell-off to use the proceeds to finance the investments required to meet strategic goals.
- ***Reverse synergy:*** There might be cases in which the parent is not able to manage the division properly and in a profitable way. As a result, no additional gain arises from the combination of the two companies and thus the entities worth more separately than combined within the parent company's structure. In such cases a spin-off can enable the two companies to stand on their own feet and exploit their potential to the full.
- ***Poor performance:*** A company can consider spinning out a division simply because is not sufficiently profitable and thus dilutes the performance of the overall company. Typically, a business unit is considered low - performing when it is unable to generate a return greater than the parent company hurdle rate, which is the minimum acceptable return on a project for the company.

  In a corporation this situation may occur also when a division is performing at the best respects its competitor but is not aligned with the company overall profitability objectives. Low performing divisions can drain financial resources limiting investment capacity necessary for the parent to remain innovative in its core segment. When a company has a low performing division, it could try to sell it, but in case interested buyers do not exist a spin-off may be a solution.
- ***Capital Market Factors***: A spin-off may take place to allow a parent company and its subsidiary to have greater access to capital markets. Indeed, investors, being able to diversify on their own, may be reluctant to invest in companies operating in several businesses and instead prefer *pure plays* that are easier to analyze and give maximum exposure to a particular market segment. A division that needs capital to grow can improve its ability to attract financial resources as an independent company. This because investors can more easily project their potential returns when the business is

an independent unit compared to when it is within a diversified group that has divisions with different growth prospects.[9]

- ***Other Factors***: Secondary reasons may exist. For example, a spin-off may take place to allow a parent company to accomplish to Antitrust Authorities determinations or to better serve customers who want to avoid a sole provider situation and may have requirements to use multiple contractors and products by competitors. Also, after a merger or acquisition it can be needed to revisit the financial situation of a company and pursue redirection and development of business. Also, national regulation may impose to have fully independent service companies and not subsidiaries.

According to *The Economist*[10] the spin-off has two ultimate reasons to be practiced:

- When companies willing to dismiss part of the business still valuable cannot sell it directly: "*companies seeking buyers for parts of their business are not getting good offers from other firms, or from private equity*"
- When companies want to pursue a better evaluation of part of their business which may be under-estimated as consequence of so-called "***conglomerate discount***" — that means that *"stock markets value a diversified group at less than the sum of its parts*"

1.3 Different forms of corporate divestitures

A divestiture refers to any situation in which a company disposes of an asset (such a unit, a division, a subsidiary) in a private or public transaction.

A divestiture may be the result of a management decision or ordered by antitrust authority to increase competition. A clear example of an antitrust - imposed divestiture concerns the world's largest Telco, AT&T, whose division of local telephone services was split into seven independent companies by the US Antitrust Authority in 1984[11].

[9] Gaughan (2017), *Mergers, Acquisitions, and Corporate Restructurings, 7th Edition*, Wiley, p. 397 - 400
[10] *Starbusting, The Economist, March 24, 2011*, retrieved in economist.com [https://www.economist.com/business/2011/03/24/starbursting]
[11] Brealey et. al (2018), *Principles of Corporate Finance, 12th Edition*, Mc Graw Hill Education, p. 848 - 853

In any case, a divestiture can be achieved in several ways. In its initial planning phase, the Board of Directors must evaluate the most advantageous form for the company considering the current needs and the prospects of the business.

The most common divestitures alternatives to a *spin-off* are *sell-offs*, *carve-outs*, and *split-offs*.

- ***Sell-offs*** are private taxable transactions that allow a company to give up control and ownership over a certain asset in exchange for a proceed in terms of cash and / or securities. This type of transaction is probably preferable in contexts where the divesting parent company has liquidity needs and therefore needs to monetize the divestment.
- ***Carve-outs*** are probably the most complex form of divestments. In a carve out the parent company sells a portion or the whole subsidiary in the market through an IPO. A carve-out allow the parent to receive a cash inflow from the listing of the subsidiary. At this point if only a portion of the subsidiary is placed on the market the parent may proceed with a spin-off or split-off of the remaining part of the subsidiary.
- A ***Split-off*** is something very similar to a spin-off, it allows the shareholders of the parent company to keep their shares in the parent or alternatively to exchange all or part of their equity position in the parent for an equity position in the subsidiary[12].

1.4 Advantages and Disadvantages of a spin-off

As said in previous paragraphs a spin–off is a very complex decision that requires advanced planning across different disciplines.

According to a report by *McKinsey & Company (2021)*[13] there are four critical factors that increase the likelihood of a successful spin–off:

- quick transition to growth
- operational excellence
- leadership time and attention

[12] Picardo (2021), *Spin – Off vs. Split – Off vs. Carve – Out: What's the difference?,* investopedia.com [https://www.investopedia.com/articles/investing/090715/comparing-spinoffs-splitoffs-and-carveouts.asp]
[13] Krause et. al. (2021), *Achieving win – win spin – offs*, McKinsey & Company [https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/achieving-win-win-spin-offs]

- culture and talent

As regard the first point, top management of the parent company (here named ParentCo) and of the spun-off company (here NewCo) need to have a clear understanding of how growth is part of the strategic rationale but also how they will intend to achieve it. Then is also important to improve the efficiency of the operations also before the spin–off occurrence, i.e., centralizing or simplifying business unit's operational structures or concentrating operations in high – growth areas.

In addition, executives must devote time not only thinking about how to make the spin-off happen from a technical standpoint, but also how it can generate opportunities and the best way to communicate this to stakeholders.

Lastly is essential an assessment of what are the cultures and competencies that every company would need to be successful in the long run and how to allocate people in the best way in this sense.

But what are some possible benefits that can be achieved through a spin – off? We can list the following:

- ***Greater business focus:*** A spin–off allows companies involved to better focus on pursuing their operating strategies and plans. This can enable them to better adapt to the needs of their clients and to changes in the market in which they operate.
- ***More appropriate financial structure:*** A spin–off enables the two companies to design the most appropriate capital structure for their business, strategy, and cash flow profile.
- ***Better alignment of incentives with performance:*** A spin–off allows to create incentives for management and employees that are more connected to the outcomes of the businesses for which they provide services.
- ***Creation of traded currency:*** through the public listing of part of the parent company's businesses, a spin–off creates a traded currency that can be used by the ParentCo and by the NewCo to perform acquisitions.
- ***Enlargement of investor base:*** A spin–off allows each company to articulate a clearer investment proposition, this can help each company to attract a long-term investor base more suited to its needs[14].

[14] Watchtell et al. (2021), *Spin – Off Guide*, [https://www.wlrk.com/docs/Spin-Off_Guide_2021.pdf]

A spin–off also presents some drawbacks that may limit the value creation and thus needs to be properly evaluated by the management, among major of these we can mention:

- The potential loss of both revenue and cost synergies due to the separation of the parent's business.
- Disruption of the business because of the spin–off.
- Separation costs.
- Potential greater cash flow volatility and reduced access to capital markets resulting from reduced size and diversification.
- Reduction of equity research coverage if the companies after the separation are too small.
- Possible short–term price volatility as the market adjusts considering that the two companies are no longer part of the same structure but independent entities.
- Potential increased risk of being subject to hostile takeover activities as result of the reduced size and diversification.[15]

1.5 Literature review

Starting from the 1980s, corporate spin–offs transactions have been extensively studied by Corporate Finance scholars. Broad research tries to assess the short and long-term impact of this transaction on shareholder value creation. Other studies focus on possible factors that could explain shareholder value gains associated to this transaction. In this section I will present key empirical findings of relevant previous research.

1.5.1 Short term value creation associated with spin-offs

Since the 1980s, to assess the short-term effects of spin-offs on shareholder wealth, academics have analyzed stock returns around the announcement date of spin-offs. The vast majority of studies who differs for geography, research period, sample size, event window, methodologies used and spin–off classification, documents positive abnormal returns from spin–offs announcements.

[15] Idem

Study	Country	Research period	Observations	Event window	Cumulative average abnormal return
Schipper and Smith (1983)	United States	1963-1981	93	(-1, 0)	2.84%***
Hite and Owers (1983)	United States	1963-1981	123	(-1, 0)	3.3%***
Miles and Rosenfeld (1983)	United States	1963-1980	55	(0, 1)	3.34%***
Rosenfeld (1984)	United States	1963-1981	35	(-1, 0)	5.56%***
Copeland, Lemgruber, and Mayers (1987)	United States	1962-1982	188	(-1, 0)	3.03%***
Denning (1988)	United States	1970-1982	42	(-6, 6)	2.58%n.r.
Seifert and Rubin (1989)	United States	1968-1983	51	(-1, 0)	3.26%***
Ball, Rutherford, and Shaw (1993)	United States	1968-1990	39	(-1, 0)	2.55%n.r.
Vijh (1994)	United States	1964-1990	113	(-1, 0)	2.90%***
Allen, Lummer, McConnell, and Reed (1995)	United States	1962-1991	94	(-1, 0)	2.15%***
Michaely and Shaw (1995)	United States	1981-1988	9	(-1, 1)	3.19%n.r.
Slovin, Sushka, and Ferraro (1995)	United States	1980-1991	37	(0, 1)	1.32%**
Seward and Walsh (1996)	United States	1972-1987	78	(-1, 0)	2.6%***
Johnson, Klein, and Thibodeaux (1996)	United States	1975-1988	104	(-1, 0)	3.96%***
Daley, Mehrotra, and Sivakumar (1997)	United States	1975-1991	85	(-1, 0)	3.4%***
Desai and Jain (1999)	United States	1975-1991	144	(-1, 1)	3.84%***
Krishnaswami and Subramaniam (1999)	United States	1978-1993	118	(-1, 1)	3.28%***
Mulherin and Boone (2000)	United States	1990-1999	106	(-1, 1)	4.51%***
Maxwell and Rao (2003)	United States	1976-1997	79	(0, 1)	3.59%***
Veld and Veld-Merkoulova (2008)	United States	1995-2002	91	(-1, 1)	3.07%***
Kirchmaier (2003)	Western Europe	1989-1999	48	(-1, 1)	5.4%***
Veld and Veld-Merkoulova (2004)	Western Europe	1987-2000	156	(-1, 1)	2.62%***
Sudarsanam and Qian (2007)	Western Europe	1987-2005	157	(-1, 1)	4.82%***
Murray (2000)	United Kingdom	1992-1998	25	(-1, 1)	-0.19%
Schauten, Steenbeek, and Wycisk (2001)	United Kingdom	1989-1996	23	(-1, 1)	2.13%n.r.
Sin and Ariff (2006)	Malaysia	1986-2002	85	(-1, 0)	1.80%*

*n.r. Not reported significance level for the event window; ***significance at the 1% level; **significance at the 5% level; *significance at the 10% level.*

Figure 2 - Stock returns around the announcement date of spin-offs (Veld and Veld – Merkulova)[16].

As we can see from this table broad research has studied the US market and the first studies are by *Schipper and Smith (1983)*, *Hite and Owers (1983)*, *Miles and Rosenfield (1983)*.

Schipper and Smith (1983)[17] analyzed 93 voluntary spin–offs announcements for the period 1963 – 1981 documenting positive abnormal returns equal to 2.84%. In their research sample they excluded, together with regulatory - imposed divestiture, also spin–offs announced with other firm specific event to avoid confusing stock price adjustments with the simultaneous announcement. The abnormal results were calculated with the market model and measured in an event window that ranges from the day before the announcement to the day of the announcement (-1;0). A similar study was carried out by *Hite and Owers (1983)*[18] that considering the same market, research period and event window found abnormal returns equal to 3.3%. In their sample size of 123 observations, they include only spin–offs that provides for the pro - rata distribution of new shares to old shareholders.

[16] Veld and Veld – Merkulova (2009), *Value creation through spin – offs: A review of the empirical evidence*, International Journal of Management Reviews, p. 410
[17] Schipper and Smith (1983), *Effects of recontracting on shareholder wealth: The case of voluntary spin – offs*, Journal of Financial Economics
[18] Hite and Owers (1983), *Security price reactions around corporate spin – off announcements*, Journal of Financial Economics

The study of *Miles and Rosenfield (1983)*[19] provides for consistent results (average abnormal returns of 3.34%) even using a smaller sample size of 55 observations, a different method for the computation of returns (mean adjusted return method) and an event window from the day of the announcement to the day after.

As far as studies on the European market are concerned, the first studies date back to the 21st century and we can cite the works of *Kirchmaier (2003)*[20], *Veld and Veld-Merkulova (2004)*[21], *Sudarsanam and Qian (2007)*[22], *Murray (2000)*[23], *Schauten et. al (2001)*[24]. These studies present results consistent with those of the United States presenting positive abnormal returns ranging from 1.80% to 5.4%.

The only exception is represented by the study of *Murray (2000)*[25] which reports an abnormal return of - 0.19%.

1.5.2 Long term value creation associated with spin-offs

In theory, the positive abnormal stock returns on the announcement date reported for parent companies should reflect investors' expectations of the prospects of the parent company and subsidiary so as suggested by *Cusatis et al. (1993)*[26] we should not expect abnormal returns in an extended period following the announcement date.

However, we have research about long run performance of companies involved in spin–offs that document abnormal returns for periods up to 3 years following the announcement. The main findings of relevant research on this topic are reported in this table.

[19] Miles and Rosenfield (1983), *The Effect of Voluntary Spin – Off Announcements on Shareholder Wealth*, The Journal of Finance
[20] Kirchmaier (2003), *The Performance effects of European Demergers*, London School of Economics
[21] Veld and Veld – Merkulova (2004), *Do Spin – offs Really Create Value? The European Case*, Journal of Banking & Finance
[22] Sudarsanam and Qian (2007), *Catering Theory of Corporate Spin – Offs: Empirical Evidence for Europe*, Cranfield University
[23] Murray (2000), *An assessment of the wealth effects of spin – offs on the London Stock Exchange*, University College Dublin
[24] Schauten et. al. (2001), *Waardecreatie Door Spinoffs (Value Creation by means of spin – offs)*, Tijdschrift Financieel Management
[25] Murray (2000), *An assessment of the wealth effects of spin – offs on the London Stock Exchange*, University College Dublin
[26] Cusatis et. al. (1993), *Restructuring through spinoffs: the stock market evidence*, Journal of Financial Economics

Study	Research period	Observations	Event window (%) t_{sp} + 6 months	t_{sp} + 12 months	t_{sp} + 24 months	t_{sp} + 36 months
Panel A: Pro-forma combined firms						
Cusatis *et al.* (1993)	1965–1988	141		4.7	18.9**	13.9
Desai and Jain (1999)	1975–1991	155		7.7	12.7	19.8***
Veld and Veld-Merkoulova (2004)	1987–2000	45–61[a]	–2.2	–2.3	4.2	2.0
Sudarsanam and Qian (2007)	1987–2002	129		–2.3	8.3	8.4
Panel B: Parent firms						
Cusatis *et al.* (1993)	1965–1988	131	6.8*	12.5**	26.7***	18.1
McConnell *et al.* (2001)	1989–1995	80	8.6	13.5	19.2	5.1
Desai and Jain (1999)	1975–1991	155		6.5	10.6	15.2
Veld and Veld-Merkoulova (2004)	1987–2000	68–106[a]	3.9	–0.7	6.5	–0.4
Sudarsanam and Qian (2007)	1987–2002	129		–3.9	6.2	7.1
Panel C: Subsidiaries						
Cusatis *et al.* (1993)	1965–1988	146	–1.0	4.5	25.5**	33.6**
McConnell *et al.* (2001)	1989–1995	96	8.9	7.2	5.8	–20.9
Desai and Jain (1999)	1975–1991	162		15.7***	36.2***	32.3***
Veld and Veld-Merkoulova (2004)	1987–2000	53–70[a]	12.0	12.6	13.7	15.2
Sudarsanam and Qian (2007)	1987–2002	142		7.2	17.5	23.0*

****Significance at the 1% level; **significance at the 5% level; *significance at the 10% level.*

Figure 3 - Long run performance of companies involved in spin-offs (Veld and Veld – Merkulova)[27]

The first study is by *Cusatis et al. (1993)*[28]. They study stock price performance of US firms after a spin–off using ***Buy-and-Hold Abnormal Returns*** (**BHARs**) corrected for returns on matching firms. As we can see from the table, they find significant long-run abnormal performance in the period of 36 months after the spin–off date. Returns are particularly high in the second year both for parents and subsidiaries while parents differently from subsidiaries perform best in the first 24 months.

Similar results using the same matching firm approach to calculate BHARs are documented by *Desai and Jain (1999)*[29]. In addition, they find that focus – increasing spin–offs have far better performance than non-focus - increasing spin–offs. Specifically, the former after 1, 2, 3 years generate abnormal returns of 11.12%, 20.77%, 33.36% respectively while the latter non-significant abnormal returns of -0.96%, -7.66% and -14.34%. According to the authors such lower performance would be motivated by the fact that non-focus - increasing spin – offs are made to reduce high debt levels, overcome a distress situation, or to separate an

[27] Veld and Veld – Merkulova (2009), *Value creation through spin – offs: A review of the empirical evidence*, International Journal of Management Reviews, p. 416
[28] Cusatis et. al. (1993), *Restructuring through spinoffs: the stock market evidence*, Journal of Financial Economics
[29] Desai and Jain (1999), *Firm performance and focus: long-run stock market performance following spinoffs*, Journal of Financial Economics

underperforming subsidiary. Subsequent studies by *McConnell et al. (2001)*[30] on the U.S. market and by *Veld and Veld-Merkoulova (2004)*[31] and *Sudarsanam and Qian (2007)*[32] on the European market use the same matching firm approach but an improved method for calculating t-statistics that considers the cross-correlation between parent and subsidiary abnormal returns. As shown in the table these studies tend to show positive but not as significant returns.

1.5.3 Factors that can explain shareholder value gain

As seen in section *1.5.1* there is a large literature documenting abnormal returns associated with spin-offs around the announcement date. There are also studies that attempt to explain what factors drive these wealth effects. The most common ones suggested in past studies are reported in the following paragraphs.

1.5.3.1 Increase in corporate focus

One of the factors commonly associated with abnormal spin-off returns at announcement is increased corporate focus. Numerous research including those of *Lang and Stulz (1994)*[33], *Berger and Ofek (1995)*[34] and *Servaes (1996)*[35] show that diversified companies are traded at a discount compared to non-diversified companies. A spin–off can allow to improve the focus of the firm and to eliminate the diversification discount. Studies on this topic consider as focus increasing spin-off those in which the management states that the spin-off will be carried out to specialize or to return to the original business or those in which the parent company operates in a different industry than the subsidiary or even those that lead to a reduction in *Herfyndahl's index* or in the number of segments reported by the company[36].

[30] McConnell et al. (2001), *Spin-offs, ex ante*, Journal of Business
[31] Veld and Veld – Merkulova (2004), *Do Spin – offs Really Create Value? The European Case*, Journal of Banking & Finance
[32] Sudarsanam and Qian (2007), *Catering Theory of Corporate Spin – Offs: Empirical Evidence for Europe*, Cranfield University
[33] Lang and Stulz (1994), *Tobin's q, Corporate Diversification, and Firm Performance*, Journal of Political Economy
[34] Berger and Ofek (1995), *Diversification's effect on firm value,* Journal of Financial Economics
[35] Servaes (1996), *The Value of Diversification During the Conglomerate Merger Wave*, The Journal of Finance
[36] Veld and Veld – Merkulova (2009), *Value creation through spin – offs: A review of the empirical evidence*, International Journal of Management Reviews, p. 410

1.5.3.2 Information asymmetry

Another potential source of shareholder wealth is the reduction of information asymmetry associated with a spin-off transaction. The study by *Habib et al. (1997)*[37] is the first to suggest how a parent spinning off a subsidiary can reduce information asymmetry and increase firm value. They find that a spin–off increasing the number of securities in circulation generates two effects. First, it improves the quality of managers' investment decisions. Second, it reduces uninformed investors' uncertainty about asset values. Both effects lead to an increase in firm value.

A later study by *Krishnaswami and Subramaniam (1999)*[38] finds that, companies engaging in spin-offs exhibit higher levels of information asymmetry than peer firms by industry and size. Moreover, information asymmetry decreases significantly after spin-off so the abnormal returns of a spin–off can be considered positively related to the decrease of information asymmetry.

In contrast to the results of *Krishnaswami and Subramaniam (1999)* a study by *Veld* and *Veld-Merkoulova (2004)*[39] on 156 European spin-offs identifies no relationship between the level of information asymmetry and the size of abnormal returns questioning whether value creation can be explained by information asymmetry.

1.5.3.3 Size

The relative size of the spun - off subsidiary is another factor that has been studied to explain the performance and value creation associated with spin-offs. Numerous studies argue that the larger the size of the divested subsidiary, the greater the creation of shareholder value. With this respect *Hite and Owers (1983)*[40], *Miles and Rosenfeld (1983)*[41], *Krishnaswami and Subramaniam (1999)*[42], and *Veld* and *Veld-Merkoulova (2004)*[43] all document higher yield announcements for larger spin-offs than for smaller ones. *Krishnaswami and Subramaniam*

[37] Habib et. al. (1997), *Spinoffs and Information*, Journal of Financial Intermediation
[38] Krishnaswami and Subramaniam (1999), *Information Asymmetry, Valuation, and the Corporate Spin – Off Decision*, Journal of Financial Economics
[39] Veld and Veld – Merkulova (2004), *Do Spin – offs Really Create Value? The European Case*, Journal of Banking & Finance
[40] Hite and Owers (1983), *Security price reactions around corporate spin – off announcements*, Journal of Financial Economics
[41] Miles and Rosenfield (1983), *The Effect of Voluntary Spin – Off Announcements on Shareholder Wealth*, The Journal of Finance
[42] Krishnaswami and Subramaniam (1999), *Information Asymmetry, Valuation, and the Corporate Spin – Off Decision*, Journal of Financial Economics
[43] Veld and Veld – Merkulova (2004), *Do Spin – offs Really Create Value? The European Case*, Journal of Banking & Finance

(1999)[44], and *Veld* and *Veld - Merkoulova (2004)*[45] also investigated whether in the long-run larger spin-offs outperform smaller ones but found no significant results. In any case two different explanations have been proposed to explain the short-term relative size effect. *Schipper and Smith (1983)*[46] argue that management productivity is higher by reducing the size and diversity of parent assets because of increased focus. In addition, by spinning off a large subsidiary a company can eliminate more value destroying activities increasing its overall value. *Chemmanur and Yan (2004)*[47] have a different explanation. They suggest that the larger the spun - off subsidiary the greater the chance for the parent to be a target for a takeover. Greater possibility of takeover increases shareholder value.

[44] Krishnaswami and Subramaniam (1999), *Information Asymmetry, Valuation, and the Corporate Spin – Off Decision*, Journal of Financial Economics
[45] Veld and Veld – Merkulova (2004), *Do Spin – offs Really Create Value? The European Case*, Journal of Banking & Finance
[46] Schipper and Smith (1983), *Effects of recontracting on shareholder wealth: The case of voluntary spin – offs*, Journal of Financial Economics
[47] Chemmanur and Yan (2004), *A theory of corporate spin – off*, Journal of Financial Economics

1.5.3.4 Wealth transfer from bondholders

Finally, the potential transfer of wealth from bondholders to shareholders has been considered by some scholars as a possible explanation of stockholder gains on the announcement of a spin-off. As suggested by *Maxwell and Rao (2003)*[48] in a spin–off there are two possible sources of wealth transfers from bondholders. First, bondholders may suffer from loss of collateral and liquidation value due to assets being reassigned between the two companies. Second, bondholders may suffer from a loss of coinsurance provided by operating cash flow stemming from two units that might not be positively correlated. *Hite and Owers (1983)*[49] and *Schipper and Smith (1983)*[50], the first authors to study wealth expropriation hypothesis found no evidence for such wealth transfers. Maxwell and Rao (2003)[51] in a later study came up with a different conclusion. Studying the bond market responses for 80 spin–offs over the period 1976 – 1997 they found that bondholders suffered a negative abnormal return equal to -0.88% in the month of the spin-off announcement. In contrast in the same period shareholders gained a 3.6% on average. According to their study the greater the shareholder gain, the greater was the loss to bondholders. However, they conclude that the positive impact on shareholder wealth is only partially attributable to a wealth transfer from bondholders.

[48] Maxwell and Rao (2003), *Do Spin – offs Expropriate Wealth from Bondholders?* The Journal of Finance
[49] Hite and Owers (1983), *Security price reactions around corporate spin – off announcements*, Journal of Financial Economics
[50] Schipper and Smith (1983), *Effects of recontracting on shareholder wealth: The case of voluntary spin – offs*, Journal of Financial Economics
[51] Maxwell and Rao (2003), *Do Spin – offs Expropriate Wealth from Bondholders?* The Journal of Finance

2. Story and rationales behind decision

2.1 IBM corporate culture across market evolution, technology innovation and antitrust regulation

Originated in 1911, as *Computing-Tabulating-Recording Company*, *International Business Machines* is one of the longest-running technology companies.

From the beginning, the company has developed a strong corporate culture resulting from the personality of Thomas Watson Sr, CEO and Chairman of IBM from 1914 to 1956.

IBM's corporate culture has been built around a powerful motto, "***THINK***," and three key principles intended to guide people's behaviors and the organization's actions[52]:

- Respect for the individual
- The best customer service in the world
- Excellence

These key principles termed as "*basic beliefs*" were institutionalized and reflected in remuneration systems, educational and training programs for employees, marketing, and customer support[53].

The "*basic beliefs*" helped create the company's proactive and innovation-focused mindset that makes IBM one of the most successful companies in the world in the 1960s and 1970s.

Together with innovation the company wants to foster excellence in Customer service, and protect customer investments across technology changes, granting them support and full *backward compatibility* of new standards with older one. The implementation of this principle is expensive and limits innovation rate but was considered fundamental and never neglected in IBM strategy.

[52] IBM 100 – A Culture of Think, ibm.com [https://www.ibm.com/ibm/history/ibm100/us/en/icons/think_culture/]
[53] Gerstner Jr. L. (2002), Who Says Elephants Can't Dance? Leading a Great Enterprise Through Dramatic Change, HarperCollins

With this respect, in 1964 the company rather than take a passive stance, justifiable by a good market share in the computer market, launched a very innovative product, the IBM System/360, which ensured absolute dominance in the industry for the next 20 years[54].

The technical dominance in Mainframe's technology soon drove the company to a market dominance that resembled a predominant position and lead competitor companies to ask to the U.S. government to investigate for possible abuses to antitrust regulation. Also, companies in other eastern countries were competing in production of Mainframe systems, often a strategic and classified technology in the Cold War Era, and were interested in mitigating IBM dominance, proposing to share standards.

Over the years, however, the successes and the fear of antitrust sanctions by the U.S. Government contributed to a more conservative culture that seemed to betray some key aspects of IBM's culture such as a willingness to go big, take risky bets, and devote itself to customer service[55].

On January 17, 1969, the United States of America filed a complaint in the United States District Court for the Southern District of New York, alleging that IBM violated the Section 2 of the *Sherman Antitrust Act* by monopolizing or attempting to monopolize the general-purpose electronic digital computer system market, specifically computers designed primarily for business. Subsequently, the US government alleged IBM violated the antitrust laws in IBM's actions directed against leasing companies and plug-compatible peripheral manufacturers.[56]

Among the major violations asserted were:

- Anticompetitive price discrimination such as giving away software services.
- Bundling of software with "related computer hardware equipment" for a single price.
- Predatorily priced and preannounced specific hardware "fighting machines".
- Developed and announced specific hardware products primarily for the purpose of discouraging customers from acquiring competing products.

[54] Maney et. al. (2011), *Making the World Work Better: The Ideas That Shaped a Century and a Company*, Pearson
[55] Idem
[56] *"United States' Memorandum on the 1969 Case"*. United States Department of Justice. October 5, 1995. [https://www.justice.gov/atr/case-document/united-states-memorandum-1969-case]

- Announced certain future products knowing that it was unlikely to be able to ship such products within the announced time frame.
- Engaged in below cost and discount conduct in selected markets to injure peripheral manufacturers and leasing companies.

The fear of an antitrust action led the company to plan for defensive actions that included an organization in autonomous divisions, to be prepared to split in case of government acts, and to release some of the proprietary inventions as standards.

In 1969 innovations in sales conditions were applied to mitigate dominance. IBM unbundled its system software and services from hardware sales, to allow third parties to use SW on compatible systems and to make their own service business on IBM hardware.[57]

This unbundling creates the IBM's software and services industry[58]. According to some commentators as Matthew Stoller[59] this unbundling is a response to the antitrust lawsuit the government filed against IBM that year, antitrust lawsuit ended in a favorable ruling for IBM in 1982.

Regardless of whether the two facts are related they certainly had an important impact on IBM's culture and strategies during those years, leading to a vision of integration of proprietary solution and Open Industry Standards that evolved later (2000) in the adoption of *LINUX* operating system on all platforms and to the concrete support of *Open-Source Software* manifesto in Software and Service divisions.

In 1981 the IBM created a successful product, the Personal Computer IBM 5150, based on open standards, but failed to exploit its advantage, for fear of a new antitrust actions, and because implications of making it an open standard, that allowed other manufacturers to produce compatible clones.

Later this caused IBM to suffer cost competition from other manufacturers in an increasingly crowded market, and then lead the decision of abandoning PC business.

The unbundling contributed to the formation of greater competition and a more individualistic vision of divisions, partially balanced by Board of Director *check and balance*

[57] *Software Becomes a Product*, computerhystory.org [https://www.computerhistory.org/revolution/mainframe-computers/7/172]
[58] *Chronological History of IBM*, ibm.com [https://www.ibm.com/ibm/history/history/decade_1960.html]
[59] *Taking a Second Look at the Idea That Antitrust Action Created the US Software Industry*, aei.org [https://www.aei.org/economics/taking-a-second-look-at-the-idea-that-antitrust-action-created-the-u-s-software-industry/]

actions. This led to a more bureaucratic direction of the company that was later (1993) criticized for its impact on the ability of taking innovative decisions and executing them with agility and corrected by new Chairman Louis V. Gerstner Jr[60] [61].

After Gerstner era, the company under Sam Palmisano (2002) and later Ginni Rometty (2012) CEO direction, continued a to pursue sustainable and continuous innovation trends, moving out from business subject to obsolescence in favor of investing in more promising ones.

In 2021 CEO Arvind Krishna indicates three key elements of a growth strategy:

1. Optimizing portfolio to drive sustainable mid-single digit revenue growth
2. Increasing focus and agility to better serve clients
3. Generating $35B of free cash flow over the next 3 years to enable investments

2.1.1 Brief IBM chronology

For evaluations of the divesture objectives, it is relevant to review why and when the IBM company principles and business characteristics where developed and how those evolved to adapt to business environments changes. A short chronology of IBM company is provided in this paragraph, based on IBM archives. [62]

In the early years the company was built consolidating different technological acquisitions, becoming gradually a corporate entity.
As milestones of these years, we may mention the following:

- 1911 Foundation as *Computing-Tabulating-Recording Company* (CTR), holding four companies: *The Tabulating Machine Company* (est. 1880), *Computing Scale Corporation* (est.1990), *International Time Recording Company* (est.1901), *Bundy Manufacturing Company*.
- 1914 Thomas J. Watson becomes Sr**.** general manager.
- 1918: revenue $9 million and net earnings $1 million. 3,127 employees.
- 1924 Renamed as ***International Business Machines.***

[60] Gerstner Jr. L. (2002), *Who Says Elephants Can't Dance? Leading a Great Enterprise Through Dramatic Change*, HarperCollins
[61] Quinn Mills D. (1996), *The Decline and Rise of IBM* [https://sloanreview.mit.edu/article/the-decline-and-rise-of-ibm/]
[62] Chronological History of IBM, ibm.com [https://www.ibm.com/ibm/history/history/history_intro.html]

- 1933 IBM incorporates controlled firms.

After the consolidation the innovation in technologies was rapid and oriented to business automation products:

- First patent for Electric Tabulating Machine granted to Dr. Herman Hollerith (1889).
- Harlow Bundy produces first time recording clock (1890)
- Production of first automatic feed mechanical tabulator (1911)
- Eighty Characters Punch Card (1928)
- First commercial calculator capable of multiplications and divisions (1931)
- Automatic test scoring machine (1937)
- Electric typewriter (1941)
- Vacuum tube multiplier, first electronic application (1943)
- First electronic calculator (1946)
- Programmable electronic calculator (1948)
- First commercial electronic calculator, first magnetic tape-recording memory (1952)
- Floating point arithmetic calculator (1954)
- Transistors and magnetic core memory (1955)

In the same years the company developed its unique principles and business ethics.

In 1915 general manager Thomas J. Watson, Sr**.** introduced the *Think!* motto and intellectual incentive programs. In the twenties, T.J. Watson established distributors and subsidiaries in all major western countries and started transformation in a multinational company. In 1925 started the first sales incentive based on quota, the 100*% Club* convention. As first company, and in a rapid sequence, introduced 40-hour week (1933), group life insurance (1934), survivor benefits (1935) and paid vacations (1937).

In 1935 women were admitted working in professional roles.

In 1945 Watson Scientific Computing Laboratory was founded at Columbia University. Disability and minority plans were created in 1947. In 1953 the CEO published the first anti-discrimination policy, the *Equal Opportunity Policy Executive Letter*.

After establishing this solid company culture and product portfolio, the company was oriented to boost systemic progress in information technology, first in hardware and later in software, that can influence and drive economic and social progress.

From 1950 to 1990 the innovation process became quicker, deeper, and pervasive.

Milestones for those years:

- 1956 Thomas J. Watson, Jr. named CEO
- 1969 Multiple spin-offs plan to respond to US government call in violation of Sherman Antitrust act
- 1973 Leo Esaki, of the IBM Thomas J. Watson Research, wins Nobel for work in semiconductors
- 1986 Gerd Bining and Heinrich Rohrer, of the IBM Zurich Research Center, won Nobel for the scanning tunneling microscope
- 1987 Georg Bednorz and Alex Mueller, of the IBM Zurich Research Center, won Nobel for research in superconductivity.

During these years several innovations in technologies and product were carried on:

- *FORTRAN* scientific programming language created by IBM researcher John Backus (1957)
- First computer network (1958)
- First mainframe *System 360* (1966)
- *DRAM* memory invention (1966)
- First relational database (1970)
- First copier (1971)
- Speech recognition (1973)
- First hard disk drive (1975)
- First portable computer and first laser printer (1976)
- *DES* cryptographic standard (1978)
- *System/38* mid-range computer (1978)
- *UPC* bar code (1979)
- *IBM Personal Computer*, priced $1,565, (1981)
- *DOS PC* operating system with Microsoft (1981)
- Scanning tunneling microscopy (1983)
- Local Area Network (1985)
- *System 390* mainframe and *ThinkPad* notebook computer (1992)

Starting from 1990 to present, the IBM Corporation focused on transformation from a hardware-oriented company to a software and services company, reorganizing lines of business, maintaining investments in edge technologies and high-end hardware only, cutting

the ones in less innovative products and commodity services, and investing in research and joint ventures. This transformation implied big changes in the company organization, from product line to mission oriented, reduction of bureaucracy and internal conflicts and segmentations (see the '*no silos*' motto introduced by Louis V. Gestner) and quicker decisional processes for a shorter time to market.

Some events that may represents this transformation are the wide popularity of IBM Artificial Intelligence solutions reached when Deep *Blue* computer won on chess grandmaster Garry Kasparov in 1997, and with 2011 Watson computer win in *Jeopardy!* game show, and in 2018, the recognition of IBM as top rank among business companies for *patent creation* for 25 consecutive years.

In this transformation the use of acquisitions and divestitures becomes a core strategy. Milestones that we can mention are:

- 1991 printer division spin-out to *Lexmark.*
- 1993 Louis V. Gestner Jr. elected CEO after board forced John Akers to resign to resolve internal conflicts.
- 2002 *PWC Consulting* acquisition under CEO Sam Palmisano.
- 2005 Personal Computer division sold to *Lenovo.*
- 2012 Ginni Rometty named CEO set Big Data, Cloud and AI strategy.
- 2014 Intel x86 Server division sold to *Lenovo*.
- 2014 Partnerships with *Apple, Twitter, Facebook, Tencent, Cisco, Under Armour, Box, Microsoft, VMware, CSC, Macy's, Sesame Workshop*, and *Salesforce.com*.[63]

[63] Etherington, D. (2014), *Apple Teams Up with IBM For Huge, Expansive Enterprise Push*, techcrunch.com [https://techcrunch.com/2014/07/15/apple-teams-up-with-ibm-for-huge-expansive-enterprise-push/?guccounter=1]

Nordqvist, C. (2014), *Landmark IBM Twitter partnership to help businesses make decisions*, marketbusinessnews.com [https://marketbusinessnews.com/landmark-ibm-twitter-partnership-help-businesses-make-decisions/37093/]
Ha, A. (2015), *IBM Announces Marketing Partnership with Facebook*, techcrunch.com [https://techcrunch.com/2015/05/05/ibm-partners-with-facebook/]
Kyung - Hoon, K. (2014), *Tencent teams up with IBM to offer business software over the cloud*, reuters.com [*https://www.reuters.com/article/us-tencent-ibm-deals-idUSKBN0IK0Q320141103*]
Vanian, J. (2016), *Cisco and IBM's New Partnership Is a Lot About Talk*, fortune.com [https://fortune.com/2016/06/30/cisco-ibm-chat-work-collaboration/]
Terdiman, D. (2016), *IBM, Under Armour Team Up to Bring Cognitive Computing to Fitness Apps* , fastcompany.com [https://www.fastcompany.com/3055148/ibm-under-armour-team-up-to-bring-cognitive-computing-to-fitness-apps]
Franklin Jr., C. (2015), *IBM, Box Cloud Partnership: What It Means*, informationweek.com [https://www.informationweek.com/cloud-storage/ibm-box-cloud-partnership-what-it-means]
Weinberger, M. (2016), *Microsoft just made a deal with IBM – and Apple should be nervous*, businessinsider.com [https://www.businessinsider.com/microsoft-ibm-surface-partnership-2016-7?r=US&IR=T]
Forrest, C. (2016), *VMware and SugarCRM expand partnerships with IBM, make services available on IBM Cloud* , techrepublic.com [https://www.techrepublic.com/article/vmware-and-sugarcrm-expand-partnerships-with-ibm-make-services-available-on-ibm-cloud/]
Taft, D. (2016), *IBM, CSC Expand Their Cloud Deal to the Mainframe*, eweek.com [https://www.eweek.com/cloud/ibm-csc-expand-their-cloud-deal-to-the-mainframe/]
Taft, D. (2016), *Macy's Taps IBM, Satisfy for In-Store Shopping Companion*, eweek.com [https://www.eweek.com/database/macy-s-taps-ibm-satisfi-for-in-store-shopping-companion/]

- 2018 *RedHat* merger acquisition.
- 2019 *IBM Q System One*, first commercial *quantum computer*.
- 2020 Arvind Krishna CEO. Multiple software product development sold to *HCL*.
- 2021 ***Kyndryl spin-off***

2.2 Discussion of significant IBM divestures

Like other big size corporation IBM has a long story of acquisition and divestitures, almost originated from its early years when the company was named CTC.

The company mindset from its origin was largely based on continuous innovation and sustainable growth, so that most of the divestiture decision come from a reasoned reshaping of a still profitable business rather than from emergency reaction to an already manifested crisis.

The official bibliography uses often to emphasize acquisitions, as they represent fostered evolution of the business, and minimize or omit divestitures, as unexpected or unwanted pitfalls in the innovation process.

The company, as common for large Global Corporations (and IBM is global from its early beginning), has always applied sophisticated and diversified financial practices related to the acquisitions/divestiture's strategy. The type of divestiture was chosen according to the objectives and intended financial outcomes and adapted to other less tangible objectives.

Most of divestitures came with positive reaction from investors but with more contrasting results on the company reputation, brand value and spirit, that may have affected Customers and Employees involved.

It must be noted that the merger and acquisition strategy must be in sync with the divestiture strategy as both are used to reshape the corporation according to its changing ecosystem and market objectives. Moreover, in some cases the need of divestiture raises from financial and regulatory limits (like antitrust laws compliance) that can impede or delay a strategic planned acquisition in absence of a previous dismission. In that sense divestitures are instrumental to later acquisitions, also when it was not strictly necessary as for cash resources availability.

Toppo, G., *Sesame Workshop, IBM partner to use Watson for preschoolers*, usatoday.com [https://eu.usatoday.com/story/news/2016/04/27/sesame-workshop-ibm-partner-use-watson-preschoolers/83563342/]
Nusca, A. (2017), *IBM, Salesforce Strike Global Partnership on Cloud, AI,* fortune.com [https://fortune.com/2017/03/06/ibm-salesforce-partnership-ai/]

IBM has executed around 242 acquisitions and 36 divestitures in its history from 1889 to 2022, demonstrating its continuous willing of a market and technological growth.
The pace of innovation associated to this strategy was accelerated by technology transformation, like the shift of main business from HW to SW and services in 2000 years and the recent move to Cloud Computing.
Starting 1990 it has executed 28 divestitures ranging in estimated value from hundred thousand to 4,9 billion USD (*IBM Global Network* sell-off to *ATT*), and 208 acquisitions ranging from hundred thousand to 34.8 billion USD (*RedHat Corporation* merger).

The bigger numbers in recent history can be interpreted with the greater innovation pace in the IT industry and the predominant number of companies that produce immaterial good like SW and services and have a quicker lifecycle respect to HW production companies of the past and are less capital intensive and more human intensive investment related.

For the purpose of this study, we will focus only on more recent company history, after the 1990 year, as we want to consider effects in a market that more closely resembles current high tech market condition, and we will examine only some of the recent divestiture, considered more paradigmatic, looking to their reasons and desired outcome, and to the main effects to company evolution and culture.

The short discussion will be completed by a classification of these dismissions according to theoretical criteria identified in chapter 1.

The following dismission actions demonstrate a common well-established practice and a strategic planning.

Common to them all are:

- The choice of complex and articulated financial practices aligned with the core and secondary objectives set for the operation
- The choice of establish future synergies with the companies that receive the dismissed function, and pact of no competition, rather than maximizing realized prize
- The willing of keeping high the company reputation and to protect Customers stakes and service continuity

- The continuity of management and technical direction, with IBM staff transfers, that enable future synergies
- The respect for employee involved setting guarantees for them also after the transition
- The respect of IBM principles in the adopted practices, that originates by company culture and ethic respect

It must be noted that in most of the dismission examined (4 out 6, with the notable exceptions of Lexmark and Francisco Partners dismissions), IBM company was selecting Strategic *Buyers* rather than *Financial Buyers* to receive the dismission. This is explained by the intention of running well planned strategic dismission seeking for medium and long-term synergies and limiting or removing any advantage for competitors.

Strategic Buyers could pay a higher premium because they could activate synergy that can't be activated by financial buyers and they generally have a better knowledge of the business of the competitors, moreover they can trade acquisitions in stocks and could leverage tax advantages offsetting losses by future gains, using the tax shield accumulated in the past to reduce the tax burden caused by acquisition

On the other hand, *Financial Buyers* are generally quicker and can pay more in incentives to management but can represent a risk of information disclosure to the competitors. This is mitigated if private equity own businesses in the same sector of the dismission.

2.2.1 Printers division spin out to Lexmark (1991)

In late 80s it appeared that the company strategy based on different product lines (Mainframes, Midrange Servers, Personal Computers, Communication Control unit and Printers) was not granting an equal result on revenue and ability to compete in the emerging IT markets. Premium products were sold with high markups, while most common consumer product and peripherals were struggling due to competition and pricing issues. Margins were thus dramatically different.

The product development of top product was mainly based on patented proprietary HW technologies, while the most common product development required to use OEM low-cost components to make a competitive price. Also, the sell channel of the various lines was different, being the main product being sold by corporate representatives, while other were sold by agents, licensed resellers, or retailers, with a very limited synergy possible.

In this situation was defined the plan of dismission of not strategical line of products to focus on the core business of mainframes, departmental computers, and system software.

The Information Products Division, including printer peripherals and typewriter product lines, where the first to be considered for a sell.

The sell was technically a dismission of a integrate line of business, including HW development, production facilities, support, and sales for the so-called IBM Information Products division.

Being IBM not willing to boost market share of competitors, investment firm where selected as candidate buyers, and a new company named ***Lexmark*** was formed to confer assets.

The investment firm ***Clayton, Dubilier & Rice*** completed acquisition on March 27, 1991, with a leveraged buyout of approximately 1.6 billion USD, financed mostly through bank loans that left the NewCo with $1 billion debts.

A major restructuring plan was initiated under the leadership of two former IBM top managers, Marvin Mann, and Paul Curlander, before taking the company to the public, with the scope of defending the investment demonstrating that the heavy debt load was sustainable.

The company was then listed on the New York Stock Exchange on November 15, 1995, and Mann was confirmed as chairman, president, and CEO. When the Private Equity fund fully exited this investment in 1998 its gain was estimated in about 1 billion.[64]

2.2.2 Personal Computer Division sold to Lenovo (2005)

This sell was the first one that included an entire hardware division, the Personal Computers Division, and a successful ad recognized brand, born in 1992, the *ThinkPad* top line notebooks.

The decision matured in 2004 after some years of declining profits for the division, due to reduced margins and market share. IBM's market share in the global PC market declined from 8.8% in 1996 to 5.8% in 2003 with main competitors growing: *Hewlett Packard* went

[64] *The 30 most influential private equity deals*, Private Equity International, June 2, 2004, retrieved in privatedebtinvestor.com [https://www.privatedebtinvestor.com/the-30-most-influential-private-equity-deals/]

from 15.8% to 16.2% and *Dell* from 4.2% to 16.7%.[65] At that point there wasn't a will of fighting in this market being the high-value enterprise market much more profitable.

> "*The PC business is rapidly taking on the characteristic of the home and consumer industry, which favors enormous economies of scale focused on individual users and buyers. This agreement continues IBM's strategic rebalancing of our portfolio on the high-value enterprise market*," said IBM CFO Mark Loughridge.[66]

Lenovo was already a manufacturer for IBM products and agreed to pay to IBM $600 million in cash and $650 million in stock, also assuming $500 million in debt, with a total value of the transaction of $1.75 billion.

The agreement included the obligation for Lenovo to provide goods at prefixed discount price for IBM internal use. IBM will be the preferred customer financing and sales provider for *Lenovo*, and products will be co-branded for some years.

Around half of the workers of the new organization were transferred from IBM, while the others, mainly residing in China, were already working for IBM as suppliers.

After acquisition *Lenovo* was ranked as third global PC manufacturer. IBM kept a 18.9% stake in *Lenovo* business.

2.2.3 Dismission of semiconductor manufacturing to GlobalFoundries (2014)

In 2014 IBM CEO Ginny Rometty announced good performances in strategic growth areas such Cloud and Security, with a Cloud revenue grow of more than fifty percent, year to date, and eight percent grow for business analytics.

At same time she remarked that the overall performance was still disappointing and presented as a necessity the divestment of semiconductor technology "*to further focus on fundamental semiconductor research and the development of future cloud, mobile, big data analytics and secure transaction-optimized systems*".[67]

[65] Jones T.Y. (2004), *IBM to Sell Its PC Division*, latimes.com [https://www.latimes.com/archives/la-xpm-2004-dec-08-fi-lenovo8-story.html]
[66] Williams L. and Callender P. (2004), *China's Lenovo to buy IBM's PC business*, computerworld.com [https://www.computerworld.com/article/2567931/china-s-lenovo-to-buy-ibm-s-pc-business.html]
[67] Ohnesorge L. (2014), *IBM divests semiconductor technology unit for $1.5B*, bizjournals.com [https://www.bizjournals.com/triangle/news/2014/10/20/ibm-sells-semiconductor-technology-unit-1-5-billio.html]

The decision was to divest global commercial semiconductor technology unit, including manufacturing, intellectual property, technologies, and commercial microelectronics business, to *GlobalFoundries* paying cash $1.5 billion in three years as anticipation for an exclusive supply agreement.

IBM kept its research and development in-house, continued to invest $3 billion in five years on semiconductor technology research, feeding *GlobalFoundry* innovation, while the latest became accountable for the losses, maintaining full workforce occupation, and agree to become IBM's exclusive semiconductor technology provider for 10 years at predefined conditions.

Assuming a pre-tax charge of $4.7 billion from the operation, IBM expected to save more than that in the next 10 years transferring processor manufacturing operation and procuring them at a predefined cost. [68]

The decision was in line with the stepping-out strategy from all not proprietary and not edge technologies, and outsourcing hardware production, seeking for a partner that can better execute them (reverse synergy) and moving to investment with a greater expected profitability, such as Cloud infrastructure and Analytics software.

2.2.4 Intel x86 Server division sold to Lenovo (2014)

In continuity with the already implemented dismission of Personal Computer division, completed in 2005, IBM decided to sell to *Lenovo* the Intel Server Division, which produces low-end server products, less powerful than mainframes, as soon as it did not fit anymore in strategic plans.

The acquisition by Lenovo was closed on October 1st, 2014, for $2.1 billion, of which about $1.8 billion in cash and $300 million in stocks.[69]

[68] Wolf C., *IBM enters new era with microchip deal*, lohud.com [https://eu.lohud.com/story/news/local/2014/10/20/ibm-deal-workers-adjust/17647245/]
[69] Shih G. (2014), *Lenovo says $2.1 billion IBM x86 server deal to close on Wednesday*, reuters.com [https://www.reuters.com/article/us-lenovo-ibm-deals-idUSKCN0HO08N20140929]

Rationales for the dismission were the declining revenue, the customers expenditure shift to Cloud technologies and the idea that the traditional servers China market can be better served by a domestic firm.[70]

Lenovo as effect of the deal, agreed to re-employ 7,500 IBM staff, and became third global provider for Intel servers.

Yang Yuanqing, *Lenovo CEO*, said on the deal:

> *"Now, our priorities are to ensure a smooth integration and deliver a seamless transition for customers. By combining Lenovo's global reach, efficiency and operational excellence with IBM's legendary quality, innovation, and service, I am confident that we will have competitive advantages to help us drive profitable growth and build Lenovo into a global enterprise leader."*[71]

In the IBM's perspective this divestment was mainly implemented to pursue focalization on high end, proprietary, mainframe server solutions, which are able to generate higher margins and to continue transformation of business toward AI and Cloud Computing, with new investments of $1 billion on Watson division and $1.2 billion on Cloud.

Steve Mills, *Senior Vice President and Group Executive of IBM Software and Systems division*, declared:

> "*This divestiture allows IBM to focus on system and software innovations that bring new kinds of value to strategic areas of our business, such as cognitive computing, big data and cloud*"[72]

2.2.5 Selected software products transferred to HCL technologies (2018)

In 2018 IBM intended to restructure its software product portfolio moving investments to the development of new Cloud native and AI applications. Software Division at that time owned several products with a large customer base, still in use also within IBM, that were designed for classical Client-Server networking and had a low profitability respect to maintenance costs.

[70] *Lenovo buys IBM's server business at $2.3 bn*, business-standard.com [https://www.business-standard.com/article/companies/lenovo-buys-ibm-s-server-business-at-2-3-bn-114012300791_1.html]
[71] *Lenovo Set to Close Acquisition of IBM's x86 Server Business*, news.lenovo.com [https://news.lenovo.com/pressroom/press-releases/lenovo-set-to-close-acquisition-ibms-x86-server-business/]
[72] *Lenovo buys IBM's low-end server business for $2.3bn*, bbc.com [https://www.bbc.com/news/business-25857343]

This situation originated the decision of selling those products to a development partner company, with the obligation of supporting their development, maintenance, and customer support for a minimum of five years preserving IBM and Clients utilization.

The designed buyer was *HCL Technologies,* an India based company, and the operation was announced on December 6th, 2018, to be closed by mid-2019, subject to completion of applicable regulatory reviews.

The value of the operation is $1.8 billion, and includes transfer of the following software products, that represent a total addressable market of more than $50 billion:

- ***AppScan***, secure application development
- ***BigFix***, secure device management
- ***Unica***, on-premises marketing automation
- ***Commerce,*** on-premises multi-channel eCommerce
- ***Portal,*** on-premises digital contents
- ***Notes & Domino,*** email and collaboration application
- ***Connections,*** workflow collaboration software

From *HCL Technologies* perspective the agreement brought them a consistent share on the traditional Enterprise Software market, and the relative products intellectual property.

C. Vijayakumar, President & CEO, HCL Technologies, said:

> "*The products that we are acquiring are in large growing market areas like Security, Marketing and Commerce which are strategic segments for HCL. Many of these products are well regarded by clients and positioned in the top quadrant by industry analysts."* [73]

John Kelly, IBM senior vice president, Cognitive Solutions and Research, said*:*

> *"Over the last four years, we have been prioritizing our investments to develop integrated capabilities in areas such as AI for business, hybrid cloud, cybersecurity, analytics, supply chain and blockchain as well as industry-specific platforms and solutions including healthcare, industrial IOT, and financial services. These are among the emerging, high-value segments of the IT industry. As a result, IBM is a leader in these segments today,"*
>
> *"We believe the time is right to divest these select collaboration, marketing, and commerce software assets, which are increasingly delivered as stand-alone products. At the same time,*

[73] *HCL Technologies to Acquire Select IBM Software Products for $1.8B*, hcltech.com [https://www.hcltech.com/press-releases/products-and-platforms/hcl-technologies-acquire-select-ibm-software-products-18b]

> *we believe these products are a strong strategic fit for HCL, and that HCL is well positioned to drive innovation and growth for their customers."* [74]

For IBM the software products transferred, although still of wide adoption and profitable, were not aligned with the company Cloud Computing strategy and were absorbing too many resources to be maintained.

The immediate transaction was made possible by the fact that development of these software product lines was organized in independent development laboratories with a high human capital and limited material production assets. About 2000 IBM software developers and staff were included in the transfer to HCL *on a voluntary basis.*

2.2.6 Planned sell of Watson Health to the private equity firm Francisco Partners (2022)

On January 21st, 2022, IBM and private equity firm *Francisco Partners* released the following press announce:

> *"IBM and Francisco Partners, a leading global investment firm that specializes in partnering with technology businesses, today announced that the companies have signed a definitive agreement under which Francisco Partners will acquire healthcare data and analytics assets from IBM that are currently part of the Watson Health business. The assets acquired by Francisco Partners include extensive and diverse data sets and products, including Health Insights, MarketScan, Clinical Development, Social Program Management, Micromedex, and imaging software offerings."*[75]

Under the terms of the agreement, the current management team will continue to lead the new company, and the whole activities of the division, including clients in life sciences, health providers, diagnostic imaging, health payment services, government health and personal healthcare services, will be transferred.[76]

[74] *HCL Technologies to Acquire Select IBM Software Products for $1.8B*, hcltech.com [https://www.hcltech.com/press-releases/products-and-platforms/hcl-technologies-acquire-select-ibm-software-products-18b]
[75] *Francisco Partners to Acquire IBM's Healthcare Data and Analytics Assets*, newsroom.ibm.com [https://newsroom.ibm.com/2022-01-21-Francisco-Partners-to-Acquire-IBMs-Healthcare-Data-and-Analytics-Assets]
[76] Idem

The estimated value of the divestiture is more than $1 billion and includes specialized artificial intelligence platform, diagnostic data, image recognition capabilities and services units.

From new holder's point of view the business is attractive and capable of further development if driven with the right focus.

> *"We have followed IBM's journey in healthcare data and analytics for a number of years and have a deep appreciation for its portfolio of innovative healthcare products,"* said Ezra Perlman, Co-President at Francisco Partners. *"IBM built a market leading team and provides its customers with mission critical products and outstanding service."*
>
> Justin Chen, Principal at Francisco Partners, added, "*Partnering with corporations to execute divisional carve-outs has been a core focus of Francisco Partners. We look forward to supporting the talented employees and management team, helping the standalone company focus on growth opportunities to realize its full potential, and delivering enhanced value to customers and partners."* [77]

For IBM, although the profitability of the dismissed unit was frequently questioned, being under expectations, the main reason for dismission is the *poor strategic fitting* with other business units.

> *"Even after spending roughly $4 billion in acquisitions to prop up the initiative, Watson hasn't delivered the kind of progress IBM initially envisioned and the unit wasn't profitable. Last year, the Wall Street Journal reported the unit generated about $1 billion of annual revenue." (Bloomberg.com)* [78]

Said that, the qualifying aspect of this dismission is that the business in object, although innovative and of recent establishment, did not perform as expected for eco-systems reasons, including diminished attractivity of business due to regulatory proceeding pending for the sector, and was not able to drive the expected growth and synergies with the Cloud Computing and Artificial Intelligence divisions.

[77] *Francisco Partners to Acquire IBM's Healthcare Data and Analytics Assets*, newsroom.ibm.com [https://newsroom.ibm.com/2022-01-21-Francisco-Partners-to-Acquire-IBMs-Healthcare-Data-and-Analytics-Assets]

[78] *IBM Sells Some Watson Health Assets for More Than $1 Billion*, bloomberg.com [https://www.bloomberg.com/news/articles/2022-01-21/ibm-is-said-to-near-sale-of-watson-health-to-francisco-partners]

2.2.7 Synoptic of examined cases

The following tables present the examined case in comparison with the Kyndryl case.
In the first table data and characteristics are listed and in second table the author's evaluations are presented, including an analysis of strategic reasons, advantages, and drawbacks.

It must be noted that for Kyndryl case the advantages are mainly strategic and financial, while the drawbacks are about impact on various stakeholders.

Examined significant Divestures and Acquisitions from 1991

Divesture Event	Announce date Completion date	Value	Type	Area	Employee involved	Main scope
Printer division sold to Lexmark	March 27, 1991	Approximately 1.6 billion USD	Leveraged Buy Out transaction, Lexmark assumes 1 billion USD Debt	Hardware and related services	About 5,000 IBM workers at the IBM plant in Lexington, Kentucky.	Monetizing a peripheral business to obtain resources to compete in the increasingly competitive main business Collect cash in a moment of difficulty for the company
PC division sold to Lenovo	Dec 7, 2004 Feb 5, 2005	1.75 billion USD	100% Sell off IBM residual stake: 18.9%	Hardware and related services	About 10,000 IBM employees transferred to Lenovo	Rebalancing the portfolio on the high value enterprise market
x86 Server division sold to Lenovo	Jan 23, 2014 Jul 1, 2015	2.1 billion USD	100% Sell off	Hardware and related services	About 7,500 IBM employees have been given the option of switching to Lenovo	Focusing on system and software innovations that bring a new kind of value to strategic areas of the business, such as AI, Cognitive Computing, Big Data, and the Cloud.
Semiconductor business to Global Foundries	Oct 10, 2014 Jan 7, 2015	1.5 billion USD (paid by IBM)	100% Sell off with exclusive supply agreement	Semiconductor components	About 5,000 IBM employees of East Fishkill plant and Burlington Plant shifted to Global Foundries	Divest a loss making unit with a 1.5 billion annual loss
Selected IBM software products sold to HCL Technologies	Dec 6, 2018 Jun 30, 2019	1.8 billion USD	100% Sell off	System Software	Transfer of about 2,000 IBM employees to HCL Technologies	Divest standalone SW products to prioritize investments in emerging, high-value segments(Artificial Intelligence for business, *Hybrid Cloud*, Cybersecurity, Analytics, *Blockchain*, supply chain management, healthcare, *Internet Of Things (IOT)* and Financial services.)
Kyndryl separation	Oct 8, 2020 Nov 3, 2021	Approximately 4.0 billion USD at time of separation	**Spin-off, tax free IBM residual stake: 19.9**	IT Managed infrastructure services	About 90,000 IBM employees	Modernize IT Management Infrastructure services business for better serve Fortune 100 Clients with hyperscale, Cloud and Edge technlogies
IBM's Watson Health data and analytics assets sold to Francisco Partners	Jan 21, 2022 Jun 30, 2022	Financial terms of the transaction not disclosed. Bloomberg, estimate is more than 1 billion.	divisional carve out	Software and services	Not yet published. IBM management team continuity in the new company.	Divest activities less profitable than expected that divert attention and capital and carry potential reputational risks (Mueller) to focus on advancing the Hybrid Cloud strategy.

Figure 4 - Examined divestitures data synoptic (Author's elaboration)

Examined significant Divestures and Acquisitions from 1991

Divesture Event	Qualifying aspects	Reasons that apply	Potential advantages	Potential drawbacks
Printer division sold to Lexmark	Leveraged buy out, with assumption of 1 billion USDdebt to fund acquisition	*Poor performance*	Reverse synergy	Company reputation
PC division sold to Lenovo	Sell of an entire hardware division for cash, stock and debit assumption . Thinkpad brand included. Includes obligation of furnishing goods at prefixed discount price.	*Poor performance* *Poor stategic fit*	Exit strategy from a market in recession. Reduced losses. Mutual synergies.	Customers reaction Company reputation Employee relations
x86 Server division sold to Lenovo	Completion of transfer initiated 190 years before, started when xServer production has become a commodity	*Poor stategic fit*	Focus on proprietary HW product lines with greater markups.	Minor ability to produce integrated offerings. Reputation.
Semiconductor business to Global Foundries	Industrial Plants dismission with an exclusive agreement on production of licensed HW . Not a spin-off as subject to taxation IBM pays 1.5 billion investment and releases his debt to Global Foundries	*Poor stategic fit* *Reverse synergy* *Capital Market Factors*	Working force reduction and release of debt	Loss of focus in favor of competitors
Selected IBM software products sold to HCL Technologies	Mostly a human capital, intellectual property and immaterial assets transfer. Professional can opt in on voluntary basis. Taxed sell.	*Poor performance* *Poor stategic fit*	Reinvest in other product lines	Customers reaction Employee relations Reduced SW portfolio
Kyndryl separation	Tax free transaction, no cash-in flows. Separation of pure services division that consist of intellectual capital, human capital and service excellence culture.	*Poor Performance* *Poor stategic fit* *Capital Market Factors*	Better focus on main strategy Better alignment of incentives with performance Creation of traded currency Investor interest NewCo can foster new synergies. More appropriate financial structure.	Customers reaction Company reputation Employee relations
IBM's Watson Health data and analytics assets sold to Francisco Partners	Dismission of a recent acquired innovative division that did not perform as expected for eco-systems reasons, including diminished attractivity of business due to regulatory proceeding pending for the sector . Seeking for a Reverse Synergy	*Poor stategic fit*	Better focus on main strategy Frees resources Reverse synergy	Minor market presence

Figure 5 - Examined divestitures evaluation synoptic (Author's evaluations)

2.2.8 Values of IBM Divestitures/Acquisitions from 1991

As mentioned before the number of acquisitions/divestitures in the last twenty years is large and the relative value range is wide. Therefore, a graphic representation was considered more effective to discuss some relevant aspects. The data presented in the graph of this paragraph are author's elaboration based on official IBM Annual Reports and quarterly communications.

The first graph objective is to show the acquisition values accumulated by year, reporting the total and the breakdown in a stacked bar graph. In the observation period the acquisition values range widely from zero to 34.8 billion, with an average value of 2.2 billion.

The number of companies acquired by year ranges from 0 to 17 with a total of 209 in the whole period. The size of acquisition also ranges from few millions to the gigantic value of 34.8 billion of *RedHat* 2018 merger, which out-scales all others, and is not rendered in the graph for clarity of the representation. The peaks in this graph occur in the years when IBM announced redirection of its mission and technological strategy.

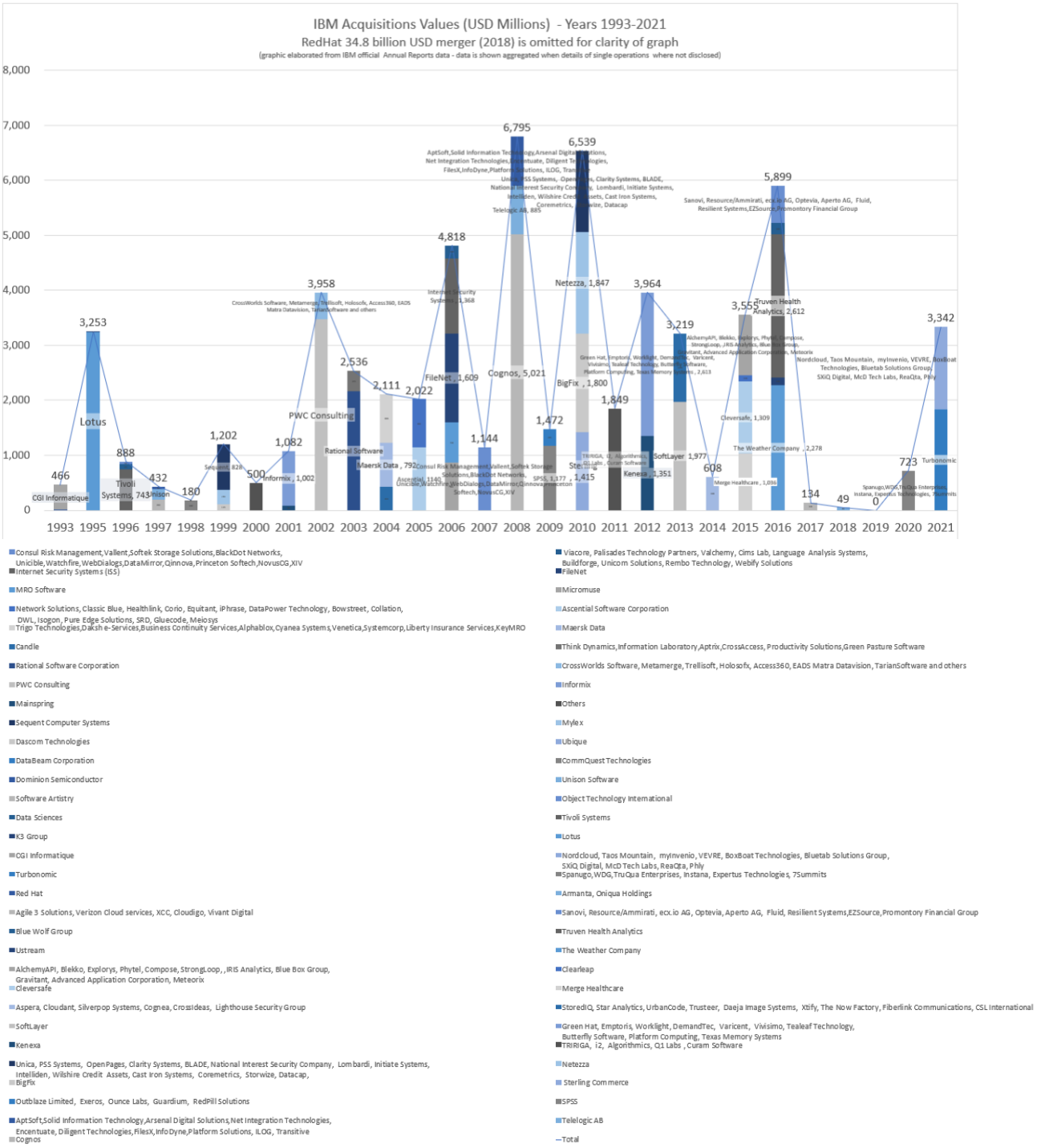

Figure 6 - IBM Acquisitions Values (1993-2021) (Author's elaboration)

The second graph shows a representation of divestiture values by year.
In it the values range from zero to 4.9 billion, with a mean value of 879 million.
The total number of divestures is 27.

The values are significantly lower respect to acquisitions and in some way anti-cyclical to them, occurring when some businesses become less attractive for maturity or impossibility of further development.

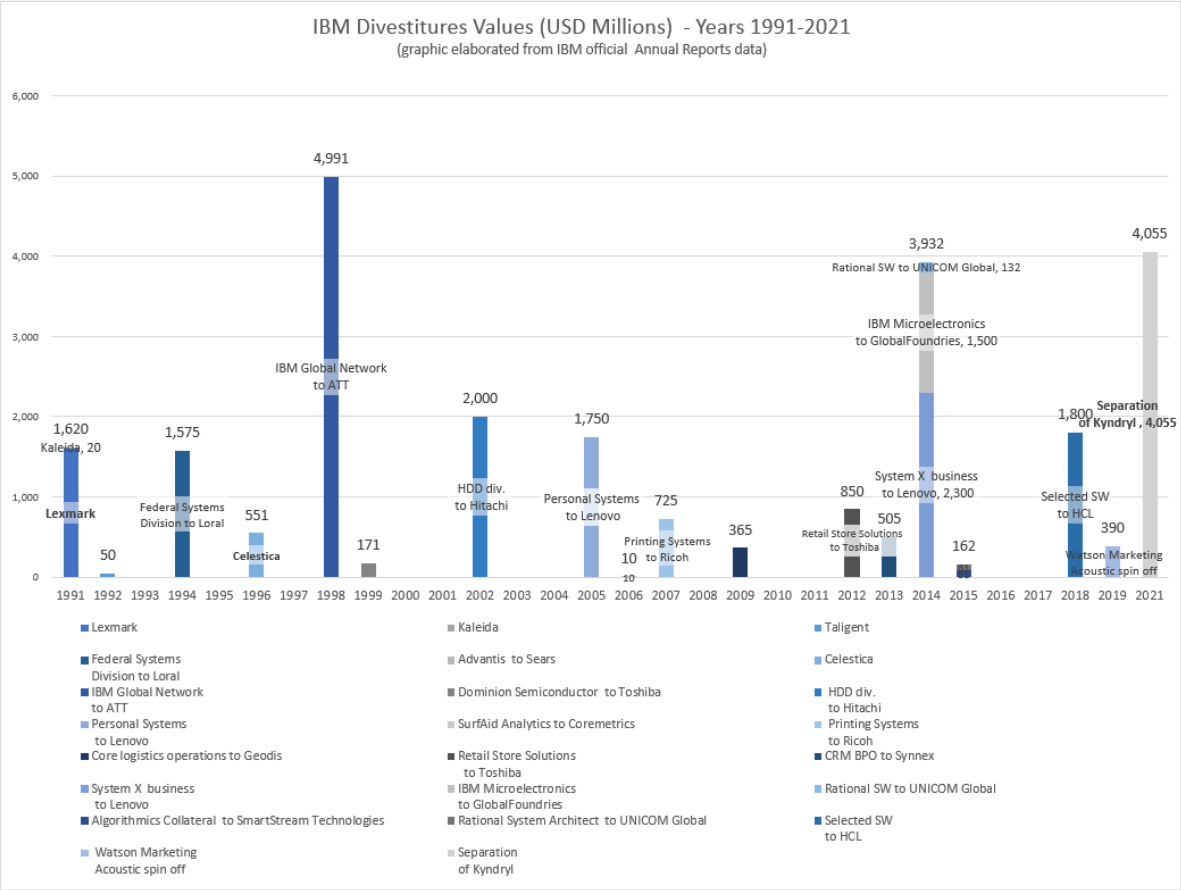

Figure 7 – IBM Divestitures Values (1991-2021) (Author's elaboration)

Comparing the two graphs it is evident that the divestures do not balance directly acquisition values, being acquisition be funded mainly by operating revenue, and that the total of divestiture in the 20-year period (26.5 billion USD) is 27% of the total of acquisitions (97.5 billion USD, 62.7 billion plus the giant 34.8 billion *RedHat* merger).

The third graph intent is to show the dynamic of other business and financial indicators in the period, for a possible visual evaluation of trends that are influenced by acquisition/divestures. The stockholder's data are shown till 2006 because they were not reported any more in Annual Reports after that date.

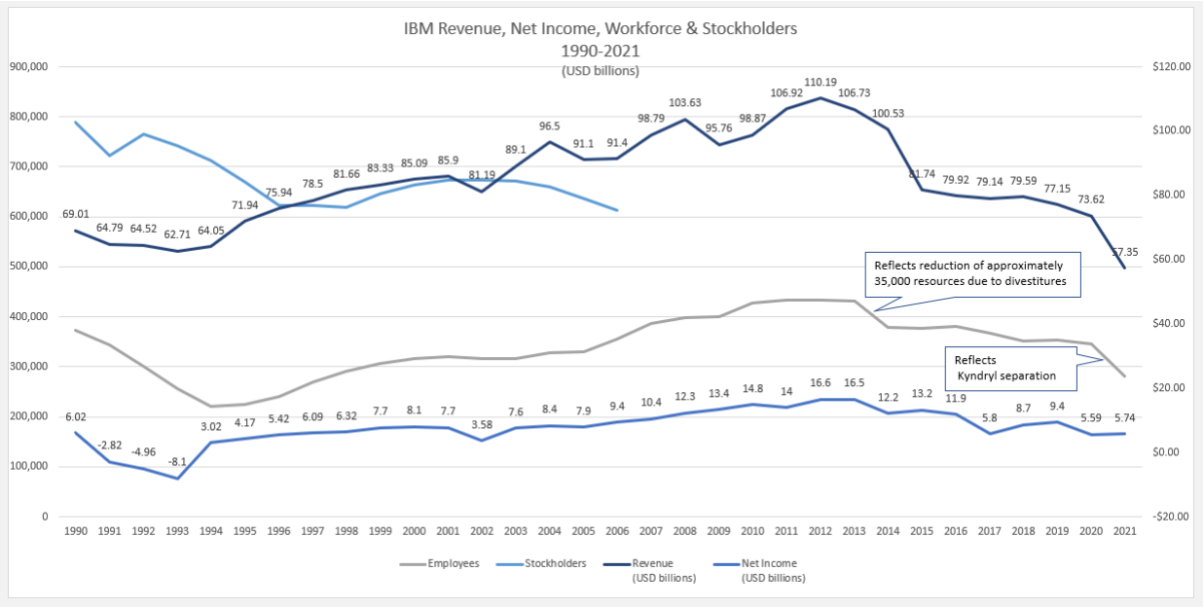

Figure 8 - IBM Revenue, Net Income, Workforce & Stockholders (1990-2021) (Author's elaboration)

Looking at it we can say that the graph of workforce is closely matching the shape of total revenue graph, demonstrating the fact the high-tech business is both capital and human skill intensive. The workforce evolves with the acquisitions/divestures, remaining proportional to the invested capital.

The stockholders appear to be widely distributed, representing large number of investor funds and the big number of employees that hold stakes (bought or acquired through incentives).

The net income shows to be affected by restructuration costs, mainly flat or slowly declining, and has some trend inversion by effect of the most weighted acquisition.

2.3 Kyndryl Spin-Off

2.3.1 Kyndryl events timeline

The following image presents a timeline of major Kyndryl event up to August 2022.

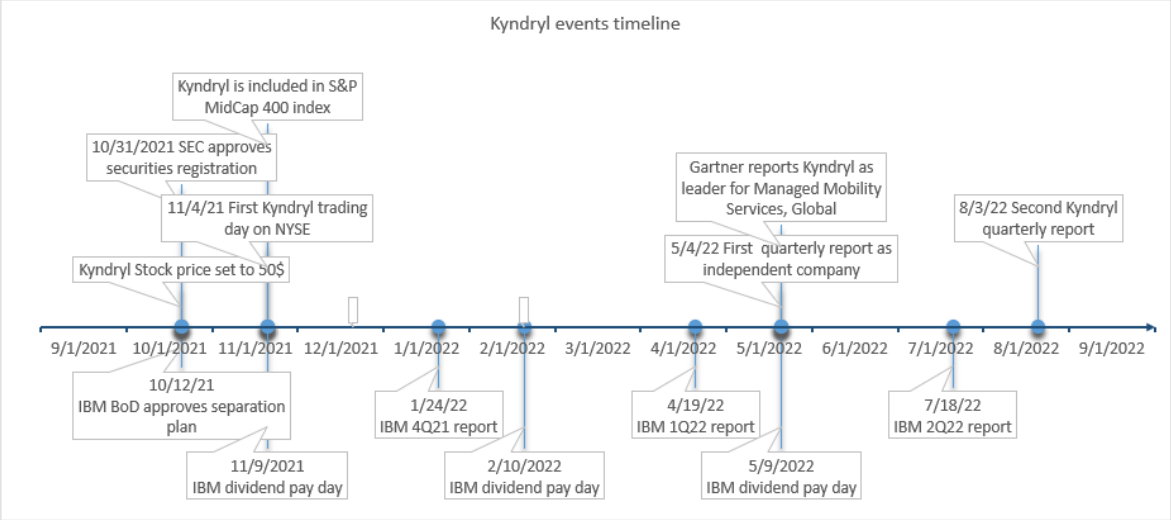

Figure 9 - Timeline of relevant events for Kyndryl (Author's elaboration)

2.3.2 The Announcement

On October 8, 2020, around a month before dividend day, IBM Chief Executive Officer Arvind Krishna announces its intention to separate the Managed Infrastructure Services unit of Global Business Services into a NewCo.

The announcement mentioned the need for IBM to better focus on Hybrid Cloud market opportunity, evaluated up to $1 trillion, by separating the mission of enterprise infrastructure services, more oriented to existing customers, from the mission of *Native Cloud Services* (including *IaaS, PaaS, SaaS and FaaS* service models), *Artificial Intelligence* and *Quantum Computing*, oriented to innovation of business and emerging technologies markets, assigning it to a new independent company generated by separation.

This can be easily understood considering the wide difference in the technology, investments, intellectual property, skill set, and infrastructure required by the two missions, that can be more easily accomplished by two separate entities that can leverage both diversification and possible synergies.

In Arvind Krishna words,

> "*Client buying needs for application and infrastructure services are diverging, while adoption of our hybrid cloud platform is accelerating. Now is the right time to create two market-leading companies focused on what they do best. IBM will focus on its open hybrid cloud platform and AI capabilities. NewCo will have greater agility to design, run and modernize the infrastructure of the world's most important organizations. Both companies will be on an improved growth trajectory with greater ability to partner and capture new opportunities – creating value for clients and shareholders*." [79]

This is a continuation of IBM business transformation started by former IBM CEO Ginni Rometty, that at the time of the announcement continue to serve as IBM Executive Chairman.

She commented:

> "*We have positioned IBM for the new era of hybrid cloud. Our multi-year transformation created the foundation for the open hybrid cloud platform, which we then accelerated with the acquisition of Red Hat. At the same time, our managed infrastructure services business has established itself as the industry leader, with unrivaled expertise in complex and mission-critical infrastructure work. As two independent companies, IBM and NewCo will capitalize on their respective strengths. IBM will accelerate clients' digital transformation journeys, and NewCo will accelerate clients' infrastructure modernization efforts. This focus will result in greater value, increased innovation, and faster execution for our clients*." [80]

According to the announcement the new company will have a market opportunity of $500 billion and will be ranked first in global *managed infrastructure service providers*, with a scale that is twice of its closest competitor, having more than 4,600 clients in 115 countries, including more than 75% of the *Fortune 100* companies' market, and an order backlog of around $60 billion.

The announcement also defines the mission details. The new company:

- Will continue to serve the clients core operation honoring existing agreements, while shifting services to a more profitable model, introducing innovations and modernization that will help them to migrate to cloud.

[79] *IBM To Accelerate Hybrid Cloud Growth Strategy And Execute Spin-Off Of Market-Leading Managed Infrastructure Services Unit*, newroom.ibm.com [https://newsroom.ibm.com/2020-10-08-IBM-To-Accelerate-Hybrid-Cloud-Growth-Strategy-And-Execute-Spin-Off-Of-Market-Leading-Managed-Infrastructure-Services-Unit]

[80] *Idem.*

- Will run hosting and network services, management and innovation of client owned IT infrastructures, and application development, receiving full intellectual property of solution developed.
- Will modernize *managed infrastructure services* with *AI*, *hyperscale*, *Cloud* and *Edge technologies*, in line with Arvind Krishna imperatives for IBM's growth strategy.
- Will made able to establish new partnership with all cloud providers while it maintains a privileged relation with IBM.
- Will have an independent strategy for margin expansion, increased cash generation, and profit growth.[81]

It is specified that the separation will be realized with a *no cash-in* (and thus tax free) separation of the company division dedicated to outsourcing.

It is significant to note that in the announce IBM declares its intent to distribute following separation a dividend '*no less*' than pre-spin one.

It is also to be noted that the most valuable assets conferred to the new company are immaterial: service excellence culture, intellectual capital, human capital, client portfolio.

Moreover, the dismissed organization doesn't need workforce reduction as already balanced to its scope.

After separation both companies will foster a growth strategy specializing investments and with an independent strategy, seeking to grow free cash flow to feed transformation.

[81] *IBM To Accelerate Hybrid Cloud Growth Strategy And Execute Spin-Off Of Market-Leading Managed Infrastructure Services Unit*, newroom.ibm.com [https://newsroom.ibm.com/2020-10-08-IBM-To-Accelerate-Hybrid-Cloud-Growth-Strategy-And-Execute-Spin-Off-Of-Market-Leading-Managed-Infrastructure-Services-Unit]

2.3.3 Execution of divestiture plan

The new company was named *Kyndryl* in April 2021.

The name has a conceptual meaning that was explained officially as follows:

> ”Kyn” is derived from the word *kinship*, referencing the belief that relationships with people — employees, customers, and partners — are at the center of the strategy, and that long-lasting relationships must be built and nurtured. “Dryl” comes from *tendril,* bringing to mind new growth and the idea that — together with customers and partners — the business is always working toward advancing human progress.[82]

Martin Schroeter, former serving as IBM Chief Financial Officer from 2014-2017, was named Chairman and CEO of Kyndryl on January 7, 2021.

On July 21, 2021, *David Wisher*, from *XPO Logistics*, was named Chief Financial Officer.

On September 28, 2021, the Kyndryl board submitted to *United States Securities and Exchange Commission* (SEC) the final F10 GENERAL FORM FOR REGISTRATION OF SECURITIES and the title was registered to *New York Stock Exchange*. [83]

The filing was approved by SEC on October 13. [84]

On October 12, 2021, the IBM Board of Director approves separation plan[85].

In the same month the Kyndryl CEO Martin Schroeter commented on evidence provided to SEC:

> “*We have a revenue growth problem, and we have a profitability problem” “We think we can work on both of those simultaneously.*”[86]

On November 3, 2021, International Business Machines Corporation distributed 80.1% of its interest in Kyndryl Holdings, Inc. to his stockholders. Every stockholder received one share

[82] *IBM's Independent Managed Infrastructure Services Business to be Named Kyndryl,* newsroom.ibm.com [https://newsroom.ibm.com/2021-04-12-IBMs-Independent-Managed-Infrastructure-Services-Business-to-be-Named-Kyndryl]
[83] US *Securities and Exchange Commission* archives, Kyndryl FORM 10 [https://www.sec.gov/Archives/edgar/data/0001867072/000110465921120290/tm2119587-9_1012b.htm]
[84] US *Securities and Exchange Commission* archives, [https://www.sec.gov/Archives/edgar/data/0001867072/000087666121001477/0000876661-21-001477-index.html]
[85] *IBM Board of Directors Approves Separation of Kyndryl*, newsroom.ibm.com [https://newsroom.ibm.com/2021-10-12-IBM-Board-of-Directors-Approves-Separation-of-Kyndryl]
[86] *10 ways Kyndryl will drive innovation services: CEO Martin Schroeter*, crn.com [https://www.crn.com/slide-shows/managed-services/10-ways-kyndryl-will-drive-innovation-services-ceo-martin-schroeter]

of Kyndryl stock for every five shares of IBM stock he held on October 25, 2021[87]. The stocks were immediately traded on NYSE.

Said that the ownership structure of the two companies at separation time was the same, being both widely held companies, with higher share quotes held by investment funds and significant volumes held by employee. IBM can leverage the management continuity and its influential share (being the first shareholder) to direct Kyndryl strategy.

On December 31, 2021, a FORM 10-K annual report was filed to SEC that depicts Kyndryl strategy and positioning.[88]

Among other information it lists **risks** for the operation in these categories:

- Business risks
  - Lack of market growth or customer retention issues
  - Productivity issue
  - Competition and underperforming relations with partners/suppliers
  - Personnel retention, attraction, and skill shortage
  - Risks related to global economic, political, health conditions
  - Downturn of economy
  - Reputation impacts
  - Underestimate/unexpected growth of service costs
  - Inability to deliver
  - Underperforming acquisitions/alliances
  - Intellectual property issues
  - Excess of goodwill impairment charges in case carrying value exceeds fair value
- Cybersecurity and Data Privacy risks
- Law and regulatory risks
  - Governments' sanctions for import/export, anticorruption, anticompetition, anti-money-laundering, anti-discrimination, environmental, labor relations and data privacy violations
  - Tax changes
  - Legal proceedings
  - More strict requirements from customers, investors, and regulators
- Financial and Capital Markets risks
  - Lowering or withdrawal of debt securities rating
  - Reduced access to capital from credit environment and investors
  - Global Market liquidity issues

[87] *FAQs about the Kyndryl Holdings, Inc. distribution*, ibm.com [https://www.ibm.com/investor/services/faqs-about-the-kyndryl-holdings-inc-distribution]
[88] US *Securities and Exchange Commission*, Kyndryl FORM 10-K [https://www.sec.gov/Archives/edgar/data/0001867072/000155837022003291/kd-20211231x10k.htm]

    - Pension plan trust asset reduction may affect pension liabilities with higher insolvency risk premium
    - Currency risks
- Risks related to the spin-off
    - Kyndryl may not realize anticipated benefits
    - Spin-off may determine to be taxable, with extra cost and indemnity to be paid to IBM by Kyndryl
    - Restrictions needed to be tax-free may limit operating flexibility
    - Potential conflicts of interest
    - Fail to perform separation agreements
- Risks related to stock market
    - Substantial sales and stock price decline
    - Diluted earnings per share
    - Provision and stockholders' disputes may discourage takeovers and make the title less attractive, or limit stockholders rights

The exhaustive risk analysis covers main aspects that we will evaluate to measure success of the operation.

2.3.4 Objectives, required actions, potential advantages, positioning and results of the NewCo

In fourth quarter 2021 report Kyndryl executives declare the objective of growing its addressable market from $240 billion pre-spin-off to $510 billion in 2024, by shifting their client services market to new technologies including Data Analytics, AI, Cloud and Security, and by leveraging a larger portfolio of Software, with both transactional and recurring fees.

This is a very challenging target. The following strategic reasons for the spin-off are implied:

- Need to better develop services based on hybrid Cloud, not proprietary software, and free alliances to foster free cash flow growth and market expansion, by activating synergies with competitors that are precluded to IBM
- Need to apply a markup growth to recurring fees renegotiating dedicated services and extending Client fidelity with tailored solutions
- Need an exit strategy from cost-recovery services established to promote HW and SW sells
- Need to leverage transformation costs to obtain taxation benefits

- Need to demonstrate to be best in class to attract financial resources and reduce debt cost

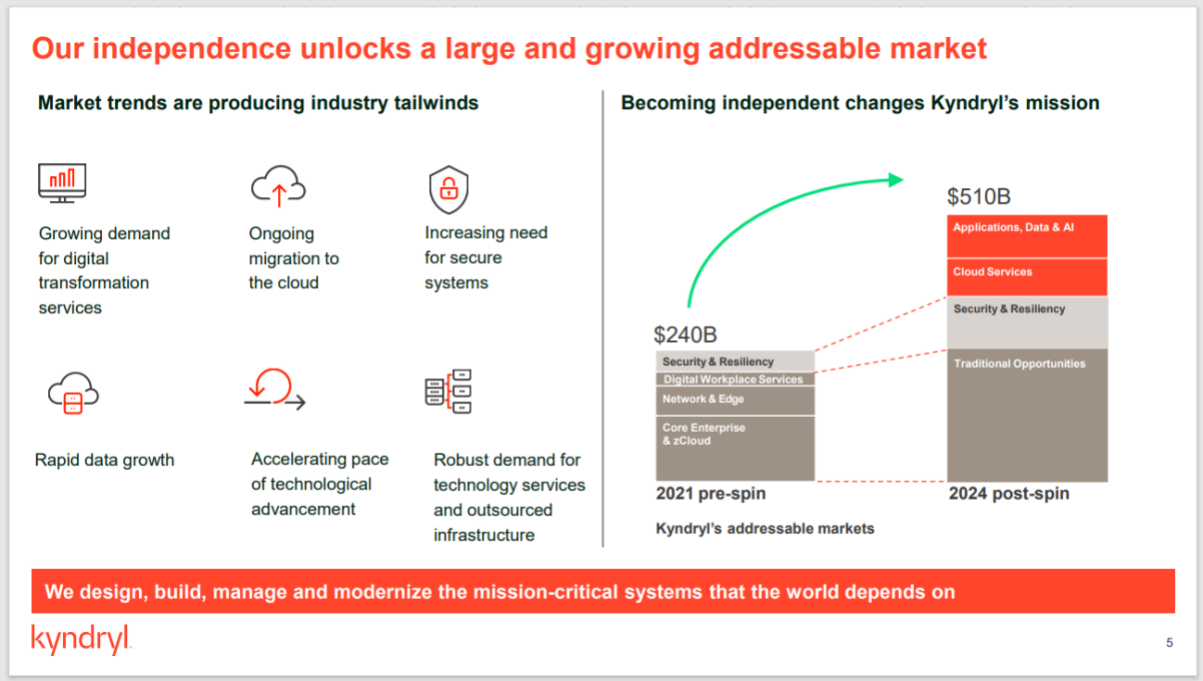

Figure 10 – Kyndryl strategic imperatives as in first quarterly report (Kyndryl)[89]

[89] *Kyndryl Reports Fourth Quarter and Full-Year 2021 Results*, kyndryl.com [https://www.kyndryl.com/us/en/about-us/news/2022/02/2022-02-28-kyndryl-reports-fourth-quarter-and-full-year-2021-results]

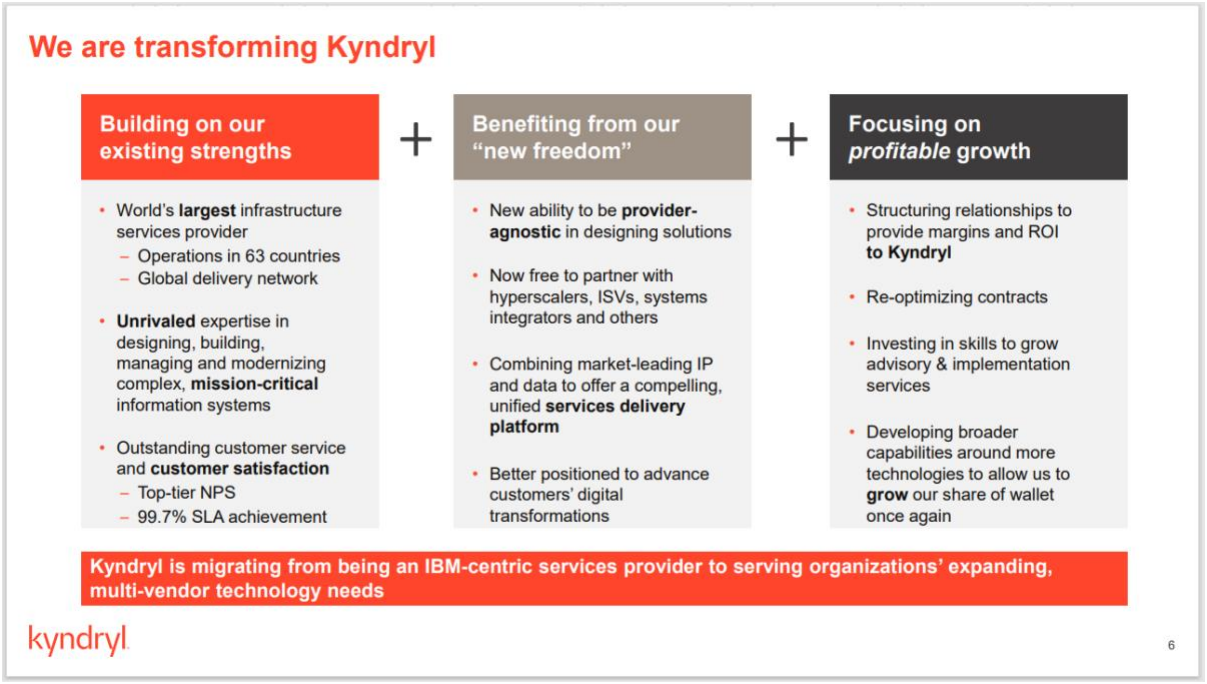

Figure 10 – Kyndryl growth strategy as in first quarterly report (Kyndryl) [90]

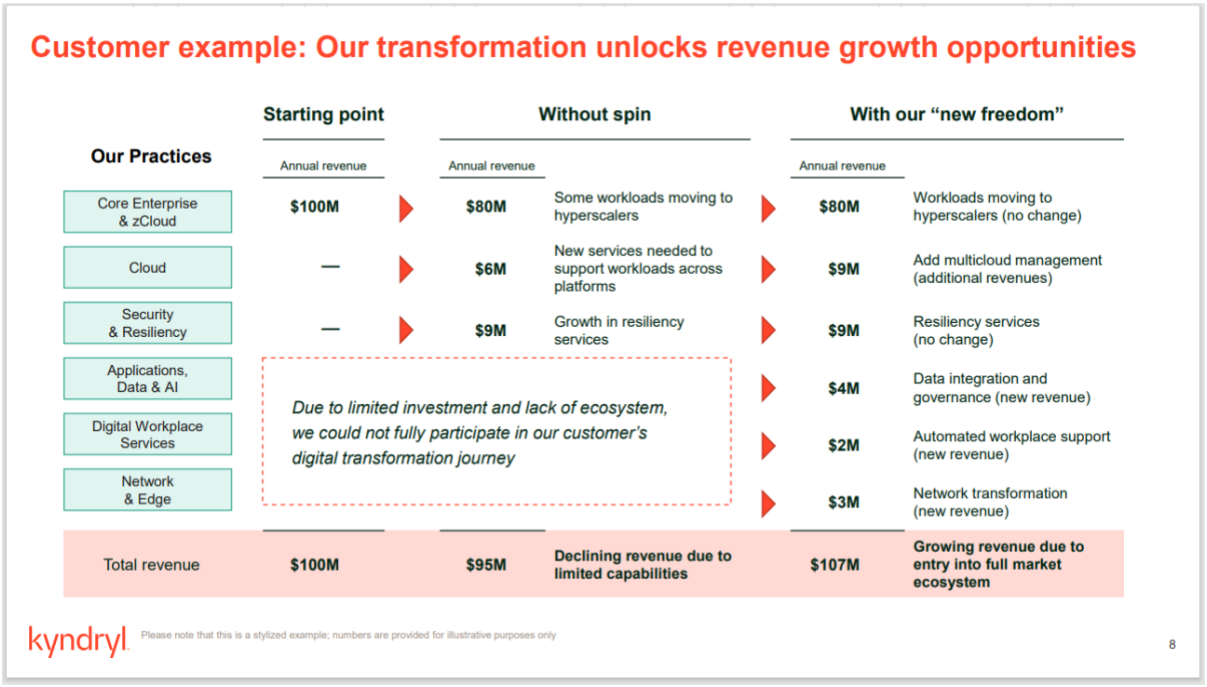

Figure 11 – Kyndryl growth opportunities values as in first quarterly report (Kyndryl) [91]

[90] *Kyndryl Reports Fourth Quarter and Full-Year 2021 Results*, kyndryl.com [https://www.kyndryl.com/us/en/about-us/news/2022/02/2022-02-28-kyndryl-reports-fourth-quarter-and-full-year-2021-results]

[91] Idem

Figure 12 - Kyndryl major initiatives (Kyndryl)[92]

The three strategic initiatives, identified to feed growth strategy, match with the strategic reason for the operation:

- An independent Kyndryl direction is required for Alliances with new partners
- Focus on services is needed to upsell higher values
- Discontinuity in service agreements is needed to address substandard margins

Kyndryl expects to reach a growth in 2024, and analysist set a break even possibly in 2025, so that no dividends are expected for the next two fiscal years.

Besides financial and operation performance the spin-out has set a plan to reach other qualitative objectives.

Potential advantages include:

- *Tax benefits*: Kyndryl can reduce taxes, balancing future profits with the tax credit generated by assets depreciation costs (related to *good-will impairment*)
- Business restructuring costs can be better defined within separation costs deducted from the revenue

[92] *Kyndryl Reports Fourth Quarter and Full-Year 2021 Results*, kyndryl.com [https://www.kyndryl.com/us/en/about-us/news/2022/02/2022-02-28-kyndryl-reports-fourth-quarter-and-full-year-2021-results]

- Clients perceive Kyndryl as independent and able to choose the best fitting components for the services provided (so preventing sole provider situations)
- Ability for Kyndryl to compose service offering including software of IBM competitors ("*technology-agnostic*")
- Shift from one-time transactional charges to recurring maintenance fees by extending customer loyalty to managed hyperscale computing model
- Extend market share to Clients not traditionally served by IBM
- The separation allows IBM to maintain control of the new company with limited financial resources and favors synergies and continuity
- Kyndryl has greater freedom in negotiating and executing strategic Cloud alliances including IBM competitors
- Possible growth of personnel skillset with industry certifications
- Freedom to change fiscal year end to March to better match service market seasonality and take in account contract closures that occur at calendar year end. This is also an advantage in reporting consolidated report later to investor, in sync with the plan of reaching a positive net income in 2024

The *Fourth Quarter 2021* set a practice when reporting not US GAAP *pro forma adjusted free cash flow* separating operating results free of the extraordinary expenditures that are technical costs originated by the separation itself.

> "*We believe adjusted free cash flow is a useful supplemental financial measure to aid investors in assessing our ability to pursue business opportunities and investments and to service our debt."* [93]

Also, the planning practice of forecasting Client signings was used to demonstrate ability to execute growth strategy.

In May 2022 the second Quarterly Earnings Report reports $3.1 billion signings (up 26%), $1 billion of signing opportunities, $46 million savings, and $26 million of advantages related to shifting services to higher markup services. Also reported a growth of skills, professional

[93] *Kyndryl Reports Fourth Quarter and Full-Year 2021 Results*, kyndryl.com [https://www.kyndryl.com/us/en/about-us/news/2022/02/2022-02-28-kyndryl-reports-fourth-quarter-and-full-year-2021-results]

certifications (+17,500 hyperscaler certifications) and alliances on Cloud and Edge computing.

On the other hand, revenue was of $4.4 billion, declining 7% (2% if we consider pro forma and constant currency adjustments), with a net loss of $229 million in the quarter and $449 million in the prior year.[94]

The risk represented by goodwill impairment, anticipated to SEC, materialized to some extent with a $469 million charge and $129 million separation cost.

On August 3, 2022, the third Quarterly Earnings Report, named now *First Quarter Fiscal Year 2023 Report*, due to the change of fiscal year end, is released.

Kyndryl Metrics	Previous year 2020 as IBM division	Kyndryl Reports Fourth Quarter and Full-Year 2021 Results	Kyndryl Announces Fouth Quarter 2021 Earnings	Kyndryl Announces First Full Quarter of Earnings as an Independent Company	Kyndryl Reports First Quarter Fiscal Year 2023 Results
	Year -1	Year 1	Q1	Q2	Q3
Date of announce	Jan-21	2/28/2022	2/28/2022	5/4/2022	8/3/2022
Total Revenue ($ million)	$19,500	$18,700	$4,600	$4,400	$4,300
Net Loss ($ million)	$719	$2,300	$740	$229	$250
Goodwill impairment charge ($ million)	NA	$469	$469	NA	NA
Transaction-related costs ($ million)	NA	$629	$169	$58	NA
Cash flow from operation ($ million)	$628	($119)	NA	$189	$104
Signings	NA	13,500	4,400	3,100	235
Loss per diluted share ($)	NA	10.35	3.3	1.02	1.11
New hyperscaler certifications	NA	16,000	16,000	17,500	21,800
Clients	4,600 in 115 countries	4,000 in 100 countries	4000	4000	4000
Fortune 100 Clients	75	75	75	75	75
Diluted shares outstanding (million)	224.1	224.4	224.4	225.7	225.7
Workforce	90,000	90,000	90,000	90,000	90,000
IBM quota	100.00%	19.90%	19.90%	19.90%	9.88%

Figure 13 - Kyndryl Quarterly Metrics (Author's elaboration) [95] [96] [97]

The IBM owned share changes from 19.90% at separation time to 9.88% in July 2022.

Results are showing an underperformed plan, partially explained by global conjuncture. Despite of this, several financial analysts see in this combination of early depreciation of

[94] *Kyndryl Announces First Full Quarter of Earnings as an Independent Company, May 4, 2022*, kyndryl.com [https://www.kyndryl.com/it/it/about-us/news/2022/05/2022-05-04-kyndryl-announces-first-full-quarter-of-earnings-as-an-independent-company]
[95] *Kyndryl Reports Fourth Quarter and Full-Year 2021 Results, Kyndryl*, kyndryl.com [https://www.kyndryl.com/us/en/about-us/news/2022/02/2022-02-28-kyndryl-reports-fourth-quarter-and-full-year-2021-results]
[96] *Kyndryl Announces First Full Quarter of Earnings as an Independent Company, May 4, 2022*, kyndryl.com [https://www.kyndryl.com/it/it/about-us/news/2022/05/2022-05-04-kyndryl-announces-first-full-quarter-of-earnings-as-an-independent-company]
[97] *Kyndryl Reports First Quarter Fiscal Year 2023 Results, August 3, 2022*, kyndryl.com [https://investors.kyndryl.com/news-details/2022/KYNDRYL-REPORTS-FIRST-QUARTER-FISCAL-YEAR-2023-RESULTS/default.aspx]

asset, low stock price and ambitious plans a good opportunity of future performance and suggest a buy investment strategy. [98]

Kyndryl Main Shareholders (above 0.3% stake)

#	Investor Name	% Outstanding	
		05-Aug-2022	31-Dec-2021
1	International Business Machines Corp	9.88%	19.90%
2	The Vanguard Group, Inc.	7.71%	8.00%
3	BlackRock Institutional Trust Company, N.A.	5.83%	6.02%
4	State Street Global Advisors (US)	2.94%	3.10%
5	National Bank of Canada	1.38%	0.00%
6	Neuberger Berman, LLC	1.18%	0.57%
7	JP Morgan Asset Management	1.10%	1.21%
8	Greenlight Capital, Inc.	1.07%	0.41%
9	AQR Capital Management, LLC	0.97%	0.05%
10	GQG Partners, LLC	0.93%	0.00%
11	Allspring Global Investments, LLC	0.91%	0.67%
12	Norges Bank Investment Management (NBIM)	0.87%	0.88%
13	Geode Capital Management, L.L.C.	0.81%	1.13%
14	Wells Fargo Advisors	0.74%	0.42%
15	Charles Schwab Investment Management, Inc.	0.61%	1.32%
16	Northern Trust Investments, Inc.	0.60%	0.63%
17	Columbia Threadneedle Investments (US)	0.60%	0.68%
18	Jupiter Asset Management Ltd.	0.59%	
19	Gallagher Fiduciary Advisors, LLC	0.52%	0.58%
20	Arnhold LLC	0.49%	0.25%
21	Legal & General Investment Management Ltd.	0.41%	0.41%
22	Dimensional Fund Advisors, L.P.	0.41%	0.41%
23	CaaS Capital Management LP	0.41%	0.73%
24	Morgan Stanley Smith Barney LLC	0.35%	0.29%
25	Mellon Investments Corporation	0.35%	0.35%
26	BlackRock Financial Management, Inc.	0.35%	0.25%
27	Millennium Management LLC	0.34%	0.09%
28	Invesco Capital Management LLC	0.34%	0.23%
29	BofA Global Research (US)	0.32%	0.40%
30	Arrowstreet Capital, Limited Partnership	0.32%	0.48%

Figure 14 - Kyndryl shareholders above 0.3% (Source: Refinitiv, participated by Thomson Reuters) [99]

[98] Duarte M. M. (2022), *Kyndryl Holdings Business and Stock Price Will Be In The Cloud By 2025*, seekingalpha.com [https://seekingalpha.com/article/4516269-kyndril-holdings-business-and-stock-price-will-be-in-the-cloud-by-2025]

[99] *Refinitiv Workspace* application [www.refinitiv.com]

2.3.5 Analysts' reactions

The reaction of financial and technology analysts was articulated.

Most of the commentator agreed on the fact that the move is in line with the IBM transformation strategy and will bring advantages to IBM, while on Kyndryl the judgement is more cautious.

The most commented issue about separation is the continuity of operations and contracts signing and renew by IBM Clients.

Some quote:

> "*Unloading lower-growth businesses [IBM] could unlock the true value of Red Hat, which we calculate at over $50 billion… The move will make IBM more a software company and less of a low-growth services vendor, possibly aiding its valuation*." (Anurag Rana, Bloomberg Intelligence Analyst)[100]
>
> "*The spin off won't change much for IBM's current customers. IBM and NewCo will have thousands of mutual customers whose shopping and payment experiences will not be all that different from previous ones.''* (Charles King, Pond-IT®)[101]
>
> "*Kyndryl briefly lost clients to rival IT services firms before its new strategy took effect, analysts said, adding that its business has stabilized after smoothly transitioning clients from IBM to itself.*"
>
> "*The company has forged major technology solutions partnerships with Microsoft, SAP and VMware to offer greater flexibility to clients, something that was lacking under IBM.*"
>
> "*We see multiple instances where clients are looking to restructure existing contracts with IBM for Kyndryl. One of the biggest pain points of IBM's clients was the lack of flexibility in managed services which Kyndryl can offer now. The recent Microsoft partnership is a great example*. "(Mrinal Rai, principal analyst at ISG) [102]

The investment analysts' opinions largely influenced Kyndryl investors and may explain the cautious reaction of the market in the months following first trading day.

Technology advisors seem to be more benevolent.

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[100] Lee I. and Carville Olivia (2020), *IBM to Spin Off Legacy IT Business, Pegging Future on Cloud*, bloomberg.com [https://www.bloomberg.com/news/articles/2020-10-08/ibm-to-spin-off-infrastructure-services-unit-shares-advance]

[101] King C., pund-it.com [https://www.pund-it.com/blog]

[102] Majumdar R. (2021), *Rivals eyeing IBM spinoff Kyndryl' s sub-$50 million clients, experts say*, economictimes.indiatimes.com [https://economictimes.indiatimes.com/tech/information-tech/rivals-eyeing-ibm-spinoff-kyndryls-sub-50-million-clients-experts-say/articleshow/87920533.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst]

On May 16, 2022, Gartner reports Kyndryl as top leader in Managed Mobility Services, Global Magic Quadrant.

> "Kyndryl had 11 million-plus devices under direct management globally by the end of October 2021, up about 20% from a year earlier. About 55% of devices were in North America, with Europe and APAC accounting for 20% and 18%, respectively. Kyndryl positions its MMS capabilities as industry-agnostic, but cites healthcare, financial services, and distribution as key verticals during the past year."[103]

Figure 15 - Gartner Magic Quadrant for Managed Mobility Services, Global (Gartner) [104]

Other firms sponsored specific aspect of the Kyndryl business:

- *AVASANT awarded* Kyndryl Security & Resiliency as Market Leader in Cybersecurity Services 2022 (*RadarView Report*)

[103] *Kyndryl Positioned as a Leader in 2022 Gartner® Magic Quadrant™ for Managed Mobility Services, Global*, prnewswire.com [https://www.prnewswire.com/news-releases/kyndryl-positioned-as-a-leader-in-2022-gartner-magic-quadrant-for-managed-mobility-services-global-301552199.html]
[104] Idem

- *Constellation Research* recognizes *Best Partnership Kyndryl and Microsoft, 2021*
- *Everest Group:* named it Leader in 2021 *Aware (Intelligent) IT Infrastructure Services Automation PEAK Matrix Assessment*
- *Five9* awarded Kyndryl as *System Integrator Innovator of the Year 2021*
- *Frost & Sullivan* named it as Leader in *Frost Radar™ Global Managed Cloud Services Market, 2021*[105]
- *IDC* named it Major Player in IDC *MarketScape: 2022 Worldwide Cloud Professional Services Vendor Assessment*
- *ISG:* 2022 Leader in Mainframe Modernization, Mainframe as a Service and Mainframe Operations in U.S., Canada, and Europe
- *NelsonHall:* Leader in cognitive & self-healing IT infrastructure management, 2021

These announcements were advertised by the company itself in the investor reports. [106]

2.3.6 Clients and business partners relations

On Clients relation Kyndryl is well established as a partner for 75 of Fortune *100* companies and this position is not in discussion.

There was some criticism to the announce, boosted by competitors, related to the transfer of service contracts' liabilities to a smaller new company, but IBM CEO clarified that the two companies will sign contracts separately for the respective business, with greater freedom, and will confirm liabilities that do not require re-negotiation, with IBM covering for special liabilities on a contract base.[107]

At the beginning of its business minor contract were impacted by the transfer and some were not renewed due to revised condition and prohibition of business with Russia (client number was around 4,600 in announce reports and 4,000 in the most recent), but most recent reports show new client references. The *Customer Satisfaction Index* was not impacted by separation and continues to be top rated among IT service providers, and in line with the defined *Service Level Agreement* obligations carried forward in existing contracts.

[105] *Frost RadarTM: Global Managed Cloud Services Market, 2021*, [https://www.kyndryl.com/content/dam/kyndrylprogram/cs_ar_as/Frost_Radar_Global_Managed_Cloud_Services_Market_2021.pdf]
[106] *Kyndryl Reports First Quarter Fiscal Year 2023 Results, August 3, 2022*, kyndryl.com [https://investors.kyndryl.com/news-details/2022/KYNDRYL-REPORTS-FIRST-QUARTER-FISCAL-YEAR-2023-RESULTS/default.aspx]
[107] IBM's spinoff: key contractual considerations for existing IBM clients, DLA Piper [https://www.dlapiper.com/en/us/insights/publications/2021/05/ibms-spinoff-key-contractual-considerations-for-existing-ibm-clients/]

Recently the company took initiative for acquisition of new signings and new customer reference. Some of the customer reference gained post spin-off are mentioned below:

- *Bank of Ayudhya Public Company Limited,* digital banking
- *Broadridge Financial Solutions*, high available financial platform
- *Canadian Malartic,* migration of Enterprise Resource Planning applications to *Oracle Cloud Infrastructure*
- *Carrefour Belgium*, data center migration to Cloud
- *Deutsche Bank*
- *Etihad Airways*
- *Fuji Television Network, Inc., network infrastructure*
- *Healthcare Solutions Provider and Manufacturer*, IT service continuity management
- *Honda Motor Company*
- *Japan Airlines Co., Ltd.* To implement infrastructure on *IBM Cloud*®.
- *Mitsubishi,* for migration of SAP® infrastructure to IBM Cloud™
- *Raytheon Technologies*
- *Taqa Arabia, Egypt* energy company
- *The Spanish Ministry of Defense*, managed high-performance, mission critical technology platform
- *The City of Chicago*, for on-premises private cloud infrastructure
- *Turkey's Isbank,* high availability data center

The partnerships and strategic alliances, targeting transformation and market expansion, were extended thanks to new freedom, also covering solution that compete with IBM ones:

- *Amazon Web Services,* on migration of services to Cloud and hyperscale computing
- *Cisco,* on managed private cloud services
- *Cloudera,* for a joint competence center on Hybrid-Cloud and Multi-Cloud
- *Dell Technologies*, on IT Managed Services
- *Google Cloud*, global strategic partnership on data-driven business and Cloud transformation to hyperscale computing
- *Microsoft,* global strategic partnership for Enterprise Customers and Azure Cloud
- *NetApp,* on data migration to Cloud
- *Nokia,* on *Edge computing* and *5G* technologies support
- *RedHat,* on Cloud automation with *Ansible*
- *SAP*, certification for operation of SAP services on global cloud
- *Oracle,* on migration to Oracle Cloud infrastructure
- *PureStorage,* on secure storage solutions
- *Veritas*, on Cloud data availability and cyber-security
- *VMWare, 2022 Partner Value Award,* Europe, Middle East, Africa [108] [109]

[108] *Kyndryl Reports First Quarter Fiscal Year 2023 Results, August 3, 2022*, kyndryl.com [https://investors.kyndryl.com/news-details/2022/KYNDRYL-REPORTS-FIRST-QUARTER-FISCAL-YEAR-2023-RESULTS/default.aspx]

[109] *Kyndryl Advances Hybrid Cloud Services with Global Strategic Partnerships, Charles King, Pund-IT® June 29, 2022*, pund-it.com [https://www.pund-it.com/blog/kyndryl-advances-hybrid-cloud-services-with-global-strategic-partnerships]

3. Outcome analysis

3.1 Brief introduction to Event Study methodology

To investigate the short-term effects of separation actions to the share values of both companies, IBM and Kyndryl, I choose to adopt the *Event Study methodology*.

This statistical methodology is designed to investigate the effect of an independent event, such as a directive of a Board of Directors, on a specific dependent variable, such as a company's stock price[110].

The objective is to assess whether there is an abnormal stock price effect associated to a specific event where the abnormal return is measured as the difference between the observed return and a "normal" return given a particular return generating model[111].

Applying this methodology to stock market implies that we can adopt the basic assumption that the stock market is efficient, thus that stock prices react quickly and accurately to new information.

Event studies have a long history and multiple applications. Starting from the 60s they become popular in many works of economics and finance because of their several advantages, including the ability to produce results easy to interpret.

The first study conducted by *Ball & Brown* in 1968[112] analyzed the effect of earnings announcements on company share price. A later one on earnings announcements by *Mackinlay* (1997)[113] shows that companies with high profits have higher abnormal returns particularly on the day they are announced.

In the finance domain event studies may be also applied to examine the market response to a spin-off announcement as defined in chapter one, or to other corporate events such as mergers and acquisitions, corporate restructurings, debt or equity issues, investment, and financing decisions.

[110] Woon, *Introduction to the Event Study Methodology*, Singapore Management University
[111] Peterson (1989), *Event Studies: A Review of Issues and Methodology*, Quarterly Journal of Business and Economics Vol.28, No.3, p.36-66, Creighton University
[112] Ball and Brown (1968), *An Empirical Evaluation of Accounting Income Numbers*, Journal of Accounting Research, Vol.6, No.2, p.159-178, Wiley
[113] MacKinlay (1997), *Event Studies in Economics and Finance*, Journal of Economic Literature, Vol.35, No.1, p.13-39, American Economic Association

Academic research presents application of this methodology also in other fields such as marketing and management. In the marketing area event studies may be used to analyze the market response to the launch of a new product or the success of a marketing campaign.

With reference to the latter a study by *Agrawal* and *Kamakura* (1995)[114] reports that marketing campaign with celebrity endorsements often brings positive abnormal returns. Management studies focuses mostly on the impact of events such as changes in top management. With this respect a study by *Denis* and *Denis* (1995)[115] found that companies with management turnovers deriving from forced resignations tend to exhibit a greater increase in efficiency in the first year following the replacement.

Besides to the various applications by academic researchers, as pointed out by *Won*[116], an event study can be applied whenever the following conditions are met:

- The event is relevant for the selected dependent variable
- It is possible to remove confounding effects
- The event time is clearly determinable
- There is a benchmark against which to make comparisons

3.1.1 Event study procedure

An Event Study application requires an articulated procedure that consists of several step, as follows.

- Identification of relevant events.
- Definition of an *Event Window* in which their influence is expected to apply.
- Definition of an *Observation Period* preceding the event to measure the normal behavior, not under influence.
- Definition of models used and required parameters to measure abnormal returns.
- Aggregation of results.
- *Hypothesis Test* execution to test the statistical validity of the findings.

[114] Agrawal and Kamakura (1995), *The Economic Worth of Celebrity Endorsers: An Event Study Analysis,* Journal of Marketing, Vol.59, p. 56-92
[115] J. Denis and K. Denis, *Performance Changes Following Top Management Dismissals*, The Journal of Finance, Volume 50, Issue 4, p. 1029-1057
[116] Woon, *Introduction to the Event Study Methodology*, Singapore Management University

The first thing to do is to identify an event and select an event window in which to measure the effects. Typically, the chosen event window includes a period before and after the announcement of the event to check whether there has been market anticipation because, for example, some traders were aware of the event or a significant subsequent adjustment once the information has been released.

After the event window has been identified, it is necessary to select an observation period preceding it. This must be done to model the 'normal' behavior of the chosen dependent variable.

Then, the models to be used and the relative parameters required for the calculation of abnormal returns must be estimated.

For example, if the event study is set up to assess the impact of an event on the share price of a company and the eligible methods for calculating abnormal returns are the *Constant Return Model*, and the *Capital Asset Pricing Model* (CAPM), is necessary to estimate the average return of the share over the observation period and the *alpha* and *beta* parameters, coefficients which measure respectively the share's tendency to vary independently of the market and as a function of the market.

Once the parameters have been estimated, abnormal returns can be computed for each day of the Event Window.

The most popular models for *short term* event studies are:

- the *Constant Return Model*:

  $Ar_t = R_t - \mu_j$

- the *Market Adjusted Model*:

  $Ar_t = R_t - R_{Mt}$

- the *CAPM*:

  $Ar_t = R_t - (\alpha + \beta R_{Mt})$

where R_t represents the *realized return* at time t, μ_j the *average return* in the observation period, R_{Mt} the *market return* at time t, α and β the *parameters intercept* and *slope* in the observation period.

In the choice of the best fitting model for the normal behavior the calculation of $\mathbf{R^2}$ (*R-Squared*) and ***f-Statistic*** are suitable. In our case the calculation of these statistic on regression was used to compare the adopted methods and computations are reported in Appendix.

The comparison shows that *Constant Return Model* has a R^2, calculated on the *average return*, around zero, respect to the optimal maximum of 1, while the other two present R^2, calculated on R_{Mt} and $(\alpha + \beta R_{Mt})$, greater than zero, denoting a better fit.

Then abnormal returns must be aggregated. There are two ways to do that, the *Cumulative Abnormal Returns Methodology* (CAR) and the *Buy-and-Hold Abnormal Returns Methodology* (BHAR).

The first consists of performing a simple sum of the abnormal returns over a given period, $CAR_i = \sum_{t=t1}^{t2} ARi,t$

The latter uses geometric returns and thus allows for compounding[117].

BHAR are calculated with the following formula:

$BHAR_i = [\prod_{t=t1}^{t2}(1 + Ri,t) - 1] - \prod_{t=t1}^{t2}(1 + Rb,t) - 1]$

where Rb represent the return used as benchmark.

The last step in an event study is to test the statistical validity of the cumulative abnormal returns obtained. For this purpose, a *hypothesis test* is conducted.

This test first involves the statement of a null hypothesis, H_0. In our case, the null hypothesis to be formulated is that the CARs/BHARs attributable to the event are zero. It is therefore necessary to calculate the probability p of obtaining an extreme result as or more than that observed, under the assumption that H_0 is true; this probability is called *p-value.*

[117] Brooks (2014), *Introductory Econometrics for Finance, Third Edition,* Cambridge University

Subsequently, the *p-value* is evaluated. If it is too small, the hypothesis H_0 is rejected, if it is large, H_0 is accepted.

Typically, the commonly used critical threshold for *p-value* is 0.05, so in the case its value below 0.05, it is concluded that there is strong evidence against the null hypothesis.

3.1.2 Limitation of methodology

As seen in section one of this chapter, the Event Study methodology because of its versatility is suitable for numerous applications. However, it is important to bear in mind that it has certain limitations.

First, it relies in a strong assumption, the *efficient market hypothesis*. This hypothesis has been much debated over the years by scholars and investors and discussed both theoretically and empirically. Moreover, some financial markets seem to be more efficient and transparent than others, e.g., due to communication technologies or more demanding regulations.

Secondly, there might be cases in which it is difficult to determine precise observation periods. As suggested by *Sitthipongpanich*[118] there is always a trade-off between higher information accuracy and potential parameter shifts and if long periods are selected it might be difficult to remove confounding effects. Furthermore, the choice of observation period as well as the selection of the benchmark and model for calculating abnormal returns may lead to different results for a same study questioning the validity of one rather than another[119].

Finally, there are stocks that are thinly traded on the markets. A low trading volume in the observation period and event can generate issues in the application of the methodology[120].

In addition to these limitations well documented in the literature, it is opinion of the author that if the event observed have influence only on a part of the measured variables (like in the case of an event that influences results of a single division of a larger corporation, while the measured variables refer to the whole corporation) the effects are diluted and may be difficult to make them evident separating them from other concurrent effects.

[118] Sitthipongpanich, *Understanding the Event Study*, Dharani Pundit University
[119] Woon, *Introduction to the Event Study Methodology*, Singapore Management University
[120] Sitthipongpanich, *Understanding the Event Study*, Dharani Pundit University

3.2 Event Study analysis of IBM stock performance

The event chosen to conduct the analysis for IBM, are the following three:

- Event 1, **Announce** (08-Oct-2020): "*IBM publicly announces its intention to separate the Managed Infrastructure Services unit of its Global Technology Services division into a new public company*."
- Event 2, **BoD Approval** (12-Oct-2021) "*IBM announces that its board of directors has approved the previously announced separation of Kyndryl, the company's managed infrastructure services business*."
- Event 3, **IBM 1Q22 Earnings announce** (19-Apr-2022) "*IBM announces the first-quarter 2022 earnings results, the company's first full quarter without the managed infrastructure services business it spun off into an entity called Kyndryl*."

These events may or may not have generated abnormal effect on the company's stock price.

To determine that I applied the methodology as described below.

First, I chose a twenty-one-day *event window* (-10;10) as for each event I intended to check not only the market immediate reaction to the announcement but also any market anticipation occurring before, and any adjustment in the 10 trading days following the announcement.

I then selected as *observation period* the 252 trading days (one calendar year) prior to the event window considered, to have a mean to smooth other events effects like dividend distributions and other seasonality.

The overall market return was then evaluated using as proxy the *S&P 500* index, as IBM is part of it. For the entire period (observation period plus event window) the daily returns of IBM and the S&P 500 were calculated.

The abnormal returns of IBM stock performance were estimated using the three methods:

- *Constant Return Model*

- *Market Adjusted Model*

- *CAPM*

and then aggregated using the *CAR* and *BHAR* formulas, separately in the 10 days preceding the event, on the day of the event and in the 10 days following it, and in the entire 21 days entire window (-10;10).

To determine *t-statistics*, I calculated standard deviations 1 day, 10 days and 21 days. I then obtained *t-statistics* by dividing the cumulative abnormal returns by the respective standard deviations.

Subsequently I calculated the *p-values* with the *Two tailed Student's T distribution* Excel formula:

T.DIST.2T (x, deg_freedom).

where **x** represents the *t-statistics* absolute value, and the **deg_freedom** represent the degree of freedom for the observation (number of observed values minus number of parameters)

For abnormal returns calculated with *CAPM* degrees of freedom is 250 (252 observations minus the two formula parameters alpha and beta).

For *Constant Return Model* and *Market Adjusted Model* degrees of freedom is 251 (252 observations minus one parameter, *Average Return* and *Market Return*, respectively).

3.2.1 Announce event (08-Oct-2020) effects

Announce of the intention of the separation of IT Managed Infrastructure Services occurred around one year before the plan was approved for execution and was anticipated by few rumors but not any significant declaration. Possibly selected major Clients for Kyndryl were aware under no-disclosure agreements, but general investors were not.

Figure 16 - IBM stock value at the announce of separation (NYSE) [121]

On the day of the announcement the following positive abnormal returns for the reported significance levels occurred:

Return (CAR) Return (BHAR)	Constant Return Model (significance level 1.54%)	Market-Adjusted Model (significance level 0.01%)	CAPM (significance level 0%)
Event date (0)	6.02%	5.18%	5.28%

This is in line with high volumes exchanged (26.5 M USD) and with a price ranging from an open at $124.99, a peak at $129.42 and a closure at $125.59. The significance level is under 0.05 so the event can be considered significative with a great level of confidence. This means that the event was favorably accepted by investor and has possibly cause a buyer rally on the same day.

For the following 10 days we observe that the first model (both CARs and BHARs) is not significative, while the other two are, showing both negative abnormal returns.

[121] nyse.com [https://www.nyse.com/quote/XNYS:IBM]

Return (CAR)	Constant Return Model (significance level>10%)	Market-Adjusted Model (significance level 0.17%)	CAPM (significance level 0.37%)
Adjustment period (+10)	-12.00%	-12.67%	-11.68%

Return (BHAR)	Constant Return Model (significance level>10%)	Market-Adjusted Model (significance level 0.24%)	CAPM (significance level 0.48%)
Adjustment period (+10)	-11.57%	-12.24%	-11.36%

This can be explained with the consideration that first model compares IBM stock returns to the observed IBM stock history and the others to a panel such as the S&P 500.

Commenting the *Market Adjusted Model* and the *CAPM* we may say that a qualified volume of investors after the announce have taken advantage of the higher prices selling stock (and more respect the other stocks in the S&P 500 panel).

The exchanged volumes remained quite high respect to the mean of the year, and the trend anticipates the sells galore occurred on October 20, 2020, day after the release of 3Q earnings in which the company reported a decline in revenues for the third consecutive quarter[122].

This is not surprising considering that the performance of the stock shows some seasonality around the dates of dividend payout.

Finally, the returns calculated in the 10 days prior to the announcement have limited statistical significance (significance level above 10%), possibly confirming that the announce was not largely disclosed before and there wasn't any insider-trading issue.

The following table shows the complete results for the event 1:

[122] *IBM reports third straight quarter of revenue declines*, cnbc.com [https://www.cnbc.com/2020/10/19/ibm-earnings-q3-2020.html]

IBM - Event 1 (08-Oct-2020)		Constant Return Model	Market-Adjusted Model	CAPM
Standard deviation	Stdev (1 day)	2.47%	1.26%	1.26%
	Stdev (10 days)	7.81%	3.99%	3.99%
	Stdev (21 days)	11.31%	5.78%	5.78%
Return (CAR)	Event (0)	6.02%	5.18%	5.28%
	Anticipation (-10)	4.81%	-1.19%	-0.18%
	Adjustment (+10)	-12.00%	-12.67%	-11.68%
	Total (-10;10)	-1.16%	-8.67%	-6.58%
Return (BHAR)	Event (0)	6.02%	5.18%	5.28%
	Anticipation (-10)	4.86%	-1.21%	-0.21%
	Adjustment (+10)	-11.57%	-12.24%	-11.36%
	Total (-10;10)	-1.69%	-8.81%	-6.87%
t-stat (CAR)	Event (0)	2.44	4.11	4.19
	Anticipation (-10)	0.62	-0.30	-0.04
	Adjustment (+10)	-1.54	-3.17	-2.93
	Total (-10;10)	-0.10	-1.50	-1.14
t-stat (BHAR)	Event (0)	2.44	4.11	4.19
	Anticipation (-10)	0.62	-0.30	-0.05
	Adjustment (+10)	-1.48	-3.07	-2.85
	Total (-10;10)	-0.15	-1.52	-1.19
p-value (CAR)	Event (0)	1.54%	0.01%	0.00%
	Anticipation (-10)	53.83%	76.60%	96.43%
	Adjustment (+10)	12.56%	0.17%	0.37%
	Total (-10;10)	91.82%	13.48%	25.64%
p-value (BHAR)	Event (0)	1.54%	0.01%	0.00%
	Anticipation (-10)	53.38%	76.19%	95.88%
	Adjustment (+10)	13.95%	0.24%	0.48%
	Total (-10;10)	88.16%	12.88%	23.59%

Figure 17 - Modeling values for Separation Announce event (Author's elaboration)

Based on the results obtained, we can conclude that *announce event* generated a positive market reaction on the day of the announcement while the mixed market performance in the following 10 days can be explained as a combination of profit-taking and caution in the technical evaluation of the transaction that by its nature cannot bring immediate results.

3.2.2 BoD Approval event (12-Oct-2021) effects

Figure 18 - IBM stock value at the BoD approval of separation plan (NYSE) [123]

The timing of announce by Board of Director of the approval for separation plan is like the previous 2020 announce, being eight days before Quarterly Earnings announce occurred on October 20, 2021, that caused sell decisions.

In the ten days following the announcement there is a trend of negative abnormal returns for all the three models, with a good significance for *Constant Return Model* and a very good significance for the remaining two:

Return (CAR)	Constant Return Model (significance level 3.83%)	Market-Adjusted Model (significance level 0.17%)	CAPM (significance level 0.51%)
Adjustment period (+10)	-10.09%	-14.50%	-12.70%

Return (BHAR)	Constant Return Model (significance level 3.86%)	Market-Adjusted Model (significance level 0.65%)	CAPM (significance level 0.62%)
Adjustment period (+10)	-10.08%	-13.97%	-12.39%

This means a trend of sells possibly related to the divulgation of the separation plan.

[123] nyse.com [https://www.nyse.com/quote/XNYS:IBM]

The returns calculated in the 10 days before the announcement and on the day of the announcement have limited statistical significance (significance level above 10%).

As happened for event 1, this possibly means that the market was not informed of the event contents before.

The following are the complete results for the event 2:

IBM - Event 2 (12-Oct-2021)		Constant Return Model	Market-Adjusted Model	CAPM
Standard deviation	Stdev (1 day)	1.53%	1.45%	1.42%
	Stdev (10 days)	4.85%	4.58%	4.49%
	Stdev (21 days)	7.02%	6.64%	6.51%
Return (CAR)	Event (0)	-1.44%	-1.13%	-1.20%
	Anticipation (-10)	2.19%	4.63%	4.18%
	Adjustment (+10)	-10.09%	-14.50%	-12.70%
	Total (-10;10)	-9.34%	-11.00%	-9.71%
Return (BHAR)	Event (0)	-1.44%	-1.13%	-1.20%
	Anticipation (-10)	2.14%	4.65%	4.19%
	Adjustment (+10)	-10.08%	-13.97%	-12.39%
	Total (-10;10)	-9.47%	-11.00%	-9.81%
t-stat (CAR)	Event (0)	-0.94	-0.78	-0.84
	Anticipation (-10)	0.45	1.01	0.93
	Adjustment (+10)	-2.08	-3.17	-2.83
	Total (-10;10)	-1.33	-1.66	-1.49
t-stat (BHAR)	Event (0)	-0.94	-0.78	-0.84
	Anticipation (-10)	0.44	1.01	0.93
	Adjustment (+10)	-2.08	-3.05	-2.76
	Total (-10;10)	-1.35	-1.66	-1.51
p-value (CAR)	Event (0)	34.83%	43.42%	39.92%
	Anticipation (-10)	65.13%	31.27%	35.27%
	Adjustment (+10)	3.83%	0.17%	0.51%
	Total (-10;10)	18.49%	9.85%	13.69%
p-value (BHAR)	Event (0)	34.83%	43.42%	39.92%
	Anticipation (-10)	65.84%	31.11%	35.12%
	Adjustment (+10)	3.86%	0.25%	0.62%
	Total (-10;10)	17.87%	9.87%	13.29%

Figure 19 - Modeling values for BoD Approval event (Author's elaboration)

In this case, similarly to event 1, the abnormal negative returns in the ten days following the announcement may suggest investor caution in the technical evaluation of the transaction, now materially realized, which by its nature cannot bring immediate results.

3.2.3 IBM 1Q22 Earnings announce (19-Apr-2022) effects

Figure 20 - IBM stock value at the First Quarter 2022 Earnings announces (NYSE) [124]

For event 3, I found the following positive abnormal returns in the ten days following the announcement:

Return (CAR)	Constant Return Model (significance level>10%)	Market-Adjusted Model (significance level 3.43%)	CAPM (significance level>10%)
Adjustment period (+10)	2.92%	9.34%	6.11%

Return (BHAR)	Constant Return Model (significance level>10%)	Market-Adjusted Model (significance level 3.26%)	CAPM (significance level>10%)
Adjustment period (+10)	2.64%	9.44%	6.01%

The returns calculated in the 10 days prior to the announcement and on the day of the announcement have limited statistical significance (significance level above 10%).

The following are the complete results for the event 3:

[124] nyse.com [https://www.nyse.com/quote/XNYS:IBM]

IBM - Event 3 (19-Apr-2022)		Constant Return Model	Market-Adjusted Model	CAPM
Standard deviation	Stdev (1 day)	1.36%	1.39%	1.29%
	Stdev (10 days)	4.31%	4.39%	4.09%
	Stdev (21 days)	6.25%	6.36%	5.92%
Return (CAR)	Event (0)	2.36%	0.76%	1.65%
	Anticipation (-10)	-3.06%	0.32%	-1.27%
	Adjustment (+10)	2.92%	9.34%	6.11%
	Total (-10;10)	2.23%	10.42%	6.49%
Return (BHAR)	Event (0)	2.36%	0.76%	1.65%
	Anticipation (-10)	-3.03%	0.28%	-1.28%
	Adjustment (+10)	2.64%	9.44%	6.01%
	Total (-10;10)	1.88%	10.57%	6.38%
t-stat (CAR)	Event (0)	1.73	0.54	1.27
	Anticipation (-10)	-0.71	0.07	-0.31
	Adjustment (+10)	0.68	2.13	1.50
	Total (-10;10)	0.36	1.64	1.10
t-stat (BHAR)	Event (0)	1.73	0.54	1.27
	Anticipation (-10)	-0.70	0.06	-0.31
	Adjustment (+10)	0.61	2.15	1.47
	Total (-10;10)	0.30	1.66	1.08
p-value (CAR)	Event (0)	8.40%	58.66%	20.36%
	Anticipation (-10)	47.86%	94.26%	75.63%
	Adjustment (+10)	49.82%	3.43%	13.60%
	Total (-10;10)	72.14%	10.29%	27.42%
p-value (BHAR)	Event (0)	8.40%	58.66%	20.36%
	Anticipation (-10)	48.28%	94.93%	75.50%
	Adjustment (+10)	54.10%	3.26%	14.27%
	Total (-10;10)	76.34%	9.79%	28.24%

Figure 21 - Modeling values for IBM 1Q22 Earnings announce event (Author's elaboration)

In this case, the positive abnormal returns in the 10 days following the announcement can be seen as a positive market response to the quarterly report released on the 19th of April 2022, which showed higher-than-expected results and an increase in revenue of about 8% compared to the previous comparative period (14.2 billion compared to 13.19 billion a year earlier)[125].

[125] *IBM First Quarter Results 2022*, ibm.com [https://www.ibm.com/investor/att/pdf/IBM-1Q22-Earnings-Press-Release.pdf]

3.3 Event Study analysis of Kyndryl stock performance

The short company history limits the possible choice of events.

The one selected is the first day of trading:

- *Listing day* (4-Nov-2021) "Kyndryl begins trading to NYSE."

Having no historical data for Kyndryl prior to the event, I set a panel for the study on the history of comparable IT companies, *DXC Technology* and *Rackspace Technology*.

These companies are comparable to Kyndryl in terms of business, market capitalization and listing market.

The first one, *DXC Technology*, founded on April 3, 2017, from a spin-off of *Hewlett Packard Enterprise Company (HPE) Enterprise Services* business, born from *Electronic Data Systems (EDS)* acquisition, and a merger with *Computer Sciences Corporation (CSC)*, with $25 billion revenue, 170,000 employees and operations in 70 countries, operates mainly managed IT infrastructure services.

The second, *Rackspace Technology*, originated in 1998, funded by venture capital, ranked 32nd by *Fortune*'s "Top 100 Best Companies to Work, was acquired by Apollo Global Management equity firm in 2016 for 4.3 billion USD and ceased trading, and then was traded again in 2020 on Nasdaq after a new IPO. It operates in the more innovative Cloud hosting services sector.

The study applied the same method described above for IBM by considering as a proxy for market performance both the *MSCI World Information Technology Index*, which tracks the global performance of mid and large-cap companies belonging to the technology sector, as well as the S*&P 500* and the S*&P 500 Information Technology* indexes.

Figure 22 - Managed Infrastructure Services markets shares (Gartner) [126]

3.3.1 Kyndryl listing day (04-Nov-2021) effects

Figure 23 - Kyndryl stock price (NYSE)[127]

[126] Gartner Market Share IT Services 2020 Report [https://www.gartner.com/en/documents/4000294]
[127] nyse.com [https://www.nyse.com/quote/XNYS:KD]

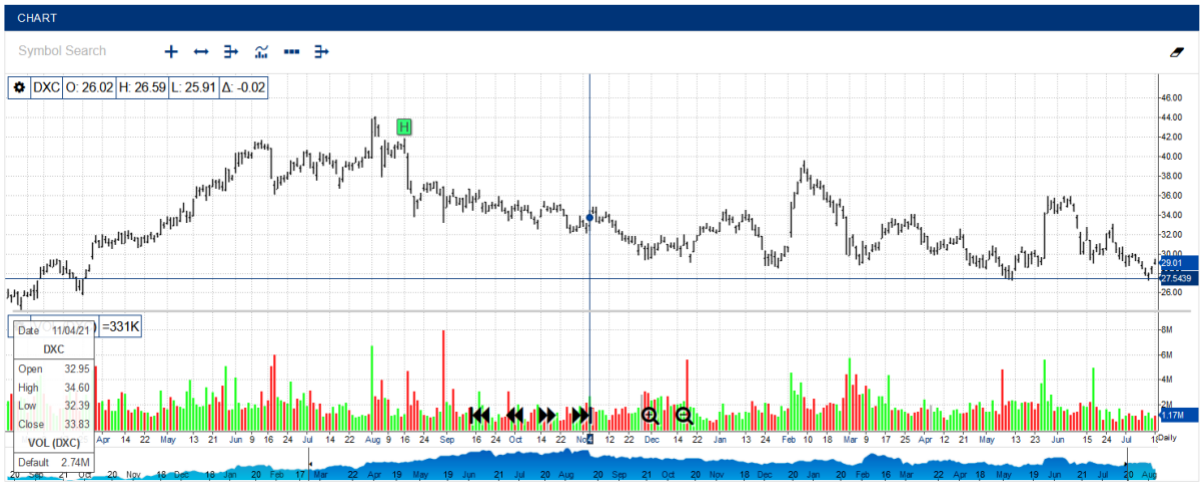


Figure 24 - DXC Technology stock price (NYSE)[128]

Figure 25 - Rackspace Technology stock price (NYSE)[129]

The full results of the conducted study are presented in the following tables.

[128] nyse.com [https://www.nyse.com/quote/XNYS:DXC]
[129] Idem

DXC Technology (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	2.83%	2.87%	2.78%
	Stdev (10 days)	8.94%	9.09%	8.81%
	Stdev (21 days)	12.95%	13.17%	12.76%
Return (CAR)	Event (0)	3.89%	2.65%	3.33%
	Anticipation (-10)	-9.50%	-9.88%	-10.24%
	Adjustment (+10)	-7.68%	-6.93%	-7.96%
	Total (-10;10)	-13.30%	-14.16%	-14.87%
Return (BHAR)	Event (0)	3.89%	2.65%	3.33%
	Anticipation (-10)	-9.23%	-9.56%	-9.89%
	Adjustment (+10)	-7.52%	-6.89%	-7.80%
	Total (-10;10)	-12.79%	-13.56%	-14.16%
t-stat (CAR)	Event (0)	1.38	0.92	1.20
	Anticipation (-10)	-1.06	-1.09	-1.16
	Adjustment (+10)	-0.86	-0.76	-0.90
	Total (-10;10)	-1.03	-1.08	-1.17
t-stat (BHAR)	Event (0)	1.38	0.92	1.20
	Anticipation (-10)	-1.03	-1.05	-1.12
	Adjustment (+10)	-0.84	-0.76	-0.89
	Total (-10;10)	-0.99	-1.03	-1.11
p-value (CAR)	Event (0)	16.97%	35.70%	23.28%
	Anticipation (-10)	28.86%	27.81%	24.61%
	Adjustment (+10)	39.08%	44.62%	36.67%
	Total (-10;10)	30.56%	28.33%	24.50%
p-value (BHAR)	Event (0)	16.97%	35.70%	23.28%
	Anticipation (-10)	30.28%	29.37%	26.23%
	Adjustment (+10)	40.09%	44.92%	37.66%
	Total (-10;10)	32.45%	30.42%	26.84%

(*)MSCI Word Information Technology used as market proxy

DXC Technology (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	2.83%	2.59%	2.57%
	Stdev (10 days)	8.94%	8.20%	8.14%
	Stdev (21 days)	12.95%	11.88%	11.80%
Return (CAR)	Event (0)	3.89%	3.74%	3.48%
	Anticipation (-10)	-9.50%	-9.58%	-11.66%
	Adjustment (+10)	-7.68%	-5.61%	-6.90%
	Total (-10;10)	-13.30%	-11.45%	-15.09%
Return (BHAR)	Event (0)	3.89%	3.74%	3.48%
	Anticipation (-10)	-9.23%	-9.29%	-11.18%
	Adjustment (+10)	-7.52%	-5.60%	-6.83%
	Total (-10;10)	-12.79%	-11.16%	-14.37%
t-stat (CAR)	Event (0)	1.38	1.44	1.35
	Anticipation (-10)	-1.06	-1.17	-1.43
	Adjustment (+10)	-0.86	-0.68	-0.85
	Total (-10;10)	-1.03	-0.96	-1.28
t-stat (BHAR)	Event (0)	1.38	1.44	1.35
	Anticipation (-10)	-1.03	-1.13	-1.37
	Adjustment (+10)	-0.84	-0.68	-0.84
	Total (-10;10)	-0.99	-0.94	-1.22
p-value (CAR)	Event (0)	16.97%	15.07%	17.82%
	Anticipation (-10)	28.86%	24.41%	15.32%
	Adjustment (+10)	39.08%	49.43%	39.72%
	Total (-10;10)	30.56%	33.62%	20.20%
p-value (BHAR)	Event (0)	16.97%	15.07%	17.82%
	Anticipation (-10)	30.28%	25.86%	17.08%
	Adjustment (+10)	40.09%	49.57%	40.25%
	Total (-10;10)	32.45%	34.86%	22.44%

(*)S&P 500 used as market proxy

DXC Technology (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	2.83%	2.86%	2.77%
	Stdev (10 days)	8.94%	9.04%	8.77%
	Stdev (21 days)	12.95%	13.10%	12.71%
Return (CAR)	Event (0)	3.89%	2.62%	3.27%
	Anticipation (-10)	-9.50%	-10.23%	-10.46%
	Adjustment (+10)	-7.68%	-7.24%	-8.12%
	Total (-10;10)	-13.30%	-14.85%	-15.32%
Return (BHAR)	Event (0)	3.89%	2.62%	3.27%
	Anticipation (-10)	-9.23%	-9.90%	-10.10%
	Adjustment (+10)	-7.52%	-7.17%	-7.95%
	Total (-10;10)	-12.79%	-14.17%	-14.54%
t-stat (CAR)	Event (0)	1.38	0.92	1.18
	Anticipation (-10)	-1.06	-1.13	-1.19
	Adjustment (+10)	-0.86	-0.80	-0.93
	Total (-10;10)	-1.03	-1.13	-1.21
t-stat (BHAR)	Event (0)	1.38	0.92	1.18
	Anticipation (-10)	-1.03	-1.09	-1.15
	Adjustment (+10)	-0.84	-0.79	-0.91
	Total (-10;10)	-0.99	-1.08	-1.14
p-value (CAR)	Event (0)	16.97%	36.01%	23.98%
	Anticipation (-10)	28.86%	25.87%	23.40%
	Adjustment (+10)	39.08%	42.38%	35.51%
	Total (-10;10)	30.56%	25.79%	22.92%
p-value (BHAR)	Event (0)	16.97%	36.01%	23.98%
	Anticipation (-10)	30.28%	27.46%	25.05%
	Adjustment (+10)	40.09%	42.82%	36.55%
	Total (-10;10)	32.45%	28.05%	25.35%

(*)S&P 500 Information Technology used as market proxy

Rackspace Technologies (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	3.28%	3.35%	3.25%
	Stdev (10 days)	10.36%	10.61%	10.29%
	Stdev (21 days)	15.02%	15.37%	14.91%
Return (CAR)	Event (0)	2.52%	1.01%	2.08%
	Anticipation (-10)	-0.84%	-3.90%	-1.42%
	Adjustment (+10)	11.61%	9.68%	11.39%
	Total (-10;10)	13.29%	6.79%	12.05%
Return (BHAR)	Event (0)	2.52%	1.01%	2.08%
	Anticipation (-10)	-1.20%	-4.19%	-1.77%
	Adjustment (+10)	11.49%	9.52%	11.30%
	Total (-10;10)	12.92%	5.99%	11.60%
t-stat (CAR)	Event (0)	0.77	0.30	0.64
	Anticipation (-10)	-0.08	-0.37	-0.14
	Adjustment (+10)	1.12	0.91	1.11
	Total (-10;10)	0.89	0.44	0.81
t-stat (BHAR)	Event (0)	0.77	0.30	0.64
	Anticipation (-10)	-0.12	-0.40	-0.17
	Adjustment (+10)	1.11	0.90	1.10
	Total (-10;10)	0.86	0.39	0.78
p-value (CAR)	Event (0)	44.30%	76.38%	52.39%
	Anticipation (-10)	93.55%	71.37%	89.06%
	Adjustment (+10)	26.34%	36.23%	26.94%
	Total (-10;10)	37.69%	65.89%	41.98%
p-value (BHAR)	Event (0)	44.30%	76.38%	52.39%
	Anticipation (-10)	90.76%	69.30%	86.33%
	Adjustment (+10)	26.87%	37.04%	27.33%
	Total (-10;10)	39.04%	69.73%	43.76%

(*)MSCI Word Information Technology used as market proxy

Rackspace Technologies (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	3.28%	3.27%	3.25%
	Stdev (10 days)	10.36%	10.34%	10.26%
	Stdev (21 days)	15.02%	14.99%	14.87%
Return (CAR)	Event (0)	2.52%	2.10%	2.36%
	Anticipation (-10)	-0.84%	-3.59%	-1.67%
	Adjustment (+10)	11.61%	11.00%	11.91%
	Total (-10;10)	13.29%	9.50%	12.60%
Return (BHAR)	Event (0)	2.52%	2.10%	2.36%
	Anticipation (-10)	-1.20%	-3.89%	-2.01%
	Adjustment (+10)	11.49%	10.88%	11.86%
	Total (-10;10)	12.92%	8.81%	12.19%
t-stat (CAR)	Event (0)	0.77	0.64	0.73
	Anticipation (-10)	-0.08	-0.35	-0.16
	Adjustment (+10)	1.12	1.06	1.16
	Total (-10;10)	0.89	0.63	0.85
t-stat (BHAR)	Event (0)	0.77	0.64	0.73
	Anticipation (-10)	-0.12	-0.38	-0.20
	Adjustment (+10)	1.11	1.05	1.16
	Total (-10;10)	0.86	0.59	0.82
p-value (CAR)	Event (0)	44.30%	52.23%	46.83%
	Anticipation (-10)	93.55%	72.85%	87.11%
	Adjustment (+10)	26.34%	28.86%	24.69%
	Total (-10;10)	37.69%	52.67%	39.76%
p-value (BHAR)	Event (0)	44.30%	52.23%	46.83%
	Anticipation (-10)	90.76%	70.75%	84.48%
	Adjustment (+10)	26.87%	29.38%	24.91%
	Total (-10;10)	39.04%	55.74%	41.32%

(*)S&P 500 used as market proxy

Rackspace Technologies (*)				
Kyndryl Listing Event (04-Nov-21)		Constant Return Model	Market-Adjusted Model (*)	CAPM (*)
Standard deviation	Stdev (1 day)	3.28%	3.37%	3.26%
	Stdev (10 days)	10.36%	10.67%	10.30%
	Stdev (21 days)	15.02%	15.47%	14.93%
Return (CAR)	Event (0)	2.52%	0.98%	2.11%
	Anticipation (-10)	-0.84%	-4.25%	-1.46%
	Adjustment (+10)	11.61%	9.37%	11.33%
	Total (-10;10)	13.29%	6.10%	11.98%
Return (BHAR)	Event (0)	2.52%	0.98%	2.11%
	Anticipation (-10)	-1.20%	-4.55%	-1.82%
	Adjustment (+10)	11.49%	9.19%	11.22%
	Total (-10;10)	12.92%	5.25%	11.51%
t-stat (CAR)	Event (0)	0.77	0.29	0.65
	Anticipation (-10)	-0.08	-0.40	-0.14
	Adjustment (+10)	1.12	0.88	1.10
	Total (-10;10)	0.89	0.39	0.80
t-stat (BHAR)	Event (0)	0.77	0.29	0.65
	Anticipation (-10)	-0.12	-0.43	-0.18
	Adjustment (+10)	1.11	0.86	1.09
	Total (-10;10)	0.86	0.34	0.77
p-value (CAR)	Event (0)	44.30%	77.22%	51.73%
	Anticipation (-10)	93.55%	69.08%	88.73%
	Adjustment (+10)	26.34%	38.07%	27.26%
	Total (-10;10)	37.69%	69.36%	42.31%
p-value (BHAR)	Event (0)	44.30%	77.22%	51.73%
	Anticipation (-10)	90.76%	67.05%	85.99%
	Adjustment (+10)	26.87%	38.98%	27.69%
	Total (-10;10)	39.04%	73.46%	44.16%

(*)S&P 500 Information Technology used as market proxy

As can be seen in the event date both *DXC Technology* and *Rackspace Technology* results show positive abnormal returns, having applied any of the methods and benchmarks. However, all these returns are statistically insignificant as the *p-values* reports an observed significance level well above 10%. The other abnormal returns (anticipation, adjustment and total) for the entire event window also shows low significance.

Thus, there is sufficient empirical evidence to accept the hypothesis that the event did not produce abnormal returns for *DXC Technology* and *Rackspace Technology* in the event window. If said hypothesis were true, then a low influence of the event could be inferred.

This could be explained based on the following considerations:

- Kyndryl' s influence on the total market represented by the indexes ($11.7 trillion for *MSCI Word Information Technology Index, $38.48* trillion *for S&P500* and $9.93 trillion for *S&P 500 Information Technology*) is limited considering its volumes.
- There is poor overlap in customer portfolio between Kyndryl and the two chosen companies, although they have similarities in business and size.
- The event does not result in substantial changes from the past when Kyndryl was an integral part of IBM. Kyndryl' s operations are in the line of continuity with the past as the company has not yet executed the new autonomous strategy.

In other terms the market did not react considering Kyndryl an emerging competitor for the other two companies and the investors do not see yet in Kyndryl a growth opportunity so significant to alter current market quotas.

Looking at the stock price graph it is evident that Kyndryl suffer of a wide depreciation initiated on the first trading day with a high volume of sells (47.8 M USD).

The high volumes of sell on trading day where not repeated in the following days and may come from futures agreed by major stockowners before public trading.

For this the stock price drop from the designated value $50 (10/22/2021) to the closure value of $26.38 on 11/04/2021.

The stock price declining trend in the next days is continuous and flattens around $10 after 3/1/2022, after 02/28/2022 Earning Report, shows that the company is still not attractive for investors and may, if not separated, depress price performance of the IBM Corporation.

This can be explained by the fact that the growth in the IT Services sector is slow paced, mainly happening with market quote competition, and that markups are low due to the competition. This is not attractive for venture investors. The trend doesn't mean that the company is not solid and sustainable considering its portfolio of Clients contract and its pipeline, so that doesn't mean that the company cannot execute growth strategy in the next future. Moreover, it continues to have a significant value for other stakeholders like clients and employees.

As consequence of a possible protracted underpricing of the stock the company can consider for the future a delisting, a merger, or a strategy to boost attractiveness, with the last option among preferred by the management.

3.4 Compared stock performance analysis

As complement of the event study analysis in the following graphic we conduct a stock value trend analysis, spanning 5 years, comparing the performance of IBM stock with the two indexes *Standard & Poor 500* and *Standard & Poor 500 Information Technology*, which represent well the sector in which the company operates, and the market represented by its more important Clients

To have a scaled graphic representation that can make the trend comparable, the value on October 31, 2016, for all variables is shown as 100.

Also, the stock graph incorporates the dividends distributed in the period.

In the first graph, showing the trends in the 5 years preceding separation, The IBM stock price is substantially flat, while the two indexes both grow with a growing gradient.

The 5-year period ends with a plus 1.82% for IBM, a plus 116.61% for S&P500 and a 254.33% for S&P IT.

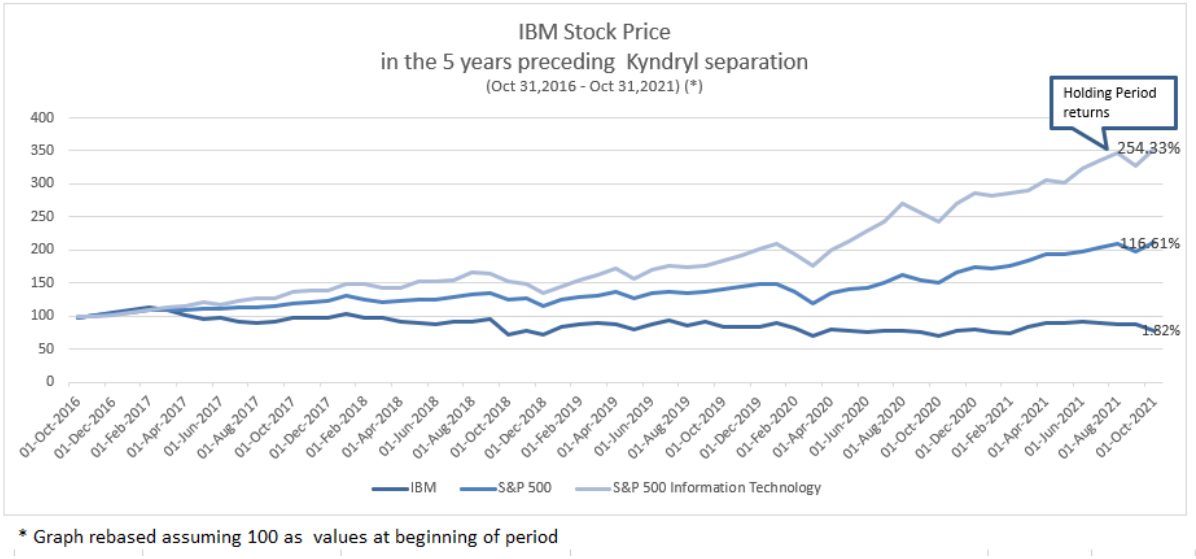


Figure 13 – IBM stock price in the 5 years preceding Kyndryl separation (Author's elaboration)

In the second graph the trend after separation up to date (267 calendar days, 188 trading days) is shown. In this period the IBM stock price is copying the shape of the index graphs, but with a sensible growth, ending with a plus 12.3% while the indexes decline -11.7% and -13.6% respectively.

For sure this growth is not all due to Kyndryl separation, but it is a strong confirmation of the effectiveness of the IBM growth plan that includes the separation.

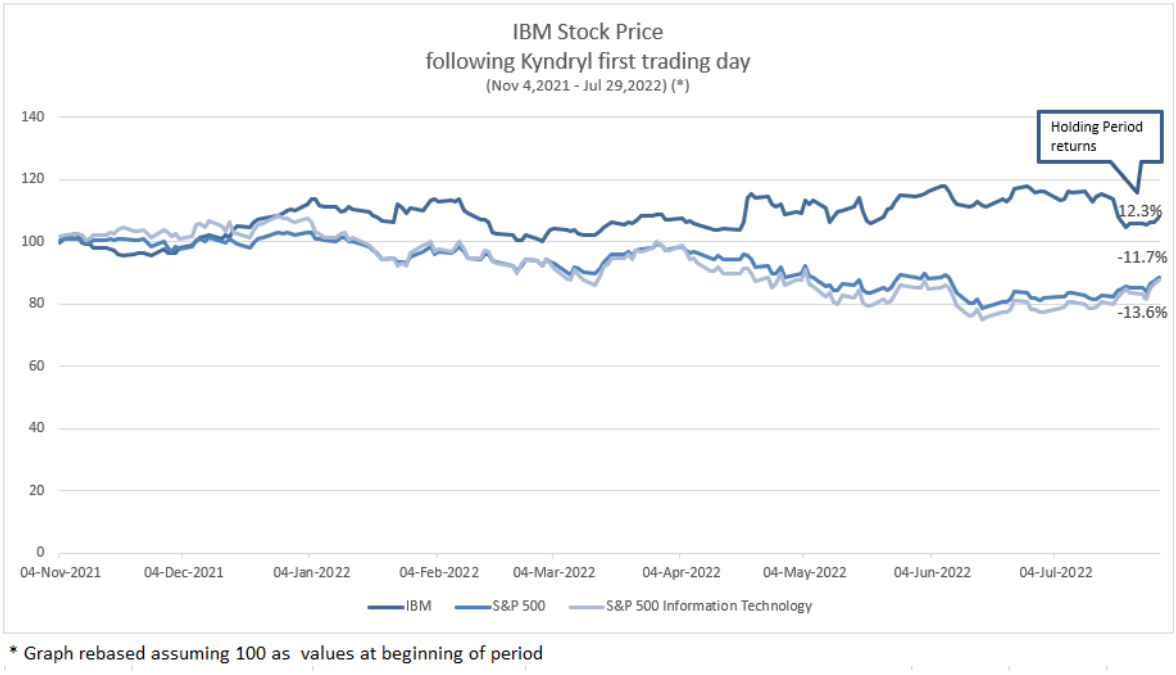


Figure 14 – IBM stock price following first Kyndryl trading day to date (Author's elaboration)

In the last graph we analyze the trend for Kyndryl stock price (266 calendar days, 187 trading days) compared to the same two companies selected for event study analysis and to *Standard & Poor 400* and *MSCI World Information Technology Index*.

All the plots show a declining trend, where the two more technologically characterized companies close with the worst results, minus 56.82% for *Kyndryl* and minus 53.87% for *RackSpace Technology*, while the *DXC Technology* better copies the trend of the indexes but with a constant better result ending at minus 7.95%, when *S&P 400* is at minus 13.51% and *MSCI WIT* is at minus 19.27%.

This trend shows a not favorable conjuncture for the market in which Kyndryl operates, with an economic slowdown, possibly a delayed adoption trend of Cloud and Edge technologies, and reduced IT investment in the period by Clients. It must be noted that being on technology edge in this situation doesn't not help and that Kyndryl is performing worse than the compared.

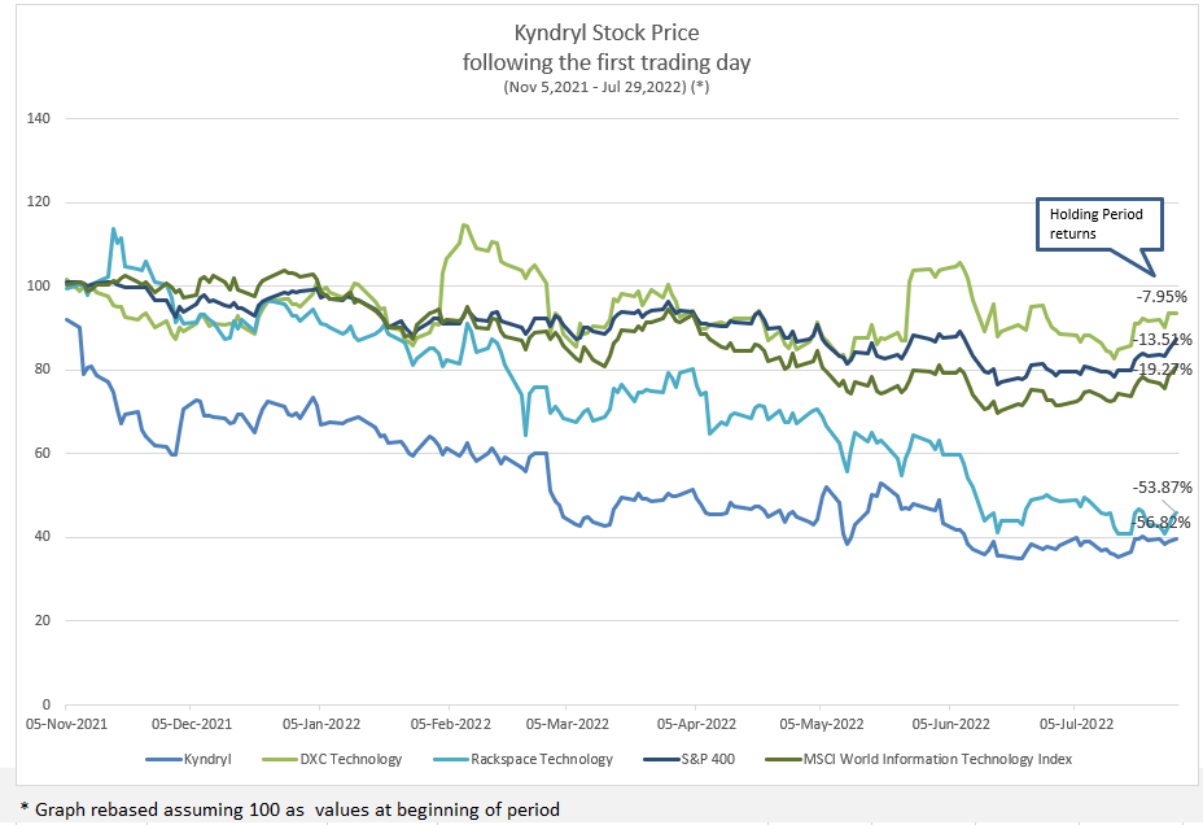


Figure 15 – Kyndryl stock price following first trading day to date (Author's elaboration)

3.5 Financial analysis

3.5.1 Applied method and comparison panel

The proposed method includes the use of *Profitability*, *Liquidity* and *Solidity* indexes for evaluation of the IBM financial posture compared to a choice of other significant companies, Amazon, Cisco, Microsoft, and Oracle, applied to year 2020, 2021 and to 2022 forecasts.

The following indexes are used for *Profitability*:

- *Return on Equity* (ROE)
- *Return on Invested Capital* (ROIC)
- *Return on Sales* (ROS)
- *Asset Turnover* (AT)
- *Duration of Working Capital Cycle* (DWCC)

The ratios used for *Liquidity* are:

- *Current Ratio*
- *Quick Ratio*
- *Cash Ratio*

The *Solidity* ratios are:

- *Equity to Fixed Assets Ratio* (E TO FA)
- *Long Term Obligation to Fixed Assets Ratio* (LT OBL TO FA)
- *Debt to Equity Ratio* (D TO E)
- *Financial Debts to Equity Ratio* (FD TO E)

Then Financial and Operating risk posture is evaluated using:

- *Degree of Financial Leverage* (DFL)
- *Degree of Operating Leverage* (DOL)

	Index	Acronym	Formula
Profitability	Return On Equity	ROE	*Net Income / Equity*
	Return On Invested Capital	ROIC	*Net Operating Profits After Taxes / Invested Capital*
	Return On Sales	ROS	*Earnings Before Interest and Taxes / Sales*
	Asset Turnover	AT	*Sales / Average Total Assets*
	Duration of Working Capital Cycle	DWCC	*Average Inventory period + Average Receivable period - Average Payable period*
Liquidity	Current Ratio		*Current Assets / Current Liabilities*
	Quick Ratio		*(Current Assets - Inventory) / Current Liabilities*
	Cash Ratio		*Liquidity / Current Liabilities*
Solidity	Equity to Fixed Assets Ratio	E TO FA	*Equity / Fixed Assets*
	Long Term Obligations to Fixed Assets Ratio	LT OBL TO FA	*Equity + Long Term Debt / Fixed Assets*
	Debt to Equity Ratio	D TO E	*(Long Term Debts + Short Term Debts) / Equity*
	Financial Debts to Equity Ratio	FD TO E	*Financial Debts / Equity*
Operating Risk	Degree of Operating Leverage	DOL	*Gross Margin / Earnings Before Interest and Taxes*
Financial Risk	Degree of Financial Leverage	DFL	*Earnings Before Interest and Taxes / Profit Before Taxes*

Figure 26 - Financial analysis indexes (Author's elaboration)

3.5.2 Results

The values shown in figures below are calculated from historical data and from 2022 projection provided by *Refinitiv*, a subsidiary of *London Stock Exchange Group* plc., participated by Thomson Reuters.[130]

The IBM forecast elaborated by *Refinitiv* are based on data from the following investment firms:

- Argus Research Corporation
- Baptista Research
- Cleveland Research
- Credit Suisse
- Crispidea
- DZ Bank
- Evercore ISI
- MoffettNathanson LLC
- Morningstar, Inc.
- Societé Generale
- Stifel Nicolaus and Company, Incorporated
- Tigress Financial Partners
- Wedbush Securities Inc.

The values marked with (*) in the panel average do not include Oracle for the following two reasons:

[130] *Refinitiv Workspace* application [www.refinitiv.com]

- Indexes that include equity in their formula are not considered as the Oracle company has run in 2020-2022 share buy-backs operation of more $45 billion that altered the equity value[131].
- DWCC and Quick Ratio were excluded due to the inventory value that is not assessed in the 2022 forecast.

For same reason the values affected are marked with (*) in the Oracle table.

Profitability analysis

Return of equity measures the overall profitability of the company. For IBM it is constantly higher than the panel average (Oracle excluded), with a slight decrease in 2021 and an expected increase in the 2022 to a value of 40.34%.

We can say that profitability is good, and the trend is to improve.

Return on Invested Capital measures how well a company is using investors' funds to generate cash flows. For this index IBM is constantly below the panel (40-45%) which is boosted by results of Microsoft and Cisco. Trend is to improve.

Cash flow improvement is in effect one of the priorities identified in IBM business transformation plan.

Return on Sales measures business operation efficiency. For IBM it shows a stepped increase trend suggesting an increased level of operational efficiency post the spin-off. In the 2022 the expected level is about 18.4% which means that the 82.6% of the sales are needed to cover operating costs.
The value suggested in literature for non-manufacturing companies is 20%, however the average of the panel is roughly at 30% suggesting that there is a room for a further improvement.

Asset Turnover measures the effectiveness of the invested capital in the business. For IBM and the panel is quite flat and below the suggested value of 1. The panel ranges from 0.66 to 0.69.

[131] *Oracle stock buyback history*, ycharts.com [https://ycharts.com/companies/ORCL/stock_buyback]

The forecasted value of 0.46 for IBM in 2022 means that the amount of operating revenue is 0.46 times the invested capital in the operating activities meaning that the effectiveness of the invested capital is not so satisfying even after the spin-off.

Duration of the Working Capital Cycle is the number of days between the cash out due to payment of raw materials and the cash in for the sale of products. The best scenario is to have an inverted cycle meaning collecting before paying (D WCC less than 0).

IBM in all three years have a positive D WCC and the decreasing trend suggest that the company is collecting cash more rapidly, possibly anticipating payments due to implementation of recurring charges respect to one-time charges and reducing delayed payment terms. Panel is dramatically better performing.

Liquidity analysis

Current ratio measures coverage of liabilities through assets.
In the 2021 it decreases of 0.08 points Y/Y possibly because of spin-off transferred credits, then grows back to 0.98 in 2022 forecast.
Indeed, in all three years it is below the average expressed by the panel and above all below the recommended threshold of 1.5/1.8.

Quick ratio measures coverage of liabilities through quicker assets excluding inventory.
The threshold adopted as reference is 1, but it can be lower with the dimension of the enterprise.
For IBM is it is always below 1, and the values are close to the amounts of current ratio meaning that the weight of inventories (5.59% in 2021) in current assets is not high, and this is not unexpected in a just in time production model.

Cash ratio measures the ability to cover current debts with cash equivalents only.
Theory suggests a minimum of 0.2 but the optimal value depends on how company manages liquidity and operations.
IBM shows a decreasing cash ratio ranging from 0.3 to 0.17 in the year following the spin-off.
The selected panel also presents a decrease but still higher values ranging from 0.81 to 0.56.
The value could turn in a problem if the free cash planned growth will not be realized, because mitigations that apply to pure manufacturing companies, like long credit terms with suppliers,

efficient inventory management, and reduction of extended credit lines to customers, do not apply to a company mainly focusing on software and services.

Solidity analysis

Equity to Fixed Assets represents the amount of fixed assets compared to equity.
IBM is able to finance about the 20% of non-current assets through equity while the panel, excluding Oracle, is around the 70%.
This means that IBM needs more debt for the financing of long-term assets.

Long term Obligations to Fixed Assets Ratio balances duration of obligations respects long term assets and should be at least equal to 1 to have an equilibrium.
IBM is below the panel (excluding Oracle) but close to 1, and the panel shows a worsening trend from 1.34 to 1.21.
This aspect requires attention as the short-term debt conditions may deteriorate due to contractionary monetary policy applied by governments.

Debt to Equity compares the total amount of debt to the equity.
IBM shows values always higher than the hypothetical barrier of 3 even if it is decreasing from the 6.53 to the 4.73.
The selected competitors with the only exception of Oracle presents a decreasing trend too, with values ranging 1.64 to 1.51.
The ratio includes also trade debts that are not interest-bearing debts, so a high value does not necessarily imply a deteriorating financial posture.

Financial Debts to Equity compares interest bearing debts to the equity.
Typically, the accepted value is 2, meaning a higher value is considered an indicator of a potential financial risk.
IBM in the three years have a value higher than 2 but is diminishing (from 2.96 to 2.20). However, the panel excluding Oracle presents a much lower value (from 0.42 to 0.30), expressing excellent conditions.

Operating Risk

Degree of Operating Leverage measures risk related to the company cost structure, with greater risk due to higher fixed costs.

IBM has most of fixed cost related to its high-tech research & development and production, and to the workforce of its software and services divisions. The trend for IBM is decreasing from 4.18 to 3.04, showing a reduced operating risk, and is opposite to the trend show by the panel. This is possibly a positive effect of the separation, with a workforce related expense, overhead and passive royalties' reduction.

Financial Risk

Degree of Financial Leverage measures risk related to the company financial debt structure.

The trend for IBM is decreasing from 1.14 to 1.05, showing a reduced financial risk, while the panel shows an opposite trend. Even this can be explained with the effects of separation, as EBIT grows (plus 27.9%) more than interests (plus 1.43%) in 2022 forecast post separation.

IBM	2020	2021	2022 forecast
Profitability			
ROE	37.52%	36.33%	40.34%
ROIC	7.33%	8.46%	8.60%
ROS	11.80%	15.26%	18.35%
AT	0.48	0.40	0.46
DWCC	75.17	72.63	63.11
Liquidity			
CURRENT RATIO	0.98	0.90	0.98
QUICK RATIO	0.94	0.85	0.93
CASH RATIO	0.33	0.20	0.17
Solidity			
E TO FA	0.18	0.19	0.23
LT OBL TO FA	0.99	0.97	0.99
D TO E	6.53	5.95	4.73
FD TO E	2.96	2.72	2.20
Operating Risk			
DOL	4.18	3.68	3.04
Financial Risk			
DFL	1.14	1.11	1.05

Panel average	2020	2021	2022 forecast
Profitability			
ROE (*)	34.74%	33.32%	29.62%
ROIC	18.11%	21.13%	18.88%
ROS	30.64%	31.74%	30.74%
AT	0.69	0.66	0.68
DWCC (*)	-2.17	-7.67	-1.29
Liquidity			
CURRENT RATIO	2.08	1.75	1.49
QUICK RATIO (*)	1.67	1.46	1.33
CASH RATIO	0.81	0.59	0.56
Solidity (*)			
E TO FA	0.74	0.73	0.70
LT OBL TO FA	1.34	1.31	1.21
D TO E	1.64	1.58	1.51
FD TO E	0.42	0.35	0.30
Operating Risk			
DOL	3.05	3.32	4.43
Financial Risk			
DFL	1.02	1.02	1.25

(*) Average doesn't include Oracle

Figure 27 - Financial indexes for IBM and comparison panel average (Author's elaboration)

Amazon	2020	2021	2022 forecast
Profitability			
ROE	27.44%	19.03%	10.60%
ROIC	14.71%	15.98%	5.25%
ROS	5.93%	5.30%	3.42%
AT	1.41	1.27	1.21
DWCC	-37.56	-41.20	-30.51
Liquidity			
CURRENT RATIO	1.05	1.14	0.99
QUICK RATIO	0.86	0.91	0.75
CASH RATIO	0.44	0.59	0.60
Solidity			
E TO FA	0.50	0.53	0.51
LT OBL TO FA	0.75	1.07	1.02
D TO E	1.88	2.04	2.09
FD TO E	0.34	0.35	0.37
Operating Risk			
DOL	6.67	7.94	12.39
Financial Risk			
DFL	0.95	0.94	1.80

Microsoft	2020	2021	2022 forecast
Profitability			
ROE	40.14%	47.10%	45.72%
ROIC	23.90%	30.80%	33.23%
ROS	37.03%	41.59%	42.29%
AT	0.49	0.53	0.57
DWCC	8.13	-4.24	-5.58
Liquidity			
CURRENT RATIO	2.52	2.08	1.78
QUICK RATIO	2.49	2.05	1.75
CASH RATIO	0.19	0.16	0.15
Solidity			
E TO FA	0.99	0.95	0.85
LT OBL TO FA	1.92	1.64	1.38
D TO E	1.55	1.35	1.19
FD TO E	0.54	0.41	0.30
Operating Risk			
DOL	1.83	1.66	1.62
Financial Risk			
DFL	1.00	0.98	1.00

Figure 28 - Financial Indexes for Amazon and Microsoft (Author's elaboration)

Oracle	2020	2021	2022 forecast
Profitability			
ROE (*)	118.40%	349.29%	342.62%
ROIC	14.07%	17.90%	13.56%
ROS	45.94%	46.48%	43.47%
AT	0.36	0.34	0.39
DWCC	30.16	26.49	not assessed
Liquidity			
CURRENT RATIO	3.03	2.30	1.62
QUICK RATIO	3.02	2.29	not assessed
CASH RATIO	2.17	1.25	1.10
Solidity (*)			
E TO FA	0.20	0.08	-0.07
LT OBL TO FA	1.55	1.42	1.16
D TO E	8.08	21.03	-19.95
FD TO E	5.63	14.15	-13.15
Operating Risk			
DOL	1.76	1.73	1.80
Financial Risk			
DFL	1.13	1.17	1.19

(*) Results affected by share buy-back operation

Cisco	2020	2021	2022 forecast
Profitability			
ROE	36.64%	33.82%	32.53%
ROIC	19.77%	19.84%	23.47%
ROS	33.67%	33.61%	33.78%
AT	0.51	0.52	0.54
DWCC	22.92	22.41	32.21
Liquidity			
CURRENT RATIO	1.72	1.49	1.57
QUICK RATIO	1.67	1.43	1.48
CASH RATIO	0.47	0.38	0.38
Solidity			
E TO FA	0.74	0.71	0.73
LT OBL TO FA	1.36	1.22	1.24
D TO E	1.50	1.36	1.26
FD TO E	0.38	0.28	0.22
Operating Risk			
DOL	1.96	1.95	1.92
Financial Risk			
DFL	0.99	0.99	1.00

Figure 29 - Financial indexes for Oracle and Cisco (Author's elaboration)

Summary of results

	Index	Assessment	Outlook
Profitability	Return On Equity (*)	*Outstanding*	*Improving* ↑
	Return On Invested Capital	*Below panel*	*Improving* ↑
	Return On Sales	*Below panel*	*Improving* ↑
	Asset Turnover	*Slightly Below Panel*	*Stable* →
	Duration of Working Capital Cycle (*)	*Greatly below panel*	*Improving* ↑
Liquidity	Current Ratio	*Below panel*	*Stable* →
	Quick Ratio (*)	*Below panel*	*Stable* →
	Cash Ratio	*Below panel*	*Declining* ↓
Solidity (*)	Equity to Fixed Assets Ratio	*Below panel*	*Improving* ↑
	Long Term Obligations to Fixed Assets Ratio	*Slightly Below Panel*	*Stable* →
	Debt to Equity Ratio	*Greatly below panel*	*Improving* ↑
	Financial Debts to Equity Ratio	*Greatly below panel*	*Improving* ↑
Operating Risk	Degree of Operating Leverage	*Almost aligned*	*Improving* ↑
Financial Risk	Degree of Financial Leverage	*Almost aligned*	*Improving* ↑

(*) Panel doesn't include Oracle

Figure 30 - Summary of financial analysis results (Author's evaluations)

3.6 Evaluation of stakeholders' outcomes

3.6.1 Notes on methodology adopted

Traditionally, companies have used financial indicators to assess their performance. These can work well when the companies' assets are primarily tangible and identifiable in the financial statements.

However, when we are faced with companies whose primary and long-term success depends on less tangible factors such as the ability to satisfy customers, the efficiency of internal processes, and the ability to be innovative and learn, it may be useful to use metrics and methodologies that go beyond financial performance indicators.

One methodology that allows for the integration of less tangible aspects and for a comprehensive view of the business and how it is performing against strategic objectives is *The Balanced Scorecard*.

The Balanced Scorecard is a strategy performance management tool devised by Norton and Kaplan in 1992[132].

In its first formulation it assesses performance according to four perspectives, identifying and measuring key performance indicators for each dimension:

- Financial
- Customer
- Internal Business
- Innovation and Learning

Because of its ability to assess performance in several aspects both financial and non-financial, it can be used to evaluate how well the company is managing to meet the needs of its various stakeholders. The initial method meets well the evaluation of non-complex, non-divisional commercial organizations.

The first generation of the method was criticized for the limits of the fixed four perspectives definition, compared to the articulated set of objectives that more complex companies or public organization may have, and for the lack of comparison of the results in each category, being possible that objectives in one may conflict with another or on the contrary being them linked.[133] This consideration led to create *2nd generation scorecards* where the performance objectives ('*strategic objectives*') where identified from a linked '*strategy map*'.

The methodology was later revised to take in account conflicting targets and interests of different stakeholders as identifies by the *Stakeholders* theory, by counterbalancing strategic objectives.[134]

In short, the attention was re-directed to the choice of a set of performance indicators that can be used to evaluate execution of well balanced and sustainable strategies, measuring them periodically through the scorecard.

[132] Kaplan, R. and Norton, D. P. (1992*), The Balanced Scorecard—Measures that Drive Performance*, Harvard Business Review, retrieved in hbr.org [https://hbr.org/1992/01/the-balanced-scorecard-measures-that-drive-performance-2]
[133] Kellermans et. al. (2013), *Strategic Alignment: A missing link in the relationship between strategic consensus and organisational performance*
[134] Jensen, M. C. (2001), *Value maximisation, stakeholder theory, and the corporate objective function*, European Financial Management

Then more rigorous methods to define strategic objectives, from a '*Vision Statement*' or '*Destination Statement*', originated the so-called *3rd generation scorecards* practices.[135] [136]

Also, the possibility of creating a comparable overall score from the detailed one was discussed.

Here we will try to apply a scorecard freely derived from these later implementations, and characterized by:

- Identification of KPIs from the company declared strategies
- KPIs set for the four canonical perspectives, extended with an *Environment, Social and Governance perspective*, that represents interest of a more comprehensive set of external stakeholders
- A 5-level score for performance (*Outstanding*, *Good*, *Satisfactory*, *Unsatisfactory*, *Poor*)
- A 4-level evaluation of outlook (*Improving, Mixed, Stable, Declining*)
- The identification of contrasting KPI when the strategic objectives may be conflicting and need a balance
- The adoption of two separate views for IBM and Kyndryl companies. In IBM view only the objectives that are influenced directly from the separation will be examined
- An aggregation of financial perspectives that can represent the sum of the results for both companies

In our case we can identify strategic objectives from the declaration of CEO and directors, but we need to rely on public data for measure of KPIs, and possibly need to integrate missing data with our own empiric evaluations.

Among limits of this approach, we may list:

- Lack of rigor in measures, when third party assessed data are not available or the measure is for its nature empiric
- Arbitrary formulation of an overall score that makes results depending on self judgement of relative importance and not comparable across different situations
- Assessment of strategic alternatives in not possible with this method, being the strategy definition based on an autocratic definition of the Vision Statement

[135] Lawrie J. G; Cobbold I. (2004), *3rd Generation Balanced Scorecard: Evolution of an effective strategic control tool*, [https://web.archive.org/web/20140501201157/http:/2gc.eu/files/resources/2GC-WP-Dev3rdGenBSC-090311.pdf]

[136] Morisawa, T., (2002), *Building Performance Measurement Systems with the Balanced Scorecard Approach*, [https://web.archive.org/web/20160305151427/http:/www.nri.com/global/opinion/papers/2002/pdf/np200245.pdf]

- Impossibility of representing unexpected changes of the plan or of the business ecosystem where the plan is executed, is not easy, and adjustments can be taken in account only in the final score

The limit of this methodology may be evident but are balanced by its effectiveness in measuring progresses toward the goals, and by the advantages in the representation of the strategies in a holistic view.

So, here we intend to use the scorecard for a summary of the values involved in the dismission, rather than as a rigorous evaluation method.

3.6.2 Balanced Scorecard

Kyndryl scorecard

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
Kyndryl	Financial perspective	**Stock Price ($)**	Not declared	NYSE	Separation (22 Oct. 2021)	50.00	*Poor*	*Mixed* ↔
					Listing (04 Nov. 2021)	26.38		
					4Q 2021	18.10		
					1Q 2022	13.12		
					2Q 2022	10.47		
					19 Aug. 2022	11.20		
		Capitalization (M$)	Not declared	Calculation from NYSE data	Separation (22 Oct. 2021)	11,338.14	*Poor*	*Mixed* ↔
					Listing (04 Nov. 2021)	5,382.00		
					4Q 2021	4,104.41		
					1Q 2022	2,975.13		
					2Q 2022	2,374.21		
					19 Aug. 2022	2,539.74		
		Cash Flow From Operations (M$)	Not declared	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	189 Y/Y: 158%		
					2Q 2022	104 Y/Y: 165%		
					19 Aug. 2022	NA		
		ROE	Not declared	Calculation from Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Poor*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	-26.74%		
					1Q 2022	-8.45%		
					2Q 2022	-11.31%		
					19 Aug. 2022	NA		
		New signings (M$)	Not declared	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Unsatisfactory*	*Declining* ↘
					Listing (04 Nov. 2021)	NA		
					4Q 2021	4.4 Y/Y: -23%		
					1Q 2022	3.1 Y/Y: 26%		
					2Q 2022	2.9 Y/Y: -22%		
					19 Aug. 2022	NA		
		Owned capital (M$)	Not declared	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Unsatisfactory*	*Declining* ↘
					Listing (04 Nov. 2021)	NA		
					4Q 2021	2,767.00		
					1Q 2022	2,711.00		
					2Q 2022	2,211.00		
					19 Aug. 2022	NA		
		Revenue Growth YoY	Revenue growth by calendar year 2025	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Poor*	*Declining* ↘
					Listing (04 Nov. 2021)	NA		
					4Q 2021	-8.00%		
					1Q 2022	-7.00%		
					2Q 2022	-10.00%		
					19 Aug. 2022	NA		

Figure 31 - Kyndryl' s Financial Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
Kyndryl	Customer perspective	**Customer References**	Not declared	Public References to date	Separation (22 Oct. 2021)	16 [1]	*Outstanding*	*Improving* ↑
					Listing (04 Nov. 2021)	19 [2]		
					4Q 2021	22 [3]		
					1Q 2022	26 [4]		
					2Q 2022	33 [5]		
					19 Aug. 2022	33 [6]		
		Customer Satisfaction	Not declared	Gartner Rating based on customer reviews	19 Aug. 2022	4.1 out of 5	*Good*	*NA*
		Customer Retention Rate	Not declared	KD Value Proposition (04 Nov. 2021)	Separation (22 Oct. 2021)	NA	*NA*	*NA*
					Listing (04 Nov. 2021)	94.00%		
					4Q 2021	NA		
					1Q 2022	NA		
					2Q 2022	NA		
					19 Aug. 2022	NA		
		Addressable Market (B$)	2024 Addressable Market: 510 B$	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	415 B$ (240 B$ pre spin-off)	*NA*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	NA		
					2Q 2022	NA		
					19 Aug. 2022	NA		

Figure 32 - Kyndryl' s Customer Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
Kyndryl	Internal Business perspective	**New Alliances**	Enlarge partner ecosystem to expand adressable market and modernize IT infrastructure	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Outstanding*	*Stable* →
					Listing (04 Nov. 2021)	NA		
					4Q 2021	6 [7]		
					1Q 2022	5 [8]		
					2Q 2022	6 [9]		
					19 Aug. 2022	NA		
		Hyperscaler signings	2023 FY Target (01 April. 22 - 31 March. 23): 1 B$ of hyperscaler signings	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Satisfactory*	*NA*
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	NA		
					2Q 2022	235 M$ fiscal ytd (01 April 22 - 30 Jun. 22)		
					19 Aug. 2022	NA		
		Service transformation (Advanced Delivery)	2023 FY Target (01 April. 22 - 31 March. 23): 200 M$ savings from automation	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Outstanding*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	46 M$ annualized savings from automation to date		
					2Q 2022	100 M$ annualized savings from automation to date		
					19 Aug. 2022	NA		
		Accounts (addressing substandard margins)	2023 FY Target (01 April. 22 - 31 March. 23): 200 M$ profit improvement	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	NA	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	26 M$ annualized profit improvement to date		
					2Q 2022	52 M$ annualized profit improvement to date		
					19 Aug. 2022	NA		
		Risk management (10)	Not declared	Materialized risks over total risks identified in SEC FORM 10-K (author's elaboration)	Separation (22 Oct. 2021)	NA	*Satisfactory*	*Mixed* ↔
					Listing (04 Nov. 2021)	NA		
					4Q 2021	NA		
					1Q 2022	NA		
					2Q 2022	NA		
					19 Aug. 2022	15%		

Figure 33 - Kyndryl' s Internal Business Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
Kyndryl	Innovation and Learning perspective	**Employment**	Maintain full employement	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	90,000	*Outstanding*	*Stable* →
					Listing (04 Nov. 2021)	90,000		
					4Q 2021	90,000		
					1Q 2022	90,000		
					2Q 2022	90,000		
					19 Aug. 2022	NA		
		Employee satisfaction	Not declared	Glassdoor Rating based on employee reviews	Separation (22 Oct. 2021)	4 out of 5	*Good*	*Stable* →
					Listing (04 Nov. 2021)	4 out of 5		
					4Q 2021	3.9 out of 5		
					1Q 2022	3.8 out of 5		
					2Q 2022	3.8 out of 5		
					19 Aug. 2022	3.9 out of 5		
		Skills growth - cloud hyperscale certications	Mid term goal: 45.000 employee hyperscale certified	Kyndryl Quarterly reports	Separation (22 Oct. 2021)	16,000	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	16,000		
					4Q 2021	16,000		
					1Q 2022	17,500		
					2Q 2022	21,800		
					19 Aug. 2022	NA		

Figure 34 - Kyndryl' s Innovation and Learning Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Actual to date (19 Aug. 22)	Assessment	Outlook
Kyndryl	Environment, Social, Governance perspective	**Environment**	Commit to sustainable business practices and operations	Kyndryl Quarterly reports, Proxy Statement	- Identified factories for which to report emissions according to GHG Protocol - Launched Sustainability @Kyndryl to drive educational learning for employees - Increased number of locations following the EU Code of Conduct	*Good*	*Improving* ↑
		Social	Lead in human capital, inclusion, diversity, equity, and CSR	Kyndryl Quarterly reports, Proxy Statement	- Launched Kyndryl Inclusion Networks - Tied a portion of 2023 executive cash incentive bonus to achievement of ESG goals - Launched Kyndryl global employee volunteering and giving platform	*Good*	*Improving* ↑
		Governance	Operate with integrity	Kyndryl Quarterly reports, Proxy Statement	- Established Board committee oversight of ESG strategy - 50% of Board members are gender, racially and/or ethnically diverse - 100% business ethics training completed by employees	*Outstanding*	*Improving* ↑
		ESG Plan Progress	Become a purpose driven company	Kyndryl Quarterly reports, Proxy Statement	- Set a baseline for ESG programmes - Completed Third-Party Materiality assessment of the most important ESG issues	*Good*	*Improving* ↑

Figure 35 - Kyndryl' s Environmental, Social, Governance Perspective Scores (Author's elaboration)

Legenda

Customer references:	(1) - Andhra Paper Limited - Blue NAP Americas - BRF Global - Broadridge Financial Solutions - City Furniture, Inc. - Dilip Buildcon Limited - Fuji Television Network, Inc - LOTTECARD - Mitsubishi Motors Australia Ltd. - Mondi Group - National Stock Exchange of India Ltd. - Performance iN Lighting - SimCorp A/S, - TOA Corporation - Turkey's Isbank - Carrefour Belgium	(2) - Bank of Ayudhya Public Company Ltd. - Dow - Pharmaceutical Supplies Manufacturer	(3) - Compass Group Spain - S.L. Empresas Hites S.A., - Post and Parcel Delivery Company	(4) - Canadian Malartic -Japan Airlines Co., Ltd. - RSA Insurance - Healthcare solutions provider and manufacturer	(5) - Raj Petro - German managed services provider for the financial industry - Schibsted Media Group - Schneider Electric - Multinational investment bank - Multinational media company - North American food manufacturer	(6) - Bord Gais Energy
Alliances:	(7) - Microsoft - Google Cloud - SAP - Vmware - Amazon Web Services - Nokia	(8) - Cloudera - Lenovo - Pure Storage - Dell Technologies	(9) - Cisco - Five9 - Oracle - Red Hat - NetApp - Veritas			

Figure 36 - Legenda for Customer and Business perspectives (Author's elaboration)

#	*Risks identified in SEC filings*	*Materialized on*
1	Lack of market growth	March 2022
2	Customer retention issues	
3	Productivity issue	
4	Competition and underperforming relations with partners/suppliers	
5	Personnel retention, attraction, and skill shortage	
6	Risks related to global economic, political, health conditions	February 2022
7	Downturn of economy	
8	Reputation impacts	
9	Underestimate/unexpected growth of service costs	
10	Inability to deliver	
11	Underperforming acquisitions/alliances	
12	Intellectual property issues	
13	Excess of goodwill impairment charges	December 2021
14	Cybersecurity and Data Privacy risks	
15	Governments' sanctions	
16	Tax changes	
17	Legal proceedings	
18	More strict requirements from customers, investors, and regulators	
19	Lowering or withdrawal of debt securities rating	
20	Reduced access to capital from credit environment and investors	
21	Global Market liquidity issues	
22	Pension plan trust asset reduction may affect pension liabilities with higher insolvency risk premium	
23	Currency risks	April 2022
24	Kyndryl may not realize anticipated benefits	
25	Spinoff may determine to be taxable, with extra cost and indemnities	
26	Restrictions needed to be taxfree may limit operating flexibility	
27	Potential conflicts of interest	
28	Fail to perform separation agreements	
29	Substantial sales decline	
30	Substantial stock price decline	November 2021
31	Diluted earnings per share	
32	Provision and stockholders' disputes may discourage takeovers and make the title less attractive, or limit stockholders rights	

Figure 37 - Kyndryl current risks (note 10) (Author's elaboration)

The average score of Kyndryl in the 21 dimensions included in the scorecard is 3.38/5:

- 1.71 for *Financial perspective*
- 4.5 for *Customer perspective*
- 4 for *Internal Business perspective*
- 4.33 for *Innovation and Learning perspective*
- 4.25 for *Environment, Social, Governance perspective*

the company shows a good balance managing stakeholders' interest and a good governance, but some difficulties in reaching financial goals, with a mixed outlook.

The formulation of the ESG targets is in line with best practices for sustainability, social responsibility, business ethics, inclusion, and diversity valorization.

Outstanding are the Customer satisfaction results that confirm that the company operates in continuity with previous operations. Also outstanding is the effort in maintaining employee full occupation and in growing the intellectual capital that represents one of the company's primary assets.

The financial score may be improved by execution of the market growth strategy, although the progress in this aspect cannot be evaluated before publication of fiscal year results and

appear to be challenging (target addressable market growth up to 510 B$ while current estimate is 415 B$).

IBM scorecard

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
IBM (Partial, only listing dimensions directly influenced by spin-off)	Financial perspective	**Stock Price ($)**	Not declared	NYSE	Separation (22 Oct. 2021)	131.49	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	120.85		
					4Q 2021	133.66		
					1Q 2022	133.26		
					2Q 2022	130.79		
					19 Aug. 2022	138.37		
		Capitalization (M$)	Not declared	Calculation from NYSE data	Separation (22 Oct. 2021)	118,759.18	*Outstanding*	*Improving* ↑
					Listing (04 Nov. 2021)	109,149.35		
					4Q 2021	120,719.09		
					1Q 2022	120,357.81		
					2Q 2022	118,126.96		
					19 Aug. 2022	124,973.07		
		Free Cash Flows (M$)	2022 Expectations: 10000-10500 M$	IBM Quarterly reports	Separation (22 Oct. 2021)	NA	*Satisfactory*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	3345 Y/Y : - 44.74%		
					1Q 2022	1200 Y/Y: - 18.52%		
					2Q 2022	2100 Y/Y: 101.63%		
					19 Aug. 2022	NA		
		ROE	Not declared	Calculation from IBM Quarterly reports	Separation (22 Oct. 2021)	NA	*Good*	*Mixed* ↔
					Listing (04 Nov. 2021)	NA		
					4Q 2021	59.03%		
					1Q 2022	26.79%		
					2Q 2022	43.79%		
					19 Aug. 2022	NA		
		Owned Capital (M$)	Not declared	IBM Quarterly reports	Separation (22 Oct. 2021)	NA	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	18,901.00		
					1Q 2022	19,050.00		
					2Q 2022	19,409.00		
					19 Aug. 2022	NA		
		Revenue Growth YoY	2022 Expectations: Mid-single digit revenue growth at constant currecy plus ~3.5 pts from incremental sales to Kyndryl	IBM Quarterly reports	Separation (22 Oct. 2021)	NA	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	NA		
					4Q 2021	9% @cc includes 3.5 pts from incremental sales to Kyndryl 6.45%		
					1Q 2022	11% @cc includes 5 pts from incremental sales to Kyndryl 7.66%		
					2Q 2022	16% @cc includes 5 pts from incremental sales to Kyndryl 9.26%		
					19 Aug. 2022	NA		

Figure 38 - IBM Financial Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
IBM (Partial, only listing dimensions directly	Customer perspective	**Product Quality Score (*)**	Not declared	Comparably ratings	19 Aug. 2022	4 out of 5 5th against competitors	*Good*	*Stable* →
		Customer NPS (*)	Not declared	Comparably ratings	Separation (22 Oct. 2021)	27	*Good*	*Improving* ↑
					Listing (04 Nov. 2021)	29		
					4Q 2021	29		
					1Q 2022	29		
					2Q 2022	30		
					19 Aug. 2022	30 5th against competitors		
		Pricing Score (*)	Not declared	Comparably ratings	19 Aug. 2022	4 out of 5 5th against competitors	*Good*	*Stable* →
		Customer Service (*)	Not declared	Comparably ratings	19 Aug. 2022	4.1 out of 5 3rd against competitors	*Outstanding*	*Stable* →
		Brand Reputation (B$)	Not declared	Brand value provided by Brand Finance 2021-2022	Before separation (22 Oct. 2021)	14.2	*Good*	*Declining* ↘
					19 Aug. 2022	10.6		

(*) Competitors include Amazon, Apple, Google, Microsoft, Meta

Figure 39 - IBM Customer Perspective Scores (Author's elaboration)

		Dimension	Goals	Evidences	Date	Value	Assessment	Outlook
IBM (Partial, only listing dimensions directly influenced by spin-off)	Internal Business perspective	**Hybrid cloud progress**	Accelerate client adoption of hybrid cloud solutions	Nr of HC clients, HC revenue vs Total from quarterly report	4Q 2021	3,800 (+35.71% Y/Y) 37.13% (+10.98% Y/Y)	***Outstanding***	***Improving*** ↑
					1Q 2022	4,000 (+33.33% Y/Y) 35.21 % (+7.23% Y/Y)		
					2Q 2022	4,250 (+32.81%) 38.06% (+10.53%)		
	Innovation and Learning perspective	**Overall Culture Score (*)**	Not declared	Comparably ratings	19 Aug. 2022	81 out of 100 1st against competitors	***Outstanding***	***Stable*** →
		Employee NPS	Not declared	Comparably ratings	Separation (22 Oct. 2021)	48 Similar size companies: - 10	***Outstanding***	***Stable*** →
					Listing (04 Nov. 2021)	48 Similar size companies: - 17		
					4Q 2021	48 Similar size companies: - 24		
					1Q 2022	48 Similar size companies: - 30		
					2Q 2022	48 Similar size companies: -32		
					19 Aug. 2022	49 Similar size companies: - 32		
		Gender Score (*)	Not declared	Comparably ratings	19 Aug. 2022	82 out of 100 1st against competitors	***Outstanding***	***Stable*** →
		Diversity Score (*)	Not declared	Comparably ratings	19 Aug. 2022	81 out of 100 1st against competitors	***Outstanding***	***Stable*** →
		Employee Retention Rate	Not declared	Comparably ratings	Separation (22 Oct. 2021)	82 out of 100 Similar size companies: 70 out of 100	***Outstanding***	***Stable*** →
					Listing (04 Nov. 2021)	82 out of 100 Similar size companies: 69 out of 100		
					4Q 2021	82 out of 100 Similar size companies: 70 out of 100		
					1Q 2022	82 out of 100 Similar size companies: 70 out of 100		
					2Q 2022	82 out of 100 Similar size companies: 70 out of 100		
					19 Aug. 2022	82 out of 100 Similar size companies: 72 out of 100		

(*) Competitors include Amazon, Apple, Google, Microsoft, Meta

Figure 40 - IBM Innovation and Business Perspectives Scores (Author's elaboration)

Being out of the scope a complete discussion of IBM strategic dimensions, scorecard includes only dimensions that may have been directly influenced by the separation.

The average score of IBM on 16 dimensions is 4.41, very good, with an overall improving trend, and the picture evidence that the Kyndryl separation has boosted IBM transformation strategy releasing resources, removing impediments, and changing the internal charges for Cloud costs of services into external revenue.

3.6.3 Aggregated financial results

	On listing date (04 Nov. 2021)	*4Q 2021 quarterly report*	*1Q 2022 quarterly report*	*2Q 2022 quarterly report*	*Actual to date (19 Aug. 22)*
IBM stock price	$120.85	$133.66	$133.26	$130.79	$138.37
IBM Dividend by quarter	-	$1.64	$1.64	$1.64	$0.00
HPR IBM		11.96%	12.98%	12.30%	18.57%
Kyndryl stock price	$26.38	$18.10	$13.12	$10.47	$11.20
HPR Kyndryl		-31.39%	-50.27%	-60.31%	-57.54%
Aggregate portfolio value (base 5 IBM stocks, 1 Kyndryl stock)	$630.63	$686.40	$679.42	$664.42	$703.05
Cumulative dividends		$8.20	$16.40	$24.60	$24.60
Total	$630.63	$694.60	$695.82	$689.02	$727.65
Aggregate stock performance		8.84%	7.74%	5.36%	11.48%
HPR of portfolio (including dividends)		10.14%	10.34%	9.26%	15.38%

Figure 41 - Aggregated IBM and Kyndryl financial results (Author's elaboration)

The performance analysis of a sample portfolio including five IBM stocks and one Kyndryl stock, which is the ratio adopted for initial distribution, from listing date to current date, shows that the initial capital is incremented of 11.48% in stock value and of 15.38% including dividends.

This is a fair result for investors that compensate the poor stock performance of Kyndryl in the period (-57.54%) which is continuously below its target price indicated by analysts.

The aggregate capitalization of the two companies is improving and also the aggregated ROE is stable on an outstanding value, considering variation due to seasonality.

In short, the overall aggregate financial value is growing as expected in the defined strategy.

	Dimension	*Evidences*	*Date*	*Value*	*Assessment*	*Outlook*
Kyndryl and IBM Aggregate	**Aggregate Capitalization (M$)**	Calculation from NYSE data	Separation (22 Oct. 2021)	130,097.32	***Good***	***Improving*** ↗
			Listing (04 Nov. 2021)	115,131.35		
			4Q 2021	124,823.49		
			1Q 2022	123,332.94		
			2Q 2022	120,501.16		
			19 Aug. 2022	127,512.81		
	Aggregate ROE	Calculation from Quarterly reports	Separation (22 Oct. 2021)	NA	***Outstanding***	***Stable*** →
			Listing (04 Nov. 2021)	NA		
			4Q 2021	32.29%		
			1Q 2022	18.34%		
			2Q 2022	32.48%		
			19 Aug. 2022	NA		
	Holding Period Returns from first listing simulating an investor owning 5 IBM shares (incorporates dividends distributed)	Calculation from NYSE data	Separation (22 Oct. 2021)	NA	***Outstanding***	***Improving*** ↑
			Listing (04 Nov. 2021)	NA		
			4Q 2021	10.14%		
			1Q 2022	10.34%		
			2Q 2022	9.26%		
			19 Aug. 2022	15.38%		

Figure 42 - Aggregated Financial Perspective Scores (Author's elaboration)

3.7 Discussion of the findings and future perspectives

Findings

The study is based on the data published till 20 August 2022, so it doesn't take in account later events that are expected to occur soon.

The application of the analytic methods has shown how difficult is to define a valid comparison panel also when similarities of capitalization and business volumes exist. This because the high-tech software and services market strategies rely more than hardware market on specialization, differentiation, and peculiar intellectual capital.

The assets hold by Kyndryl are mainly human, skill, and intellectual capital based, so that the fair evaluation of them is not easy too.

Being the growth strategy of Kyndryl medium term, and due to the conjuncture, the effects of separation for Kyndryl are not yet completely developed.

Instead, more evident is the effect of separation on IBM attractiveness for the investors, and it represents a positive confirmation of its transformation strategy.

In order to give a sound judgment on Kyndryl it is probably needed to wait for the consolidated results of at least two years of separate operations, considering that the growth plan objectives target is 2024. Moreover, the condition of global economy changed from the time of the first idea to the present making the target more challenging.

However, the plan, detailed in investors relations and SEC filings, and the following execution make the target still reachable. In late August the first inversion of negative trend was visible and hopefully it will be sustained in the following months.

The Event Study conducted on announce and first trading day event demonstrated that investors pay a positive attention to IBM implementation of its transformation strategy, while Kyndryl has still a limited impact to the global IT Services market and a limited attractive for traders.

The compared Stock performance analysis demonstrated for IBM a trend of improved performance in a challenging period characterized by decline of performance of the sector.

For Kyndryl it showed a not favorable conjuncture in which the stock performed slightly under other comparable competitors panel.

The Financial Analysis showed for IBM an outstanding ROE, good posture for Financial and Operating risks, an overall improving trend, and in general the attempt to fill the gap with other top competitors for other indexes. Here the need to increment free cash flow is the imperative, also identified by IBM financial strategy.

The application of the balanced scorecard, although based on subjective evaluation of results respect to declared strategy goals, demonstrated to be a valid mean to provide a synoptic of various aspects and a reproducible overall evaluation method.

The picture shows that in the operation the IBM brand value was slightly diminished, but all the declared objectives, including full occupation, business ethics, sustainability, social responsibility, and customer benefits, were fully met, for all stakeholders, and the overall aggregate financial performance is good.

Moreover, there are hints that the operation can fully develop his intended value in the next future.

Future perspectives

It appears that IBM is committed to execute its business transformation and growth strategy, and one possible speculation is how its stake in Kyndryl fits in it.

In the original declaration the intent of IBM was to keep a participation to Kyndryl around 20% for one year, and later to trade this quota for reduction of IBM debt.

Later determination shows an accelerated exit plan with a remainder stake of 9.88% on May 31, 2022, that may signify that the participation in Kyndryl is supposed to under-perform IBM company profitability and that there is no impact to IBM strategy by a looser participation.

On the other side of the problem the Kyndryl company should define its financial strategy bearing in mind the three possible alternatives:

- Fostering acquisition by a qualified investor
- Resist to acquisitions fostering a greater investor base and a share capital increase
- Possible delisting and operation as private company

The alternatives may all put Kyndryl in a better condition to pursue a profitability increase, but widely depend on how the company will develop strategic alliances and its own intellectual capital, reducing or maintaining the dependency from former parent strategies.

Among the alternatives the second is more aligned with the separation non-financial declared objectives and with the workforce interest.

The dynamic of the Kyndryl stock in the latest days demonstrates that the stock is able to follow positive market trend and received some interest from investors.[137]

Conclusions

The study has evidenced how complex and articulated was the spin-off operation and it is difficult to express an ultimate answer to the dissertation main question about such a complex operation.

First is difficult to express a constructive criticism respect to plans and execution by a company that is widely recognized to be best of breed for management practices, sustainable business, respect of individuals, ethics, and service culture, and is supported by best financial advisors, and subject to in deep review by analysts, government agencies, rating agencies and public accounting firms.

Secondary the objectives of the operation themselves were so challenging, the indicated risks high, the environmental condition so troubled (just to mention some, currency rates changes, post pandemic situation, inflation, Ukraine war, sanction to Russia, tensions in the Pacific) and the competition and alliance scenario so complex that a complete evaluation of the outcome is not yet possible.

Third, the operation has a declared strategic target of 2024 to reach major objectives, and the progress, delayed somewhat by conjuncture, will be measurable with a confidence and reliability only at the end of first full fiscal year for Kyndryl, which has been set for March 2023.

[137] *Kyndryl Holdings Inc. Shares acquired by National Bank of Canada*, defenseworld.net [https://www.defenseworld.net/2022/08/09/kyndryl-holdings-inc-nysekd-shares-acquired-by-national-bank-of-canada-fi.html]

So, with the hope of having extended the comprehension of the elements useful for an educated evaluation, we can say that:

- The spin-off was proved to be a valid implementation of a sustainable growth strategy and put both companies in a better shape to implement it also against deteriorated external conditions
- The IBM value after the spin-off was improved and no negative effects from it developed so far
- The Kyndryl performance is under the target expectation but the risk management for the operation helped to manage the problems that developed from it, and the execution of the strategy is still in progress and in line with declared plan
- The net value of both financial and intangible assets for the whole of the two companies was substantially incremented by the separation

We can close this study with the following quote by William Simms that may apply to define a '*fair'* operation:

> "*Our true acquisitions lie only in our charities; we get only as we give*."[138]

Thus, with the suspension of judgement necessary in the wait of more consolidated future results, we can say that the spin-off has respected the general objectives of increased value for all stakeholders preserving at the best liabilities and advantages for Investors, Clients, Employees and Partners, being a fair Strategic Divesture so that.

[138] forbes.com [https://www.forbes.com/quotes/10250/]

Appendix

3.2.1 Regression statistics for Announce event (08-Oct-2020)

Constant Return Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	65535
R Square	-5.46549E-16
Adjusted R Square	-0.004
Standard Error	0.024686022
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	-8.32667E-17	-8.32667E-17	0	#NUM!
Residual	250	0.152349924	0.0006094		
Total	251	0.152349924			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.000436086	0.001558168	-0.279870754	0.77980809	-0.003504895	0.00263272	-0.0035049	0.00263272
X Variable 1	0	0	65535	#NUM!	0	0	0	0

Market Adjusted Model

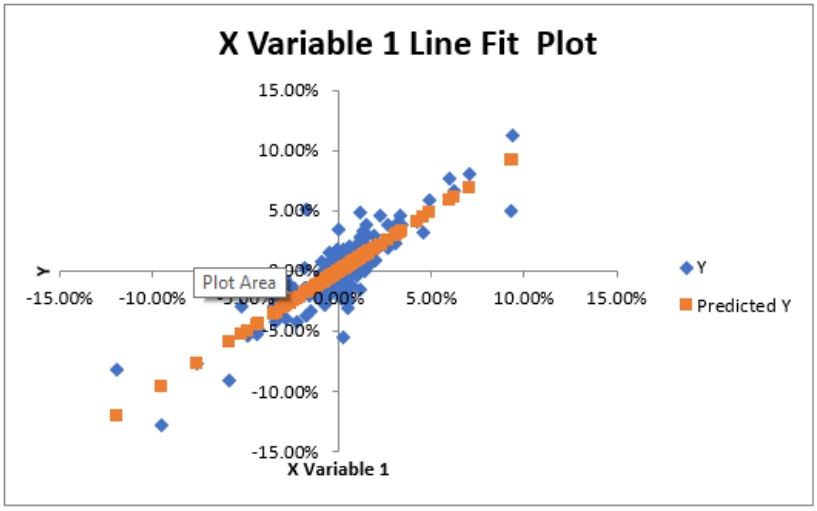
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.859573385
R Square	0.738866404
Adjusted R Square	0.737817674
Standard Error	0.012640167
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.11256624	0.11256624	704.5349088	1.47206E-74
Residual	249	0.039783684	0.000159774		
Total	250	0.152349924			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.000985099	0.000798108	-1.234292491	0.218257552	-0.002557003	0.000586805	-0.002557003	0.000586805
X Variable 1	0.995513929	0.037505597	26.54307648	1.47206E-74	0.921645273	1.069382585	0.921645273	1.069382585



CAPM

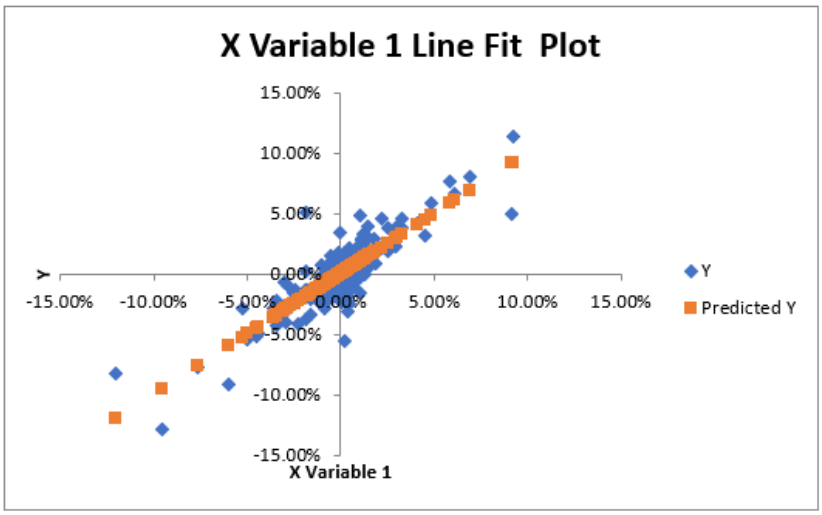
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.859573385
R Square	0.738866404
Adjusted R Square	0.737817674
Standard Error	0.012640167
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.11256624	0.11256624	704.5349088	1.47206E-74
Residual	249	0.039783684	0.000159774		
Total	250	0.152349924			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	8.67362E-19	0.000798009	1.08691E-15	1	-0.001571709	0.001571709	-0.001571709	0.001571709
X Variable 1	1	0.037674608	26.54307648	1.47206E-74	0.925798471	1.074201529	0.925798471	1.074201529



3.2.2 Regression statistics for BoD Approval event (12-Oct-2021)

Constant Return Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	65535
R Square	-5.91163E-16
Adjusted R Square	-0.004
Standard Error	0.01532168
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	-3.46945E-17	-3.46945E-17	0	#NUM!
Residual	250	0.058688467	0.000234754		
Total	251	0.058688467			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0.000634394	0.000967096	0.655978882	0.512440972	-0.001270299	0.00253909	-0.001270299	0.002539088
X Variable 1	0	0	65535	#NUM!	0	0	0	0

Market Adjusted Model

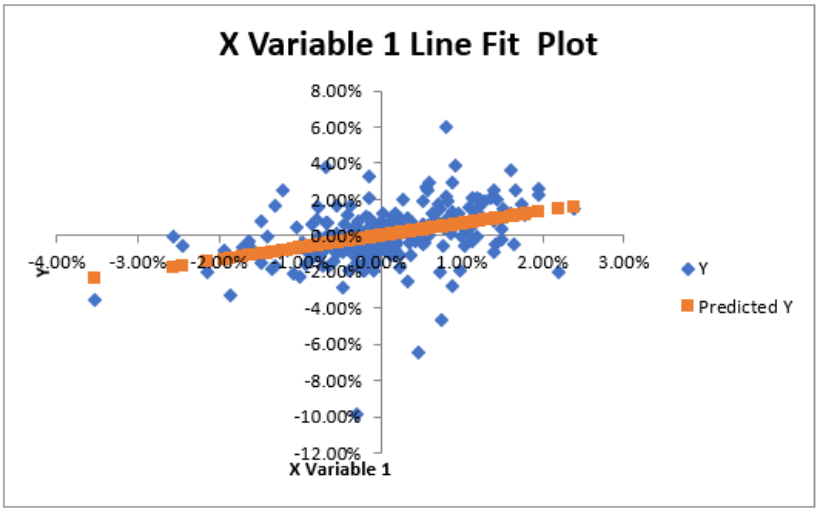
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.375134496
R Square	0.14072589
Adjusted R Square	0.13727499
Standard Error	0.014231234
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.008258987	0.008258987	40.77947438	8.29133E-10
Residual	249	0.05042948	0.000202528		
Total	250	0.058688467			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.00014392	0.000906498	-0.158765255	0.873982516	-0.001929303	0.001641462	-0.001929303	0.001641462
X Variable 1	0.67071274	0.105030575	6.385880861	8.29133E-10	0.46385115	0.87757433	0.46385115	0.87757433



CAPM

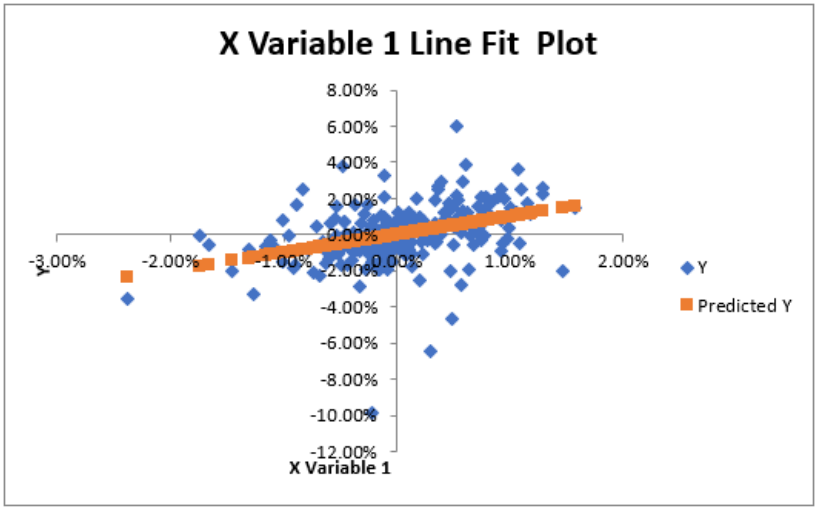
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.375134496
R Square	0.14072589
Adjusted R Square	0.13727499
Standard Error	0.014231234
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.008258987	0.008258987	40.77947438	8.29133E-10
Residual	249	0.05042948	0.000202528		
Total	250	0.058688467			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-2.1684E-19	0.000903744	-2.39936E-16	1	-0.001779958	0.001779958	-0.001779958	0.001779958
X Variable 1	1	0.156595468	6.385880861	8.29133E-10	0.691579453	1.308420547	0.691579453	1.308420547



3.2.3 Regression statistics for IBM 1Q22 Earnings announce (19-Apr-2022)

Constant Return Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	65535
R Square	-7.46782E-16
Adjusted R Square	-0.004
Standard Error	0.013632116
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	-3.46945E-17	-3.46945E-17	0	#NUM!
Residual	250	0.046458645	0.000185835		
Total	251	0.046458645			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-2.89175E-05	0.000860452	-0.033607324	0.973217099	-0.001723575	0.00166574	-0.001723575	0.00166574
X Variable 1	0	0	65535	#NUM!	0	0	0	0

Market Adjusted Model

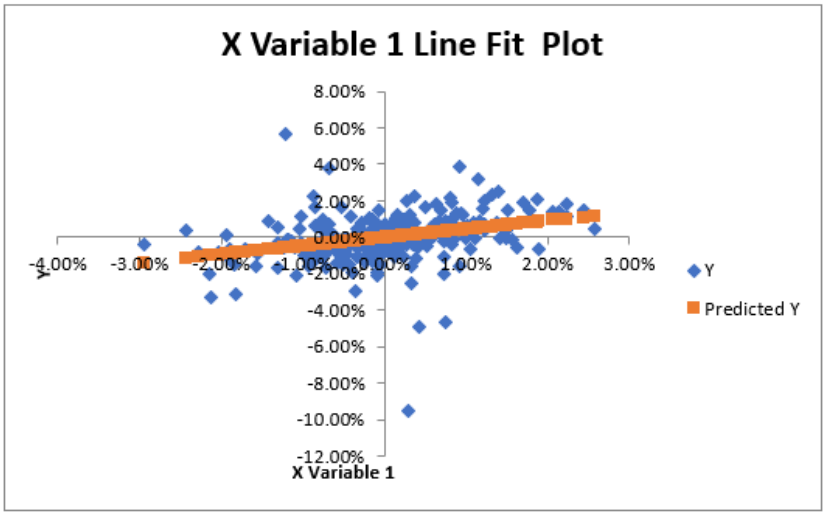
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.317461022
R Square	0.100781501
Adjusted R Square	0.097170181
Standard Error	0.012952876
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.004682172	0.004682172	27.90711458	2.77758E-07
Residual	249	0.041776473	0.000167777		
Total	250	0.046458645			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.000250285	0.000818651	-0.305728806	0.760066581	-0.00186265	0.00136208	-0.00186265	0.001362079
X Variable 1	0.460402735	0.087152616	5.282718483	2.77758E-07	0.288752445	0.63205302	0.288752445	0.632053025



CAPM

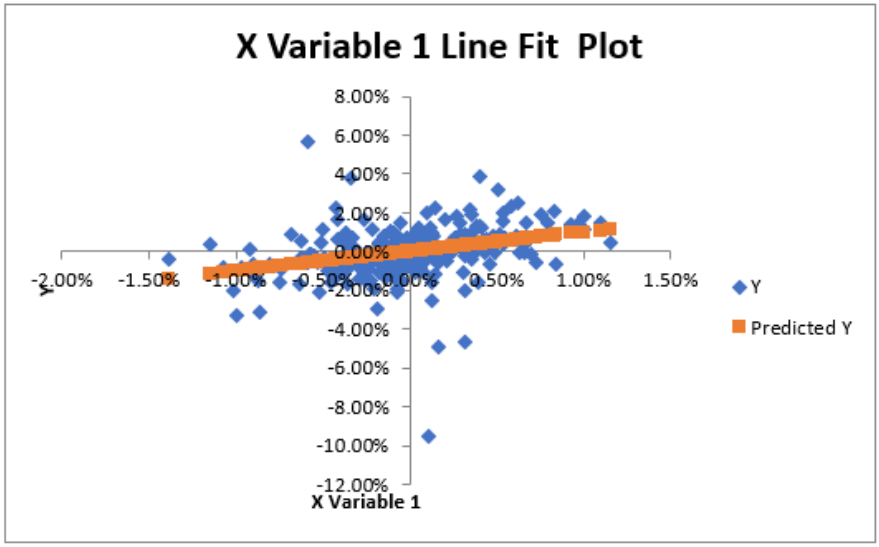
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.317461022
R Square	0.100781501
Adjusted R Square	0.097170181
Standard Error	0.012952876
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.004682172	0.004682172	27.90711458	2.77758E-07
Residual	249	0.041776473	0.000167777		
Total	250	0.046458645			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	1.35525E-20	0.000817597	1.65761E-17	1	-0.001610287	0.001610287	-0.001610287	0.001610287
X Variable 1	1	0.189296477	5.282718483	2.77758E-07	0.627173609	1.372826391	0.627173609	1.372826391



3.3.1 Regression statistics for Kyndryl listing day (04-Nov-2021)

DXC Technology

Constant Return Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	65535
R Square	-1.25085E-15
Adjusted R Square	-0.004
Standard Error	0.028263406
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	-2.498E-16	-2.498E-16	0	#NUM!
Residual	250	0.199705036	0.00079882		
Total	251	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0.002645032	0.00178397	1.482665642	0.139422731	-0.000868495	0.00615856	-0.000868495	0.006158558
X Variable 1	0	0	65535	#NUM!	0	0	0	0

Market Adjusted Model with MSCI World Information Technology used as market proxy

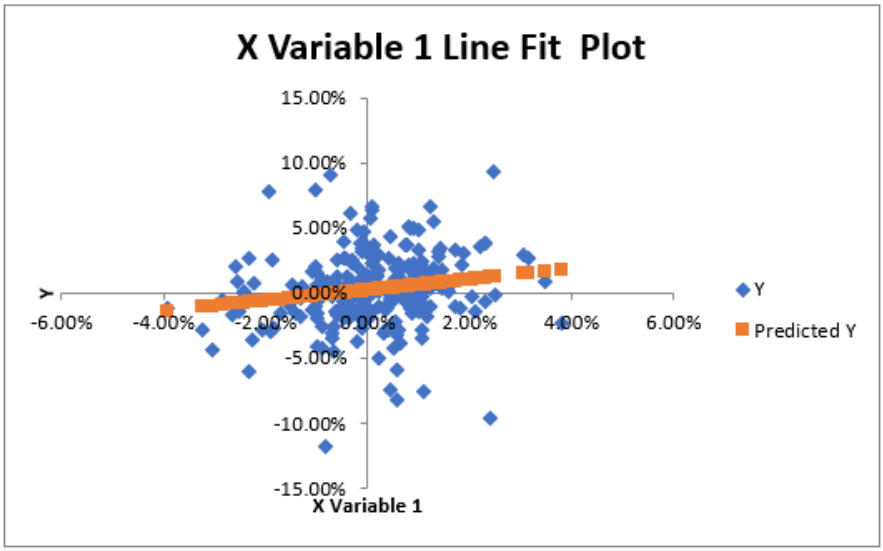
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.170436917
R Square	0.029048743
Adjusted R Square	0.02514934
Standard Error	0.02790574
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.00580118	0.00580118	7.449536614	0.006797983
Residual	249	0.193903856	0.00077873		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0.002158016	0.00177041	1.218936029	0.224021982	-0.001328871	0.005644903	-0.001328871	0.005644903
X Variable 1	0.404863205	0.148335015	2.729383926	0.006797983	0.112711925	0.697014485	0.112711925	0.697014485



Market Adjusted Model with S&P 500 used as market proxy

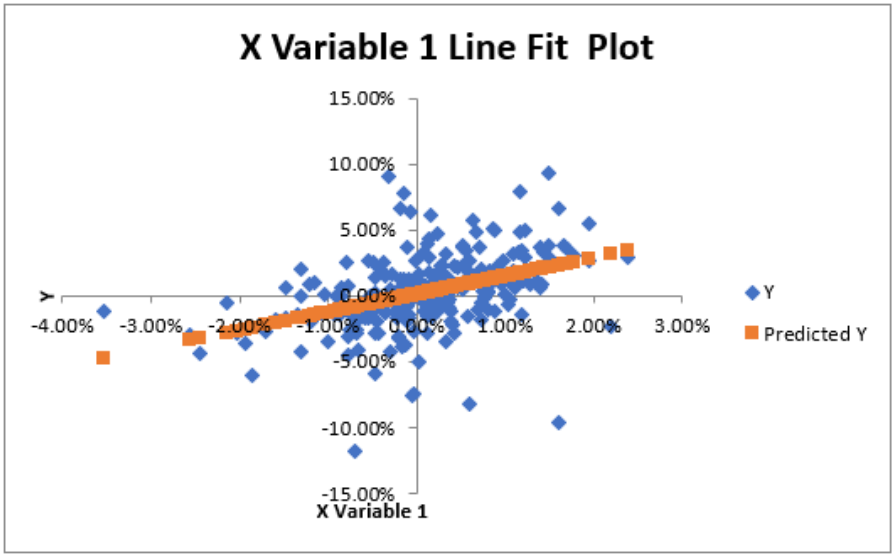
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.413011183
R Square	0.170578237
Adjusted R Square	0.167247226
Standard Error	0.025791853
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.034065333	0.034065333	51.20914706	9.26702E-12
Residual	249	0.165639703	0.00066522		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0.001075419	0.001642677	0.654674886	0.513281369	-0.002159894	0.004310732	-0.002159894	0.00431073
X Variable 1	1.372129056	0.191743738	7.15605667	9.26702E-12	0.994482695	1.749775418	0.994482695	1.74977542



Market Adjusted Model with S&P 500 Information Technology used as market proxy

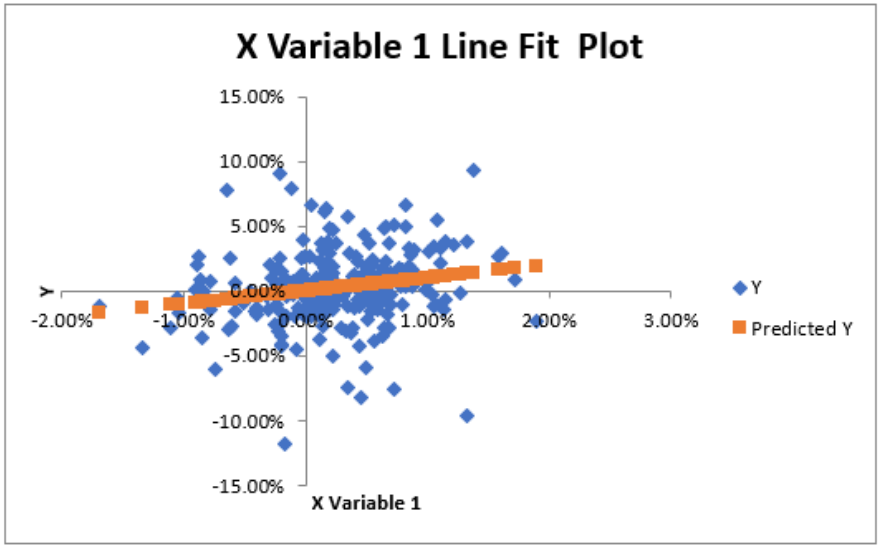
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.192953476
R Square	0.037231044
Adjusted R Square	0.033364502
Standard Error	0.027787909
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.007435227	0.007435227	9.629028673	0.002136249
Residual	249	0.192269809	0.000772168		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.30104E-18	0.001950113	6.67163E-16	1	-0.003840819	0.003840819	-0.003840819	0.003840819
X Variable 1	1	0.322261749	3.103067623	0.002136249	0.365293604	1.634706396	0.365293604	1.634706396



CAPM with MSCI World Information Technology used as market proxy

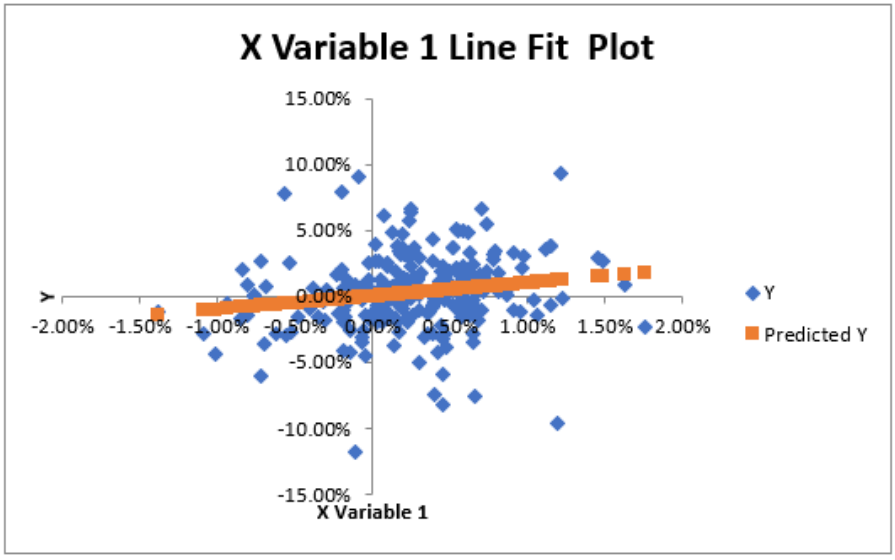
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.170436917
R Square	0.029048743
Adjusted R Square	0.02514934
Standard Error	0.02790574
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.00580118	0.00580118	7.449536614	0.006797983
Residual	249	0.193903856	0.00077873		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0	0.002010387	0	1	-0.003959531	0.003959531	-0.003959531	0.003959531
X Variable 1	1	0.366383047	2.729383926	0.006797983	0.278395081	1.721604919	0.278395081	1.721604919



CAPM with S&P 500 used as market proxy

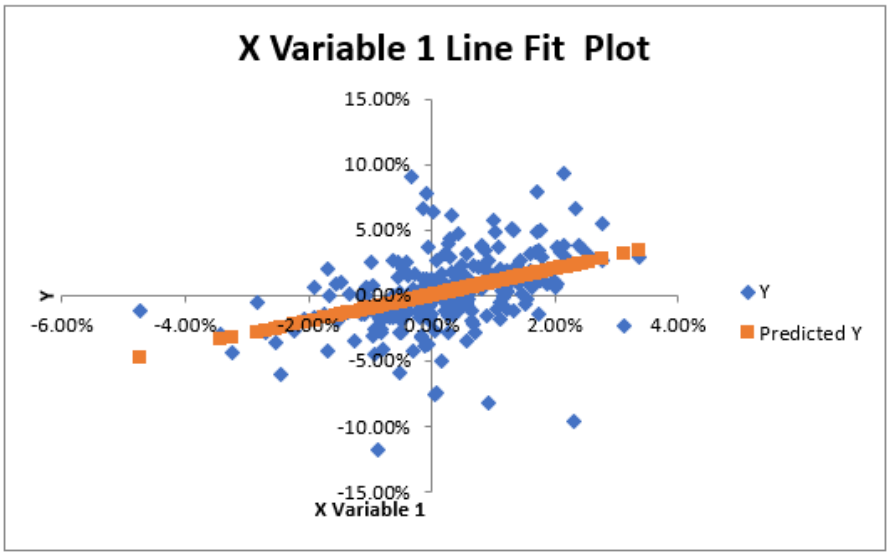
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.413011183
R Square	0.170578237
Adjusted R Square	0.167247226
Standard Error	0.025791853
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.034065333	0.034065333	51.20914706	9.26702E-12
Residual	249	0.165639703	0.00066522		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-4.33681E-19	0.0016694	-2.59782E-16	1	-0.003287946	0.003287946	-0.003287946	0.003287946
X Variable 1	1	0.139741766	7.15605667	9.26702E-12	0.724773439	1.275226561	0.724773439	1.275226561



CAPM with S&P 500 Information Technology used as market proxy

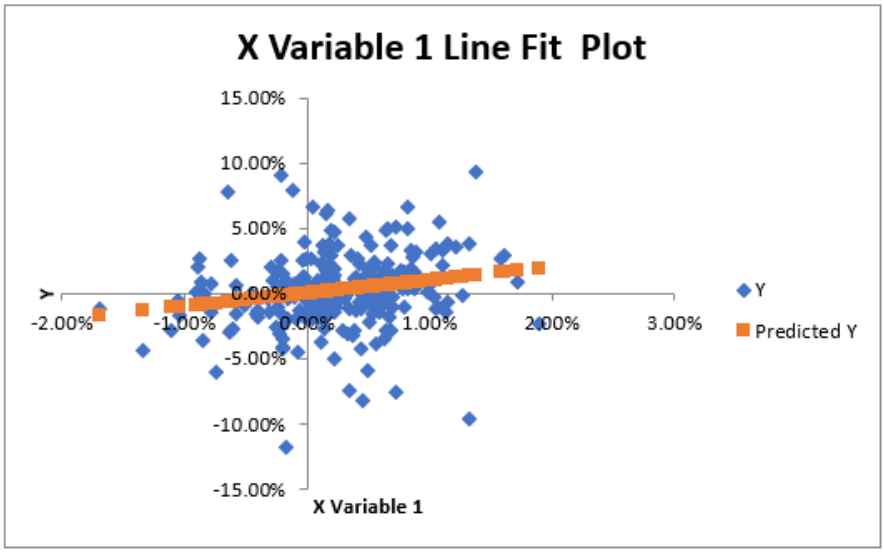
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.192953476
R Square	0.037231044
Adjusted R Square	0.033364502
Standard Error	0.027787909
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*'gnificance F*
Regression	1	0.007435227	0.007435	9.629028673	0.002136
Residual	249	0.192269809	0.000772		
Total	250	0.199705036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.30104E-18	0.001950113	6.67E-16	1	-0.00384	0.003840819	-0.003840819	0.003840819
X Variable 1	1	0.322261749	3.103068	0.002136249	0.365294	1.634706396	0.365293604	1.634706396



Rackspace Technologies

Constant Return Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	2.03378E-08
R Square	4.13624E-16
Adjusted R Square	-0.004
Standard Error	0.032766648
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.11022E-16	1.11022E-16	0	1
Residual	250	0.26841331	0.001073653		
Total	251	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-3.84815E-05	0.002068213	-0.018606175	0.985170117	-0.004111823	0.00403486	-0.004111823	0.00403486
X Variable 1	0	0	65535	#NUM!	0	0	0	0

Market Adjusted Model with MSCI World Information Technology used as market proxy

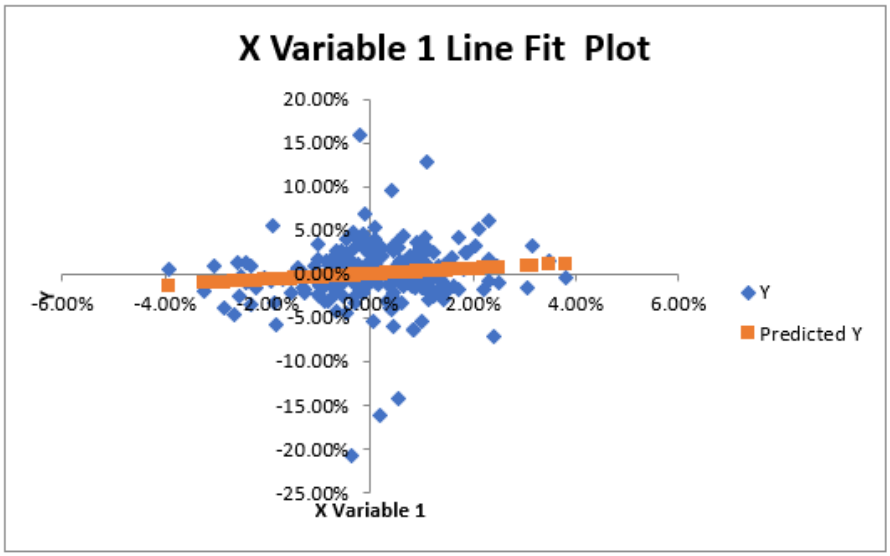
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.115584554
R Square	0.013359789
Adjusted R Square	0.009397379
Standard Error	0.032612325
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.003585945	0.003585945	3.371631772	0.067520247
Residual	249	0.264827365	0.001063564		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.000421383	0.002069007	-0.203664136	0.838782316	-0.004496368	0.003653603	-0.004496368	0.003653603
X Variable 1	0.318311226	0.173353209	1.836200363	0.067520247	-0.023114311	0.659736763	-0.023114311	0.659736763



Market Adjusted Model with S&P 500 used as market proxy

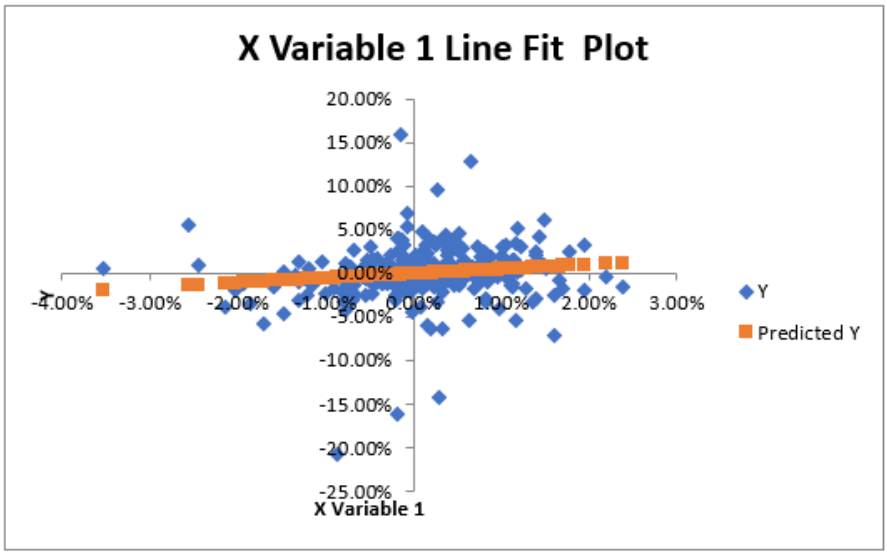
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.136641284
R Square	0.01867084
Adjusted R Square	0.01472976
Standard Error	0.032524431
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.005011502	0.005011502	4.737492246	0.030452072
Residual	249	0.263401808	0.001057839		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.000640514	0.002071473	-0.309207037	0.757422618	-0.004720357	0.003439329	-0.004720357	0.003439329
X Variable 1	0.526286949	0.241795573	2.176578105	0.030452072	0.050061654	1.002512244	0.050061654	1.002512244



Market Adjusted Model with S&P 500 Information Technology used as market proxy

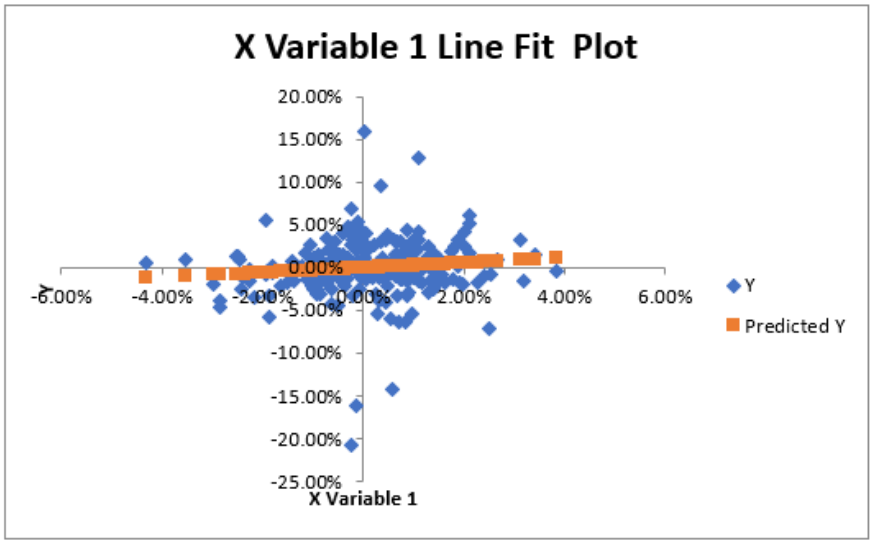
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.108105816
R Square	0.011686867
Adjusted R Square	0.007717738
Standard Error	0.032639961
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.003136911	0.003136911	2.944441266	0.087417301
Residual	249	0.2652764	0.001065367		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0.000382979	0.002069975	-0.185016128	0.853366994	-0.004459871	0.003693913	-0.004459871	0.003693913
X Variable 1	0.286517723	0.166974458	1.715937431	0.087417301	-0.042344629	0.615380075	-0.042344629	0.615380075



CAPM with MSCI World Information Technology used as market proxy

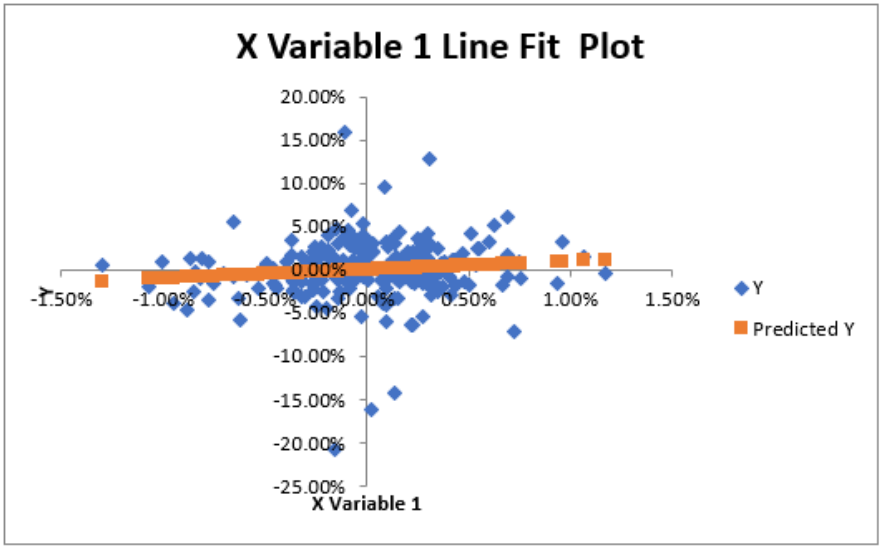
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.115584554
R Square	0.013359789
Adjusted R Square	0.009397379
Standard Error	0.032612325
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.003585945	0.003585945	3.371631772	0.067520247
Residual	249	0.264827365	0.001063564		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	8.80914E-20	0.002058578	4.27924E-17	1	-0.004054446	0.004054446	-0.004054446	0.004054446
X Variable 1	1	0.544602877	1.836200363	0.067520247	-0.072615444	2.072615444	-0.072615444	2.072615444



CAPM with S&P 500 used as market proxy

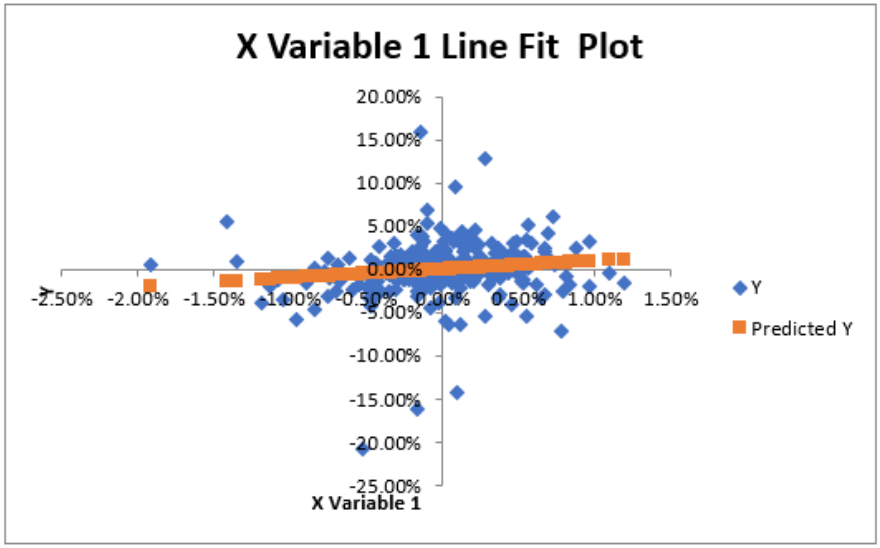
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.136641284
R Square	0.01867084
Adjusted R Square	0.01472976
Standard Error	0.032524431
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.005011502	0.005011502	4.737492246	0.030452072
Residual	249	0.263401808	0.001057839		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	6.77626E-20	0.002053	3.30066E-17	1	-0.004043459	0.004043459	-0.004043459	0.004043459
X Variable 1	1	0.459436764	2.176578105	0.030452072	0.095122356	1.904877644	0.095122356	1.904877644



CAPM with S&P 500 Information Technology used as market proxy

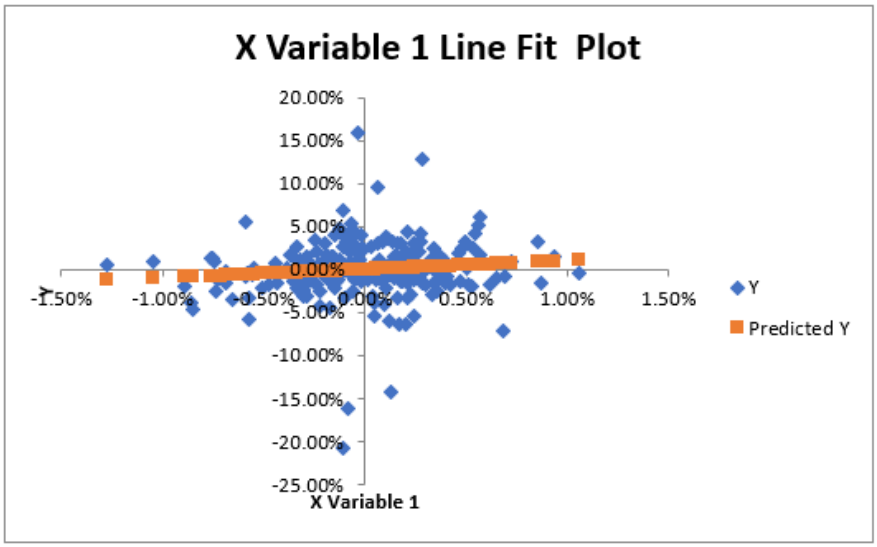
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.108105816
R Square	0.011686867
Adjusted R Square	0.007717738
Standard Error	0.032639961
Observations	251

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.003136911	0.003136911	2.944441266	0.087417301
Residual	249	0.2652764	0.001065367		
Total	250	0.26841331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-1.35525E-20	0.002060338	-6.57782E-18	1	-0.004057912	0.004057912	-0.004057912	0.004057912
X Variable 1	1	0.582771832	1.715937431	0.087417301	-0.147790608	2.147790608	-0.147790608	2.147790608


X Variable 1 Line Fit Plot
20.00%
15.00%
10.00%
5.00%
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-10.00%
-15.00%
-20.00%
-25.00%
-1.50%
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0.00%
0.50%
1.00%
1.50%
X Variable 1
Y
Predicted Y

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