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Eastman Kodak Company Equity Research: Uncertain
macroeconomic conditions and dependency on printing
industry impacts expectations for investors

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Abstract

Fears of digitalization affect companies currently dependent on physical printing, in a highly competitive and unstable market. This is one of the big challenges Eastman Kodak Company (Kodak) must face, along with internal problematic cost structures and aging infrastructures that may affect the future of the company, if not addressed in the short term. A comprehensive company, market and competition analysis is conducted in this report so that a recommendation can come out for investors looking to for profitable opportunities.

Keywords (up to four)

Printing, Inflation, Valuation, Finance

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This report is part of the Equity Research: Eastman Kodak Company report (annexed), developed by André Filipe Pereira Alvarenga (student number 49006) and João Pedro do Paço Duarte Silva Carvalho (student number 50891) and should be read as an integral part of it.

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Introduction

The purpose of the joint report was to do a thorough evaluation of Eastman Kodak Company and understand its value divided in four different topics: External Environment, where a top-down view is followed, starting with an overall view of the economy, going to the industry in which Kodak operates and ending with the detailed analysis of its main competitors; Company breakdown, its operating segments, strategy, ownership and pay-out and a SWOT analysis; Value Drivers, which include the assumptions taken by us during the valuation process and ending with the Valuation chapter, where the cost of capital and pertinent valuation models and analysis are used to better understand the impact of the assumptions that we chose as well as its sensitivity. Moreover, an asset-based approach was also conducted due to a small fear of potential liquidation in the future therefore an assessment of Kodak's assets' fair value would be important to include in the analysis. All this analysis allows the investors to understand the volatility of the share price derived, by changing our assumptions and understanding the current financial conditions of the company. We also provide a market-based approach with multiples to understand how the market is valuing such a company. An investment recommendation page with relevant conclusions is included in the end.

Our valuation model based on the scenario analysis indicated a price worthy of a HOLD. Kodak's share prices have been very volatile, with a downwards trend, from about \$5 as 3 months prior of this report to a modest \$3.47 in our base price day (December 14th, 2022). Due to the macroeconomic conditions and uncertainty in which the company is in, me and my partner do not believe there is enough upside potential for a non-dividend paying, CCC+ rated business, despite the theoretical value obtained and thus recommend a **HOLD** position.

This part of the joint report deals with the whole first chapter, i.e., the detailed overview of the economy, including the effects of the pandemic, as well as the ones incurred due to the war between Russia and Ukraine. A special attention to this section was needed to understand what could affect Kodak in the short term, especially when a recession is probable. Industry and competition were also thoroughly analysed. Next, I cover a company description, a bit of history as well as a comprehensive view of what they are doing now and what they are selling. Next, a SWOT analysis was conducted, to understand and thus summarize their current strategy, financial health, potential investment opportunities or, on the other hand, potential threats, or weaknesses. The detailed estimation of the WACC is followed, as well as the DCF valuation and relevant interpretation of it. Furthermore, the market-based approach is included here, alongside with a sensitivity analysis, which was done to test relevant assumptions in our DCF model.

The other side of the report, delivered by André Alvarenga, it contains an all-inclusive strategy overview, containing possible profitable opportunities that Kodak may follow in the future, supported with relevant statistics. André Alvarenga also uncovers the value drivers that allowed us to undergo our valuation models. The scenario analysis, a very important topic in the joint report, is also covered in the other report, along with a football field, that summarizes the results obtained through the several valuation methods tested.

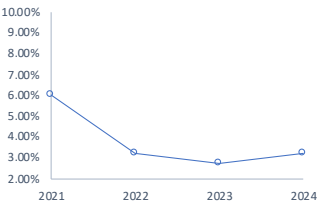
1. External Environment

a) Macroeconomic Outlook

The global economy is currently fearing possibilities of recession in future quarters following the rise of inflation rates in every economy, as well as the growth slowdown observed in these. The lingering consequences of the pandemic along with Russia's invasion in Ukraine as well as overall geopolitical turmoil has shaken the prospects of growth that persisted in the beginning of 2022. High inflation rates across the economies, alongside supply-side disruptions made the International Monetary Fund (IMF) revise its predictions in October with a more pessimistic view, stating that "The global economy's future health rests critically on the successful calibration of monetary policy, the course of the war in Ukraine, and the possibility of further pandemic related supply-side disruptions, for example, in China" (2022). Conditions in China will be further reviewed in the report.

Following their studies, economic growth is expected to slow down from 6% in 2021 to 3.2% in 2022 and 2.7% in 2023 (see Graph 1). Expectations are not great in relation to the economy. Fears that monetary policies are not being sufficient to control record-high inflation rates of 8.8% in 2022, following 4.7% in the prior year. Interest rates have been rising since the beginning of the year, trying to control the rise of inflation, with the current US 10Y treasury yield of more than 4% on November 7th, 2022, and a compounded monthly growth rate of 6.41% over a 11-month period since the beginning of the year (evolution in graph 2). Fortunately, inflation expectations have been easing throughout the month of November, leading to a decrease of 50bp of the treasury yield to around 3.5%. However, both the recession fear and consequences of geopolitical situations in the world seem to lead to a volatile market in the short term. Inflation has notably been noticed on the consumer side mainly due to war between Russia and Ukraine, with the second being one of the world's major exporters of wheat, corn, and barley, causing basic food items like bread up to 18% higher than in August 2021 (Eurostat 2022). On the industrial side, the price increase of natural gas and electricity as well as delivery delays of raw materials threatens industrial companies (like Kodak) and incites them to increase their prices too, to be able to keep up with costs and maintain relatively stable margins. The result is that inflation is currently estimated by IMF to reach 8.8% at the end of 2022 and to drop to around 6% in 2023 (see Graph 3). Kodak is highly dependent of aluminium, of which is mainly imported from European sources. Due to the fears of cutting the dependency of Russian raw materials, like aluminium, price volatility has been high and therefore unpredictable in the short term. Fortunately, prices for aluminium in October have dropped around 40% from record-high levels in March 2022 (Lepcha and Drozdovica 2022), reaching approximate values since the same period last year. Despite this, if prohibitions or sanctions to Russia's materials go any further this might cause companies like Kodak have to search in the future for other sources for their raw materials, which might lead to an increase in their production costs. Kodak is already experiencing some supply-chain disruptions and shortages in materials and has been trying to implement measures to mitigate these challenges wherever possible, with inventory adjustments, price adjustments, among other measures.

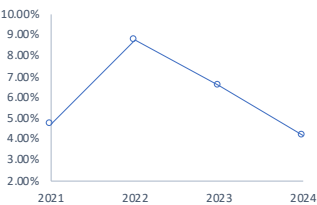
All these factors make institutions like the IMF predict a slowdown in the global economy with additional fears of recession with some economists even foreseeing the phenomenon of stagflation.



Graph 1: IMF's expectations for GDP growth over a 4-year period since 2021



Graph 2: 10Y US Treasury Yield over the year of 2022



Graph 3: IMF's Expectations for inflation rates over a 4-year period since 2021

More specifically in China, in which situation has been getting worse again due to strict rules to combat new outbursts of Covid-19. In the attempt to contain new variants and reduce the number of cases, the government has been closing facilities with the objective of containing these outbursts. These policies have been affecting the Chinese economy and therefore a lot of companies with dependency on Chinese manufacturing facilities. Eastman Kodak Company had one of the 2 Chinese manufacturing facilities, in Shanghai, being closed by the government in April 2022 and had it reopened in June. Fortunately, it did not have material impact on Kodak's figures but, according to Bloomberg, more than 180 companies say they were affected by China's lockdowns (Zhao 2022). Apple Inc, for example, has recently announced global delays of up to 9 weeks on some of their recent products, like the iPhone 14 Pro due to a Covid-19 outburst in their main factory (Rosenstock 2022).

Despite the uncertainties, there is still hope by some writers that a full-on recession might not happen. Ruchir Sharma (2022), an investor, writer for the Financial Times and chairman of Rockefeller International recently stated that recent 3rd quarter information gives hope for the economy and underestimates economist's views and predictions that recessions are imminent. Simple signs like annual growth of US's GDP of 2.6%, following the weak growth in the first 2 quarters, healthy growth on consumer spending as well as Capex growing at a faster rate than business revenues and most importantly, unemployment rates staying low in the 3.7% region are factors usually not expected on the verge of a recession. However, opinions diverge among investors and experts. Oppositely, the newspaper The Economist states that the phenomenon of stagflation will be almost inevitable, and companies will have to deal with this in the next year. Companies with high pricing power may be able to deal better with changes in that regard (2022).

If the Covid-19 situation keeps getting better and the war between Russia and Ukraine eases soon, signs like the easing of inflation rates, problems with supply-chains shortening both in the industrial side and consumer side, it might be the case that federal banks start relieving their monetary policies and let the markets flow and recover. However, if these conditions are not met, predictions of the IMF might really be inevitable, and the markets worldwide will slowdown.

b) Industry Overview

The Eastman Kodak Company operates in several industries. The printing markets will be analysed further as they represent the bigger portion of Kodak's revenues. The methodology undertaken here is that each segment that Kodak presents was decomposed on sub-segments, which will be relevant further down when forecasting sales.

Traditional Printing: Computer to plate (CTP) offerings bring a lot of advantages to the game over the standard computer-to-film technology which needs darkroom facilities to work properly, contrary to CTP, which is more cost effective, both in operations and in capital needs. The main players and competitors in this market for Kodak are Fujifilm and Agfa. Despite the advantages of these offerings, the fact is digitalization offers a big threat to this market as several alternatives exist. We can separate this digitalization into 2 factors: the transition towards digital printing methods and the decreasing demand in the future for printing. The pandemic accelerated this process, by normalizing remote work and therefore digital-based everything, from direct mail, newspapers, magazines, and books, which are the main end-products of these printers. All of these currently have a digital alternative, from websites for newspapers and magazines to special tech to read books, like Kindles. (MarketWatch 2022).

Digital Printing: This printing technology increases the productivity in comparison with traditional printing systems since they rely on digital formats like PDF on medium surfaces including paper, cloth, and ceramic. Precise inkjet-based printing enables the effectiveness of this operation. This is an industry expected to grow in the future, especially with the surge of sustainable printing solutions in several client-bases like packaging, pharmaceutical and label sectors. The implementation of AI-based technologies in the process might improve efficiency of these printing systems and therefore attract more customers in the future. Interested parties in entering the market see their life difficult as large investments are needed for product implementation. That, along with very competitive pricing, makes it hard for new entrants to establish themselves. The main players and competitors in this industry are the Hewlett-Packard Company (HP Inc.) and Ricoh Company, among others. This industry, despite somewhat different from the traditional printing, also suffers from the threat of digitalization in the longer term, since the usual end product derived from the printers built in this industry is still physical and truthfully pretty similar to the above-mentioned industry, like direct mail, newspapers and so on (PrecedenceResearch 2021).

Industrial Film and Chemicals: This is a very broad segment reported by Kodak that includes products since photographic film and film for circuit boards, it includes the production of Key Starting Materials (KSM) for pharmaceuticals and coating and product commercialization services, the coating being for batteries for example. These sub-industries are expected to keep a stable growth in the future (MarketResearchReport 2022).

Motion Picture: The film industry has a high impact on the economy, this does not only contain entertainment movies but also movies related to tourism, for example. A lot of jobs are also created here due to the complexity of this industry. The role of Kodak here is just to provide the products and services to make movies, but this is a sector with good prospects for the future. The pandemic has once again accelerated the usage of streaming services and therefore the demand for movies and series to be created, therefore each streaming services nowadays have their own successes rather than the independently produced movies, usually shown in the traditional cinema theatres (MarketDataForecast 2022).

Functional Printing: Lastly, functional printing includes the functions for a variety of sectors. It is expected that this market keeps growing in the future with the broaden implementation and usefulness of 3D printing in several production lines. This type of printing is also able to reduce environmental impacts, energy consumption and waste, due to its precision and nature of the process therefore it has space for growth in the future, in a more sustainable world (DataBridgeMarketResearch 2022; fortunebusinessinsights 2022).

c) Competition

i. Overview

Eastman Kodak Company has fierce competition in all its markets. Table 1 summarizes the main competitors and their respective headquarters location. All these companies operate globally as well as manufacture their products at a global scale. A general comparison among products and financial analysis was made to compare performance between peers and Kodak upon a period of the last 3 reportable years. These businesses will also be used later in the market-based approach. The following ratios were analysed: Gross Margin, R&D/Sales, Operating Margin, Debt to Equity and cash conversion cycle metrics. These companies do not finish their fiscal year all at the same time. Therefore, for the income statement items, trailing-twelve-months (TTM) information was used directly from Refinitiv Workspace correspondent to the end of December of each year for companies that do not report their results for that period, while for the balance sheet items, quarterly information for the same period was used.

Company Name	Headquarters	Ticker
Eastman Kodak Company	USA	KODK:US
HP Inc	USA	HPQ:US
Fujifilm Holdings Corp	Japan	4901:JP
Ricoh Company Ltd	Japan	7752:JP
Canon Inc	Japan	7751:JP
Agfa Gevaert NV	Belgium	AGFB:BB
Screen Holdings Co., Ltd	Japan	7735:JP

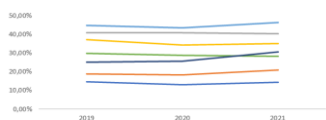
Table 1: Information about Kodak and its competition, as well as their respective headquarters and tickers

In the traditional printing business, Kodak has as its main competitors Fujifilm Holdings Corp and Agfa Gevaert NV. These 2 businesses offer an array of products from printing products, photography, optics, medical electronics, and chemicals-related items. Competition with kodak stands in the printing business, namely in the pre-press solutions and Computer-to-Plate imaging items. Just like Kodak, this serves as the largest bulk of revenues for Agfa.

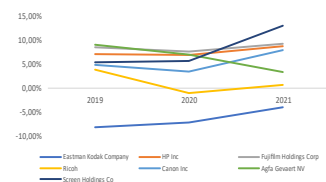
Now, in the digital printing business, Kodak competes with the remaining four peers indicated: HP Inc, Canon Inc, Ricoh, and Screen Holdings Co. It is therefore a large market. According to research, this market was estimated to be valued at \$27 million, at a global scale. Digital printing alternatives for the more traditional methods are provided for commercial and consumer use, although Kodak focuses only on commercial clients.

ii. Peers' analysis

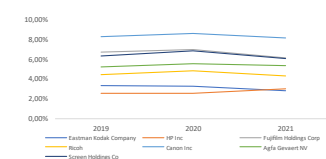
We start by analysing the Gross Margin of the companies. Graph 4 shows Canon Inc has the best gross performance out of the group, averaging around 42%, while Kodak is underperforming everyone, showing that there is a possibility they are not utilising their assets in the most efficient way. A possible explanation by the management team, which is the aging of manufacturing facilities which affects production efficiency and with no current big manufacturing updates expected, Kodak may continue to suffer from low gross margin at least in the short term.



Graph 4: Gross Margin of selected companies over the period of 3 years, color-coded



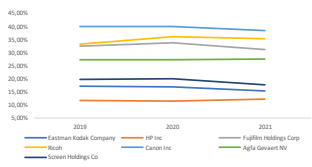
Graph 5: Operating Margin of selected companies over a period of 3 years, color-coded



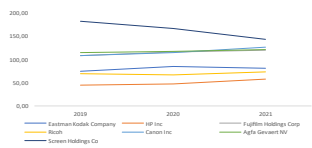
Graph 6: R&D over sales of selected companies over a period of 3 years, color-coded

Operating margin shows a slightly worse picture for Kodak. Graph 5 shows a negative operating income over the last three years for them but with improvements year-on-year. There has been a positive development by Screen Holdings Corporation, outperforming the competition in 2021 while on other hand, there has been a negative development by Agfa, losing the top position in 2020. Canon Inc, the company with the best gross margin is now around of the average of the group. To better understand why, the 2 major cost-groups were analysed: selling, general and administrative expenses (SG&A) and Research and Development (R&D) over respective sales.

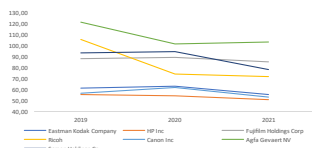
Starting with the R&D expenses (Graph 6), Canon Inc. presents the biggest year-on-year (YoY) investment in innovation with over 8% of their revenues invested over the last years. Conversely, HP Inc is the enterprise from this group which least invests in innovation with an average of two-three per cent. Kodak follows the trend of HP Inc, with an approximate of 3% invested over the last years. Overall speaking, the pandemic did not seem to affect R&D spending on these companies. If all, there was a very slight increase in 2020.



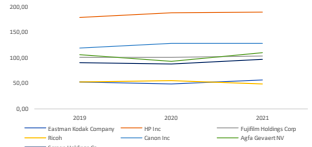
Graph 7: SG&A over sales of selected companies over a period of 3 years, color-coded



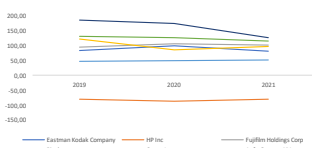
Graph 8: Average Holding Period of select companies over a period of 3 years, color-coded



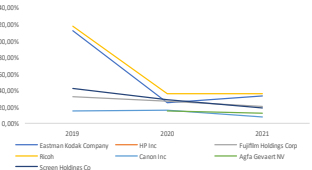
Graph 9: Average Collection Period of select companies over a period of 3 years, color-coded



Graph 10: Average Payables Period of selected companies over a period of 3 years, color-coded



Graph 11: Cash Conversion Cycle of selected companies over a period of 3 years, color-coded



Graph 12: Debt-to-Equity of selected companies over a period of 3 years, color-coded

Going to the general expenses, with the aid of Graph 7, we see Canon Inc. is once again the business that spends the most in this specific caption, with almost 40% of their revenues spent every year. Similarly, Ricoh and Fujifilm also recorded more than 30% of their gross sales spent in these indirect production costs. Contrarywise, Kodak and HP Inc. seem to be the ones that spend the least, with 16% and 11%, on average, during the last years. SG&A Expenses change with a variety of factors like what type of costs are undertaken by each company, different salaries among regions and businesses.

Going to a more operational measure, specifically to the Cash Conversion Cycle, we have divided it into its 3 components: Average Holding Period, Average Collection Period and Average Payables Period. Average Collection Period of selected companies over a period of 3 years, color-coded

Average Holding Period of select companies over a period of 3 years, color-coded

Graph 8 describes the behaviour of the average holding period of these companies over the historical period selected. Kodak seems to be the company **that takes the longest to sell its inventory. However there has** been a decreasing trend and the difference between Kodak and its competition is much lower than in 2019. HP Inc seems to be the company that converts more rapidly its inventory with almost 50 days on average to do so.

Next, on graph 9, we describe the average collection period (ACP) which tests the company's ability to receive the cash derived from its clients. HP Inc once again seems to perform better overall with about 50 days on average to receive the money from clients. Kodak is shortly after HP Inc. and Canon Inc, with around 55-60 days on average. Agfa seems to be the business from this group with the highest number of days, around 110 days.

Lastly, the Average Payables Period on graph 11 shows that HP Inc is again the best performing among the group by a large difference. HP Inc takes approximately 170 days on average to pay its suppliers while the second best-performer (Canon Inc) takes about 110 days. On the other hand, Kodak and Ricoh are the businesses that pay their suppliers first, in about 52 days each.

Overall speaking and looking at the cash conversion cycle (Graph 11), HP Inc seems to have a negative CCC, which means it is selling its inventory before they pay their suppliers. Kodak is among the average CCC for the group of companies, standing in 90 days until it converts inventory until cash-flows. The remaining companies are on the 50-150 days range. This study is important to better understand the liquidity of the companies and compare them with one another.

Lastly, we study the amount of debt in relation to equity of each company(D/E). HP Inc was excluded from graph 12, since it has negative Equity in the last 3 reportable years. Kodak and Ricoh have lowered their debts a lot from 2019 to 2020, both in a similar fashion. If we look only to 2020 and 2021, we see the debt is between 20% and the 40% mark, in relation to Equity. Kodak ended 2021 with a D/E of 33% which we believe they might continue with this trend, since the main competition seems to follow similar values.

2. The Company

a) Overview

Eastman Kodak Company develops and manufactures imaging solutions for their clients around the world. They focus on providing disruptive and innovative technologies in the commercial and digital printing markets, along with some products in the advanced materials and chemicals department, all of this to corporate customers.

Created in 1880 by George Eastman and incorporated in 1901 in the state of New Jersey, this company is well known for their innovations in the amateur photography world as well as in the movie business. This is caused by the over 31 000 patents earned over the 130 years of R&D, with pioneering products like the technology that allowed Hollywood movies to be filmed in the early stages. Moreover, the founder of the company, George Eastman put the first photography camera into the hands of consumers in 1888, having the vision of making the world of photography “as convenient as the pencil”. Kodak was able to provide reasonable priced photography cameras with very good quality, giving an international meaning to the words “Kodak Moment”, synonym for a moment worthy enough of capturing in a photograph.

Kodak was one of the pioneers on the development of the Digital Camera back in 1975, which for the technology of the time, was a pathbreaking innovation achieved by the company. However, they failed to accept the future would go around digital cameras and promote this product and themselves as forerunners of this technology. Top decision-makers in the company failed to realise the future would not contain analogic photography and therefore affecting its transition and investment to digital photography. As time went by, competitors like Canon Inc were able to present their own innovations and successfully transition to the digital photography and gain market share from companies suffering from this change like Kodak. Progressively losses lead to the company filing for Chapter 11 Bankruptcy Protection in January of 2012, listing more than 100 000 creditors and \$7bn in Debt(Waters and Bradshaw 2012).

During this dark chapter, the company had to sell off assets to have a prospect of survival in the future. As a result, whole business units like its personalized imaging and document imaging, along with a bunch of patents from their extensive and longstanding portfolio to the UK Kodak Pension Plan for \$650mn, in exchange for a pardon of \$2.8bn claim. A challenging nineteen months later, after further selloffs, cost cuts and major operations shutdown, Eastman Kodak Company was lifted from its insolvency status. A whole new business plan was formed, transforming into a much smaller company with sober operations with their focus on printing technologies corporate clients as a target(Waters 2013; Summerfield 2013).

Headquartered in the huge 1,200-acre Eastman Business Park in Rochester, New York, which is home to most of Kodak’s activity, from corporate functions to manufacturing and R&D. Kodak is still present all over the world, with other manufacturing facilities throughout the US (Daytona, Ohio and Columbus, Georgia), alongside factories in Canada, Germany, Japan and China and some additional regional distribution centres located within and outside of the US.

Last reportable year (2021) saw an improvement of Kodak’s revenues that have been decreasing for four years already. Our estimations for the current year (2022) are that Kodak will be able to keep growing their revenues (see Graph 13).

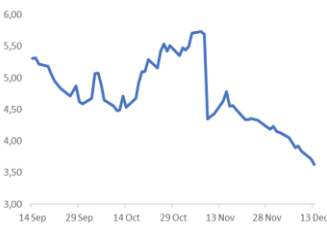
Kodak’s share price has been having a lot of volatility involved and currently it is much lower than



Graph 13: Revenues of Eastman Kodak Company since 2017 until 2021 and our estimation for 2022



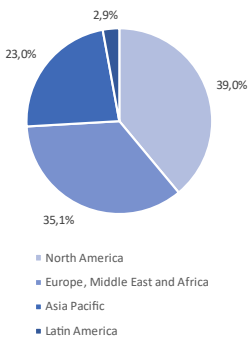
Graph 14: Eastman Kodak Co.'s stock price behavior for the last 2 years, with weekly data



Graph 15: Eastman Kodak Co.'s stock price behavior for the last 3 months, daily data

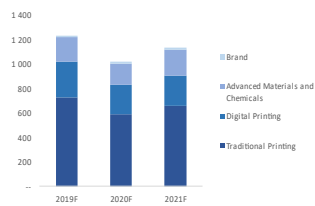
when they got out of the insolvency status. On September 30th, 2013, shortly after it was lifted, the price was shy of \$25. Graph 14 shows the behaviour of Kodak stock price since November 2020 until December 2022, in a weekly behaviour. Clearly, it is on a downwards trend, as investors are not receiving any dividends from holding the shares (more on that later) and as a result valuing Kodak at a lower value than what it is worth. More recently, in the past 3 months, investors have been having a very pessimistic view of this company, resulting in drops of price from 5.00\$ to \$3.60, close to the 52w low (Graph 15)

b) Operating Segments



Graph 16: Total Kodak sales by geography

In 2020 (Eastman Kodak Company 2022), the company reformulated the way they divided their business from having six reporting segments to having only four: Traditional Printing, Digital Printing, Advanced Materials and Chemicals and Brand. Graph 16 shows how their revenues spread through the different economic areas in 2021. Most their sales come from outside of the US, only around 39% coming from their home country, 35% coming from the EMEA economic space, 23% from the Pacific Asia and the remaining from the Latin America space. The two first and major operating segments described below account for about 80% of their total revenues. Graph 17 shows the percentage of revenues that each segment occupies in the total revenues of Kodak since 2019.



Graph 17: Revenues of Kodak per operating segment, from 2019 to 2021

Traditional Printing: comprises of Kodak's digital offset plate offerings and computer-to-plate (CTP) imaging solutions. Kodak sells the printers for commercial use as well as the necessary new plates required for each printing run, on which they follow a contract-based strategy for this segment to provide their clients with the necessary consumables as well as necessary maintenance in exchange with steady and stable cash-flows from their clients. These products serve a variety of commercial uses, including commercial print, direct mail, book publishing, newspapers, magazines, and packaging.

Challenges are arising for Kodak mainly driven by the increase in raw material prices, namely aluminium. Despite this, Kodak is looking to moderate said effects through a combination of surcharges and price increases as well as implementing improvements to manufacturing efficiency and cost reduction initiatives. This is the main revenue stream, accounting for an average of 58% of the firm's total sales in the last three reportable years.

Digital Printing: contains what Kodak calls Electrographic Printing Solutions, Prosper™ Press Systems and their respective components and consumables, Versamark™ Press Systems (Proper's predecessor) and Software. All these products represent a high-quality gamma of digital printing solutions using electrically charged toner-based technology, production press systems, maintenance, and consumables as well as the software necessary to run the printers. The products are distributed both through Kodak distribution centres and third-party resellers.

The main printing applications for these printers are close the previous segment, with revenues accounting for an average of 23% in the last 3 years.

Advanced Materials and Chemicals: This segment contains some different ventures pursued by Kodak that do not represent most of the net revenues of the company. The business units included here do not necessarily correlate to one another. Kodak also houses here the Kodak Research Laboratories, which is responsible for research and development activities, as well as patent licensing.

It mainly involves three lines of business: Industrial Film and Chemicals, with several professional

and consumer use photography film products, as well as films used by the electronics industry to make printed circuit boards. Motion Picture business, where they sell film products and processing directly to studios and external laboratories with strategic onsite processing services and Advanced Materials and Functional Printing, where the primary focus currently is the light blocking particles for the textile market (denominated as Kodalux) which is a recent innovation that comes from the research laboratory and Kodak is studying its implementation into the market. Finally, it is also included in this segment the array of revenues derived of intellectual property licensing.

Brand: includes the licensing of Kodak’s brand to third parties. Currently the portfolio of products selling under the brand are a range of consumer products like digital, instant print and 35mm film cameras, printing and scanning consumer use devices, batteries as well as apparel and eyewear. The goal is to continuously grow its portfolio of brand licenses to generate both on going royalty streams and upfront payments.

Others: Although Eastman Kodak does not recognize a fifth segment, they do separate remaining revenues in the income statement under a separate segment. These revenues are incurred mainly due to operations in the Eastman Business Park, a more than 1 200-acre technology centre and industrial complex. This complex features a set of technology, transportation, and utility infrastructure assets, including an on-site rail and its own wastewater treatment facility, along with manufacturing, distribution, and lab divisions.

c) SWOT Analysis

Eastman Kodak Company is a company currently focusing on printing and imaging solutions. This is a company always known for their innovations in the past, namely in the photography department. Regardless, Kodak keeps investing in their R&D so new products and services serve as an opportunity for the business to shine in the future. However, the accelerated transition to digital due to the pandemic might serve as a threat to this opportunity, as well as some other aspects. Table 3 presents the SWOT analysis of Eastman Kodak Company.

		Positive	Negative
Internal	Strengths	<ul style="list-style-type: none"> • Large portfolio of products • Investment in R&D in technology innovation • Focus on environmentally friendlier products and solutions • Brand marketing • Global Presence 	Weaknesses <ul style="list-style-type: none"> • High reliance on the printing segment • Unclear long-term strategy • Low P/L due to high-cost structure • Aging infrastructures
	Opportunities	<ul style="list-style-type: none"> • Expected future innovative products might bring Kodak up to the game again • Expansion to direct consumers rather than just corporations • Investment in 3D printing might serve a profitable opportunity 	Threats <ul style="list-style-type: none"> • Future global macroeconomic outlook has high inflation thus higher costs, lower growth • Fierce competition • Pandemic accelerated digitalization which affects main source of income
External			

Table 2: SWOT Analysis

i. Strengths:

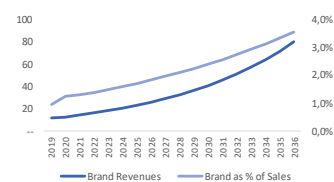
Kodak has a wide variety of products and services offered, as seen by their segments in the previous sub-chapter. As such, they can have several revenue streams. Not only do they sell around the globe, but they also possess manufacturing facilities for their several business segments around the globe too, namely in the US, Canada, Germany, China, and Japan. Furthermore, some regional distribution centres are also located within and outside of the US. This allows for a better cost effectiveness in the longer term and better market and customer-

base opportunities.

Technology innovation was and still is one of the main focuses of this company with an average of 3% of their total revenues dedicated each year (based on their last 3 reportable years) to research of the next innovations. Their R&D team is focused on their headquarters, the Eastman Business Park, in New York. This once more gives opportunity for new business opportunities in the future.

Following the growth of environmental awareness in the past few years, Kodak has committed itself to slowly make changes in their portfolio of products and processes with the aim of environmentally friendlier solutions. As a result, current offerings in the traditional printing segment eliminate the usage of chemicals, water, excess energy, and waste in the production, delivering clear cost savings but also a clear eco-friendlier practice.

Finally, the third-party licensing of the Kodak brand has been serving as an additional revenue stream given that the name is broadly known in the world. Kodak can monetize this recognition and further increase sales on this stream. In our valuation model we assumed the brand-derived revenues would improve throughout our estimation period, as graph 18 shows.



Graph 18: Brand Segment revenue stream of Kodak from 2021-2036. We expect improvements over the years of third-party licensing revenue

ii. Weaknesses

Despite having an extensive selection of items, the fact is around 80% of their revenues comes from printing alone. This might come as an issue due to the threat of digitalization in the longer term.

The presence in several markets might also show itself as a weakness in the sense that it is not very clear what their long-term strategy might be or what products they might want to focus on the future. For example, Kodak is currently focused on the printing business, but they still hold business in the pharmaceuticals industry since 2020 which is obviously very R&D intensive for product distinction.

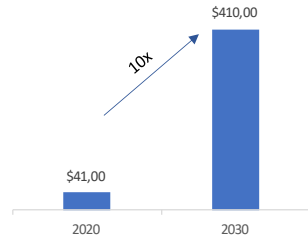
In the past 3 reportable years, Kodak presented negative operating income. This is mainly due to their low gross margins, even comparing with direct competition (14% versus an average of 30% of its peers) and negative operating margins in the last 3 years. Net income at the end of 2021 was positive due to secondary stream of income originated from their complex pension asset structure. This means their core business is currently not creating value. This is deal-breaking for investors, along with the fact that Kodak has not been paying any dividends to common shareholders.

Lastly, manufacturing facilities are starting to feel aged and with the current financial conditions of the company it might be difficult in the future to renovate them. This might affect the way Kodak implements new products in the future. This could also serve as an opportunity to better improve margins, but Kodak does not seem to have it in their short-term strategy to renovate said facilities.

iii. Opportunities

In mid-2022, Kodak has implemented a new product on its portfolio, the replacement for one of their products in the Digital Printing segment, more advanced and more useful for their clients than its predecessor. Aimed at the retail, point of purchase and packaging markets, Kodak is hoping to gain a few more customers and thus sales from this new product. In the future they also might enter the 3D printing market, where current investments are being made as R&D is dedicated to this opportunity, which might be profitable in the future. Research shows a CAGR of

24.3% for the period 2022-2029 (fortunebusinessinsights 2022). It might be a very profitable decision. However, capital must be invested to convert some of its production and additional research must be done to come up with a differentiated product.



Graph 19: Expectation of growth for the battery manufacturing value chain. Source: McKinsey &

Kodak is aiming to provide base materials for battery manufacturers which might prove like a profitable opportunity in a world where the demand for batteries is growing mainly due to the electrification of every car manufacturer's fleet to reach neutral carbon by 2050. Recent research from McKinsey & Company shows very optimistic expectations for battery manufacturers in terms of market growth, with over 10x expected growth until 2030(see Graph 19) (Campagnol, Pfeiffer, and Tryggestad 2022).

Another opportunity for Kodak is the expansion of their client base from just institutional to also direct consumers. For that, Kodak would have to release new products directed to consumers.

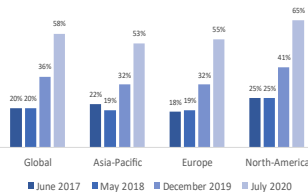
iv. Threats

Current macroeconomic conditions due to the reasons already mentioned in the external environment chapter, the global economy is slowing down, with high inflation rates affecting the prices of raw materials harming company's margins. Kodak is suffering from these conditions, namely from aluminium prices, which is the main raw material used in manufacturing.

Furthermore, competition is also a threat for all the markets Kodak operates in. They are all very competitive, with major players like Canon, HP, Fujifilm, Screen, Agfa present. Kodak's motion picture sub-segment may suffer from competition from digital substitution with digital capture solutions.

Rapid changes in technology like the sudden transition to digital during the pandemic makes companies like Kodak, which main business is printing have the probability in the future of suffering. McKinsey & Company has released a survey in October 2020 studying how Covid-19 has pushed companies to increased digitalization and how it has accelerated the digitalization more in a few months than the average rate from 2017 to 2019 (see graph 20) (LaBerge et al. 2020). Additionally, sophistication in their products, is a must to thrive in the technological market.

The future might harm the way Kodak adapts to new changes and new trends, particularly if capital expenditures need to be made to modernize production facilities to face these new changes and trends (MarketLine 2020).



Graph 20: Average share of customer interactions that are digital over the course of the pandemic in comparison with the period June 2017-May 2019. Source: McKinsey & Company

3. Valuation

a) WACC

i. WACC Assumptions

The **risk-free rate** used in the computation of the WACC was the US 10Y Treasury Bond yield with a settlement date of November 15th, 2022, and maturity November 15th, 2032, accessed on December 3rd, 2022, with a current yield of 3.50% (Risk-Free Rate).

Cost of net debt is equal to the risk-free rate since the net debt is negative and therefore the opportunity cost for the excess cash is equal to the riskless rate, which is 3.50%.

To estimate the appropriate cost of equity, the CAPM method was used. To estimate the appropriate beta, a historical regression was conducted between Kodak, its main competitors (see Table 3) and a reference index as a proxy to the market, in this an ETF that follows (with over 99% correlation) the S&P500 index (SPY SP500 ETF), in a weekly two-year historical period since November 27th, 2020, until December 2nd, 2022. Kodak's sensitivity to the market is estimated at 1.19. A measure for the comparable group was also calculated, by unlevering each of the company's betas with their own D/E ratio and averaging the resulting unlevered betas. The result was an average unlevered beta of 0.59 and a relevered beta, accounting for Kodak's debt structure, of 0.74 (as Table 4 describes). It was decided to use Kodak's beta in relation to the market to compute the cost of equity. The market risk premium chosen was 5.6%, an estimation taken directly from Statista on December 9th, 2022. Variables considered, the CAPM estimation for the cost of equity is 10.17%.

Finally, the **equity and debt weights** were computed as per percentage of the Enterprise value. Kodak at the end of year 2021 had a Net Debt to Enterprise value of **-29%** and a debt-to-equity of **32.52%**. This difference is due to amount of excess cash Kodak possessed in this year. When accounting for the debt-to-equity ratio, Kodak is among the average of its competitors. Therefore, the same ratio of debt to enterprise value will be used for this estimation.

Lastly, a **component for the preferred stock** was considered since it presents a considerable portion of the enterprise value. The cost of preferred stock is simply the interest rate of the preferred payments made by Kodak to preferred shareholders, which is **5.61%**.

All variables considered, equity, debt and preferred stock and each accounting in terms of weight of the enterprise value, the **after-tax WACC** is estimated to be **9.92%**.

Company Name	Headquarters	Ticker
Eastman Kodak Company	USA	KODK:US
HP Inc	USA	HPQ:US
Fujifilm Holdings Corp	Japan	4901:JP
Ricoh Company Ltd	Japan	7752:JP
Canon Inc	Japan	7751:JP
Agfa Gevaert NV	Belgium	AGFB:BB
Screen Holdings Co., Ltd	Japan	7735:JP

Table 3: List of companies used to estimate the cost of capital

Company	Kodak	HP Inc	Fuji	Ricoh	Canon	Agfa	Screen	Average
β(Levered)	1.19	1.09	0.59	0.12	0.16	0.53	1.00	
β(Unlevered)	0.95	1.09	0.51	0.09	0.15	0.48	0.87	0.59

β(Relevered)	0.74
--------------	------

Table 4: Betas levered and unlevered of each company derived from a regression between price history of each company upon the SPY SP500 ETF Fund, over a 2Y period

b) Valuation Methods

i. DCF

The first assumption in our DCF model is about the core free cash flows of the company, estimated with the forecasting beliefs already described and subsequently discounted with the WACC of 9.92%. The terminal value was estimated with the long-term growth rate and also properly discounted. This way, the value of the core operations of Kodak was computed.

Amount in \$ millions, except per share data	2023
Company Value	(218)
Non Core I.C. @ Book Value	678
Net Debt	(84)
Equity Value	376
Shares Outstanding	79
Share Price	\$4.77
Share Price (As of 14/12/2022)	\$3.45

Table 5: DCF Summary and Implied value per share

Secondly, the non-core business side of Kodak's operations was computed through its current book value. This is a reasonable assumption since the major bulk of the non-core invested capital and revenue stream is associated with the pension assets/liability's structure currently owned by Kodak, which represents over 62% of the total invested capital. Without a specialized analysis of these captions, which is outside of our scope and capacity, it is rather difficult to accurately estimate the appropriate value of this side of the company. Therefore, this book-value approach was chosen to complement the core company value and consequently estimate the intrinsic value of the whole company. The Non-core value was estimated with information from the last quarter of available information (as of September 30th), as we believe these captions would not change a lot in value until the end of the year. As for the net debt, we assumed Kodak maintained the debt structure from the previous year, also taken in consideration in the WACC.

In spite of this, the core cash-flows of the company seem to allow for a negative valuation of the company by themselves, as table 5(DCF Summary) show, which is probably the reason why investors in the market have been having such a pessimistic view of this stock, with current share price reaching 52-week low, as previously said. What seems to increment our DCF is the non-core business, which is valued at \$678m and consequently bumps up the share price to the theoretical value of \$4.77.

Despite this share price, we understand that it is difficult to comprehend a theoretical recommendation of a BUY when we are expecting the company to have negative cash-flows soon, so we decided to be critical about our results and further the study of the volatility of the price, by using different valuation approaches to better understand its value.

ii. Market-based valuation

To study the cash-flow valuation approach, a market-based approach was done, with the use of the companies we have analysed in the external environment, in order to test how the market is valuing the company. The ongoing assumptions in this method would be to value Kodak through the application of relevant multiples based on the market value of comparable companies and test if the market's valuation goes or not in line with our DCF results.

Percentile Information	EV/Revenue	EV/EBITDA	P/E
High	1.13x	12.08x	28.43x
75th	1.00x	7.63x	20.33x
Average	0.67x	6.32x	9.54x
Median	0.71x	5.74x	14.36x
25th	0.41x	5.41x	7.66x
Low	0.08x	1.07x	<6.89x

Values in Millions, except per share data	EV/Revenue	EV/EBITDA	P/E
Implied EV	812,70	-86,06	344,56
Net Debt	41	41	41
Implied Market value	772	-127	345
Shares Outstanding	78,4	78,4	78,4
Implied Value per Share	99,84	-51,62	54,39
Mean			54,21

Table 6: Statistical information about the multiples approach and implied price per share for each multiple analyzed

The used multiples for this valuation method were the broadly used EV/Sales, EV/EBITDA as well as the P/E. The following table 11 includes information about the estimated multiples, as well as the share price derived from each multiple, where the median values were chosen to compute the implied enterprise value for Eastman Kodak Co. The average share price for the three multiples is **\$4.21**.

Examining the results, what in most situations would be the best multiple for estimation purposes, the EV/EBITDA (or EV/EBIT for this matter) is irrelevant since Kodak presents negative operational results in the last periods. Using the revenues/EV multiple instead, the result comes as too optimistic (\$7.75) given that it gives the wrong picture for the company because it does not

have in consideration important components of the company like the Capex or NWC or intrinsic operational costs themselves, so it tends to investigate companies in a more optimistic way. The price to earnings ratio however, despite more in line with our DCF results (implied value per share of \$4.77), can mislead investors because it bases too much the performance on the net result of the companies. On stable companies, it may be a valid ratio to use to compare performance based on the market. However, it becomes unrealistic when companies present negative operating income in the past and at the same time positive net returns. For this reason, we believe a market-based valuation is not credible enough to correctly assess Kodak's fair value. The fact that the core business has been having negative results and still come up with positive net results is worth to go through the DCF and study the impact of these costs. It is important to understand how the market is behaving and valuing Kodak, through its peers but again, the theoretical value behind the market-based valuation overvalues the business, when comparing with recent share price performance. Given all the variables behind it (macroeconomic conditions, company financials conditions), we cannot take any plausible conclusion from this method.

c) Sensivity Analysis

A sensitivity analysis was conducted to study the impact of changes in relevant factors on the share price obtained with the DCF method. The tested variables were the change in WACC and the change in the long-term growth rate.

The cost of capital is subjected to change due to the nature of the several variables among which it is estimated. The computation of WACC is dependent on a set of assumptions and estimations that can easily vary, for example, the beta, which was used on the CAPM to calculate the cost of equity, was estimated by studying the regression between Kodak and the SP500 ETF index fund over a 2-year period. However, if we extend or shorten this period, the slope will change and therefore the cost of equity will also change. Other variables like the risk-free rate, or the cost of debt, which, as previously said, will have in the short term a bigger volatility associated due to the macroeconomic conditions described. Other variable that will impact the cost of capital is the capital structure of Kodak, which they may decide to change in the future. All in all, by testing the share price, subjected to overall changes in the WACC, we are accounting for possible changes in all these variables inside of one single bigger variable.

As for the terminal growth rate, we decided to adjust it by 20%, 30% and 40%, in both upside and downside, to test the impact on the share price.

Following the analysis, table 7 shows a better view of the different combinations among the 2 variables. What we see is that changes in the WACC or the growth rate does not change a lot the outcome of our DCF. This is because FCFs in longer term are low in absolute terms and the terminal value is also quite low so, it's natural that bigger discount rates will not affect the share price that much. Same reasoning for the growth rate. What seems to keep the share price inside the BUY interval is once again the Non-Core Invested capital because it is not affected by either the WACC or the organic growth. Therefore, this sensitivity analysis does not allow us to take any consolidated conclusions either.

	WACC							
	8.45%	8.99%	9.45%	9.92%	10.42%	10.91%	11.41%	
Long term organic growth	3.22%	\$5.12	\$5.01	\$4.99	\$4.86	\$4.82	\$4.78	\$4.76
2.99%	\$5.07	\$4.97	\$4.90	\$4.84	\$4.80	\$4.76	\$4.74	
2.76%	\$5.03	\$4.94	\$4.87	\$4.81	\$4.78	\$4.75	\$4.73	
2.50%	\$4.95	\$4.87	\$4.81	\$4.77	\$4.74	\$4.72	\$4.70	
1.84%	\$4.88	\$4.81	\$4.77	\$4.73	\$4.71	\$4.69	\$4.68	
1.61%	\$4.85	\$4.79	\$4.74	\$4.71	\$4.69	\$4.68	\$4.67	
1.38%	\$4.82	\$4.78	\$4.72	\$4.70	\$4.68	\$4.68	\$4.68	

Table 7: Sensivity Analysis of our DCF results

4. Investment Recommendation

Following all the analysis and despite the positive expectations derived from the DCF result, we do not forget that this is still a no dividend-paying, CCC+ (speculative grade) rated business and there is too much risk in the company and in the economy to bet on the success of this company. Our recommendation will follow the conclusions of the scenario analysis, which contain 3 scenarios with slightly different assumptions and therefore we recommend HOLDING.

The future of Kodak depends heavily on the success of the decisions taken in the short term. Again, they suffer from very low to negative margins, even when comparing with their direct peers. All things considered, there are plenty of areas in which Kodak must improve. Obviously, by assuming Kodak will have its revenues growing accordingly with the market, we are assuming that they will be able to do so, which is a bit optimistic. However, the future is uncertain and given the ongoing macroeconomic conditions, it might be possible that Kodak is not able to thrive and improve their results. In all honesty, the key case for the 130+ year old business seems to be the successful implementation and success of new business lines in the foreseeable future, since their main source of revenue does not show very good expectations. This leads to their research and development team. Kodak must be able to come up with innovative technology to have competitive advantage in new markets. There is definitely an opportunity in the battery technology industry for example, but large capital investments are needed to make this happen, which Kodak does not seem to have right now. In second place, Kodak must be able to improve their cost structure and that implies cost reduction measures. In fact, some have already been implemented, as per information of the quarterly reports of 2022, to cope with increasing costs of raw materials and electricity.

If they fail however to make the correct decisions, to improve their margins, overall profitability, as well as solvency ratios, it might be the case in the future that the company must resort to bankruptcy filing and possibly liquidation. It will ultimately come down to their ability to make big changes in their line-up to save themselves from this scenario.

In conclusion, we are confident that the HOLD recommendation is the most adequate, given everything already described.

“EASTMAN KODAK CO”

“COMMERCIAL PRINTING AND CHEMICALS”

STUDENT: ANDRÉ ALVARENGA & JOÃO CARVALHO

COMPANY REPORT

16 DECEMBER 2022

49006@novasbe.pt & 50891@novasbe.pt

Eastman Kodak Co.: Uncertain long-run performance

Equity Research on Eastman Kodak Company

- Our recommendation is to HOLD. We do not believe there is enough upside potential for this stock just yet, especially in the current market conditions. Kodak’s future is based on a lot of speculation and risk.
- 2022 saw the overall agitation of the economy with the lingering effects of the pandemic along with the war between Russia and Ukraine, resulting in higher inflation, among which higher prices for raw materials like aluminium and the attempt to cut dependency on Russian sources. This adds a lot of uncertainty and therefore a lot of care required by investors that want to put their money in potential profitable opportunities in the long term, which is the case of Kodak.
- Despite being able to implement new products in 2022 in the printing segment and presenting decent last quarters, the key for a sustainable future for Kodak will be based on their ability to assess the potentially profitable opportunities like the EV/Energy Storage material manufacturing or the transparent antennas for automotive use and other applications (5G). These are currently not relevant streams of income, so it really depends on management decisions in terms of investments in the short term to successfully explore these opportunities.

Company description

Eastman Kodak Company is a global manufacturer that focus on the commercial printing business and advanced materials and chemicals. The company sells the hardware as well the servicing and consumables required primarily to institutional customers in the commercial print, packaging, publishing, and entertainment businesses. Kodak segments their business in 4 segments: traditional printing, digital printing, advanced materials and chemicals and branding.

Recommendation: HOLD

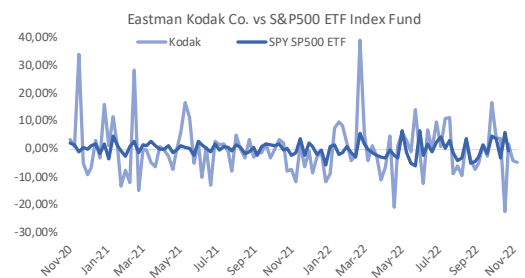
Price Target FY23: 3.47 \$

Price (as of 14-Dec-22) 3.45 \$

Source: Refinitiv Workspace (KODK.K)
Bloomberg (KODK:US)

52-week range (\$)	3.46-7.50
Market Cap (\$m)	285
Outstanding Shares (m)	78.4
IPO Date	November 1, 2013

Source: Refinitiv Workspace



Source: Refinitiv Workspace

(Values in \$ millions, except per share data)	2020F	2021F	2022E
Revenues	1029	1150	1202
Revenue Growth	-17.15%	11.76%	4%
Gross Margin	13.1%	14.3%	14.0%
Total Comprehensive Income	-570	691	208
EPS	-9.83	0.27	0.08
Core Business Margin	-0.92%	-4.16%	-4.16%
D/E	24.68%	32.52%	32.52%
WACC	12.56%	12.56%	12.56%
Dividend Pay-out Ratio	0%	0%	0%

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY ANDRÉ ALVARENGA AND JOÃO CARVALHO, A MASTER IN FINANCE STUDENTS OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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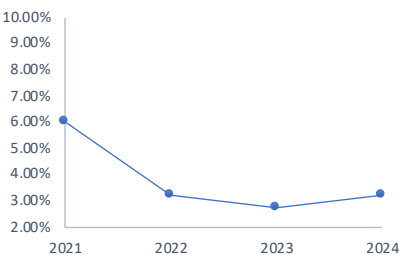
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1. External Environment

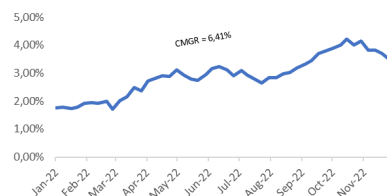
a) Macroeconomic Outlook

The global economy is currently fearing possibilities of recession in future quarters following the rise of inflation rates in every economy, as well as the growth slowdown observed in these. The lingering consequences of the pandemic along with Russia's invasion in Ukraine as well as overall geopolitical turmoil has shaken the prospects of growth that persisted in the beginning of 2022. High inflation rates across the economies, alongside supply-side disruptions made the International Monetary Fund (IMF) revise its predictions in October with a more pessimistic view, stating that "The global economy's future health rests critically on the successful calibration of monetary policy, the course of the war in Ukraine, and the possibility of further pandemic related supply-side disruptions, for example, in China" (2022). Conditions in China will be further reviewed in the report.

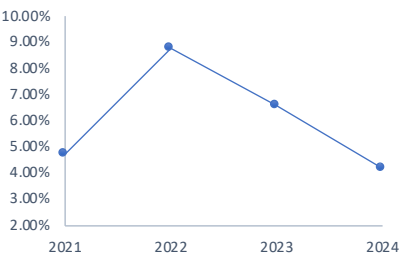
Following their studies, economic growth is expected to slow down from 6% in 2021 to 3.2% in 2022 and 2.7% in 2023 (see Graph 1). Expectations are not great in relation to the economy. Fears that monetary policies are not being sufficient to control record-high inflation rates of 8.8% in 2022, following 4.7% in the prior year. Interest rates have been rising since the beginning of the year, trying to control the rise of inflation, with the current US 10Y treasury yield of more than 4% on November 7th, 2022, and a compounded monthly growth rate of 6.41% over a 11-month period since the beginning of the year (evolution in Graph 2). Fortunately, inflation expectations have been easing throughout the month of November, leading to a decrease of 50bp of the treasury yield to around 3.5%. However, both the recession fear and consequences of geopolitical situations in the world seem to lead to a volatile market in the short term. Inflation has notably been noticed on the consumer side mainly due to war between Russia and Ukraine, with the second being one of the world's major exporters of wheat, corn, and barley, causing basic food items like bread up to 18% higher than in August 2021 (Eurostat 2022). On the industrial side, the price increase of natural gas and electricity as well as delivery delays of raw materials threatens industrial companies (like Kodak) and incites them to increase their prices too, to able to keep up with costs and maintain relatively stable margins. The result is that inflation is currently estimated by IMF to reach 8.8% at the end of 2022 and to drop to around 6% in 2023 (see Graph 3). Kodak is highly dependent of aluminium, of which is mainly imported from European sources. Due to the fears of cutting the dependency of Russian raw materials, like aluminium, price volatility has been high and therefore unpredictable



Graph 1: IMF's expectations for GDP growth over a 4-year period since 2021



Graph 2: 10Y US Treasury Yield over the year of 2022



Graph 3: IMF's Expectations for inflation rates over a 4-year period since 2021

in the short term. Fortunately, prices for aluminium in October have dropped around 40% from record-high levels in March 2022 (Lepcha and Drozdovica 2022), reaching approximate values since the same period last year. Despite this, if prohibitions or sanctions to Russia's materials go any further this might cause companies like Kodak have to search in the future for other sources for their raw materials, which might lead to an increase in their production costs. Kodak is already experiencing some supply-chain disruptions and shortages in materials and has been trying to implement measures to mitigate these challenges wherever possible, with inventory adjustments, price adjustments, among other measures.

All these factors make institutions like the IMF predict a slowdown in the global economy with additional fears of recession with some economists even foreseeing the phenomenon of stagflation.

More specifically in China, in which situation has been getting worse again due to strict rules to combat new outbursts of Covid-19. In the attempt to contain new variants and reduce the number of cases, the government has been closing facilities with the objective of containing these outbursts. These policies have been affecting the Chinese economy and therefore a lot of companies with dependency on Chinese manufacturing facilities. Eastman Kodak Company had one of the 2 Chinese manufacturing facilities, in Shanghai, being closed by the government in April 2022 and had it reopened in June. Fortunately, it did not have material impact on Kodak's figures but, according to Bloomberg, more than 180 companies say they were affected by China's lockdowns (Zhao 2022). Apple Inc, for example, has recently announced global delays of up to 9 weeks on some of their recent products, like the iPhone 14 Pro due to a Covid-19 outburst in their main factory (Rosenstock 2022).

Despite the uncertainties, there is still hope by some writers that a full-on recession might not happen. Ruchir Sharma (2022), an investor, writer for the Financial Times and chairman of Rockefeller International recently stated that recent 3rd quarter information gives hope for the economy and underestimates economist's views and predictions that recessions are imminent. Simple signs like annual growth of US's GDP of 2.6%, following the weak growth in the first 2 quarters, healthy growth on consumer spending as well as Capex growing at a faster rate than business revenues and most importantly, unemployment rates staying low in the 3.7% region are factors usually not expected on the verge of a recession. However, opinions diverge among investors and experts. Oppositely, the newspaper The Economist states that the phenomenon of stagflation will be almost inevitable, and companies will have to deal with this in the next year. Companies

with high pricing power may be able to deal better with changes in that regard (2022).

If the Covid-19 situation keeps getting better and the war between Russia and Ukraine eases soon, signs like the easing of inflation rates, problems with supply-chains shortening both in the industrial side and consumer side, it might be the case that federal banks start relieving their monetary policies and let the markets flow and recover. However, if these conditions are not met, predictions of the IMF might really be inevitable, and the markets worldwide will slowdown.

b) Industry Overview

The Eastman Kodak Company operates in several industries. The printing markets will be analysed further as they represent the bigger portion of Kodak's revenues. The methodology undertaken here is that each segment that Kodak presents was decomposed on sub-segments, which will be relevant further down when forecasting sales.

Traditional Printing: Computer to plate (CTP) offerings bring a lot of advantages to the game over the standard computer-to-film technology which needs darkroom facilities to work properly, contrary to CTP, which is more cost effective, both in operations and in capital needs. The main players and competitors in this market for Kodak are Fujifilm and Agfa. Despite the advantages of these offerings, the fact is digitalization offers a big threat to this market as several alternatives exist. We can separate this digitalization into 2 factors: the transition towards digital printing methods and the decreasing demand in the future for printing. The pandemic accelerated this process, by normalizing remote work and therefore digital-based everything, from direct mail, newspapers, magazines, and books, which are the main end-products of these printers. All of these currently have a digital alternative, from websites for newspapers and magazines to special tech to read books, like Kindles.(MarketWatch 2022).

Digital Printing: This printing technology increases the productivity in comparison with traditional printing systems since they rely on digital formats like PDF on medium surfaces including paper, cloth, and ceramic. Precise inkjet-based printing enables the effectiveness of this operation. This is an industry expected to grow in the future, especially with the surge of sustainable printing solutions in several client-bases like packaging, pharmaceutical and label sectors. The implementation of AI-based technologies in the process might improve efficiency of these printing systems and therefore attract more customers in the future. Interested parties in entering the market see their life difficult as large investments are needed for

product implementation. That, along with very competitive pricing, makes it hard for new entrants to establish themselves. The main players and competitors in this industry are the Hewlett-Packard Company (HP Inc.) and Ricoh Company, among others. This industry, despite somewhat different from the traditional printing, also suffers from the threat of digitalization in the longer term, since the usual end product derived from the printers built in this industry is still physical and truthfully pretty similar to the above-mentioned industry, like direct mail, newspapers and so on (PrecedenceResearch 2021).

Industrial Film and Chemicals: This is a very broad segment reported by Kodak that includes products since photographic film and film for circuit boards, it includes the production of Key Starting Materials (KSM) for pharmaceuticals and coating and product commercialization services, the coating being for batteries for example. These sub-industries are expected to keep a stable growth in the future (MarketResearchReport 2022).

Motion Picture: The film industry has a high impact on the economy, this does not only contain entertainment movies but also movies related to tourism, for example. A lot of jobs are also created here due to the complexity of this industry. The role of Kodak here is just to provide the products and services to make movies, but this is a sector with good prospects for the future. The pandemic has once again accelerated the usage of streaming services and therefore the demand for movies and series to be created, therefore each streaming services nowadays have their own successes rather than the independently produced movies, usually shown in the traditional cinema theatres (MarketDataForecast 2022).

Functional Printing: Lastly, functional printing includes the functions for 2D and mostly 3D printing technologies. It allows the 3D printing of electronic technologies for a variety of sectors. It is expected that this market keeps growing in the future with the broaden implementation and usefulness of 3D printing in several production lines. This type of printing is also able to reduce environmental impacts, energy consumption and waste, due to its precision and nature of the process therefore it has space for growth in the future, in a more sustainable world (DataBridgeMarketResearch 2022; fortunebusinessinsights 2022).

c) Competition

i. Overview

Eastman Kodak Company has fierce competition in all its markets. Table 1 summarizes the main competitors and their respective headquarters location. All these companies operate globally as well as manufacture their products at a global scale. A general comparison among products and financial analysis was made to compare performance between peers and Kodak upon a period of the last 3 reportable years. These businesses will also be used later in the market-based approach. The following ratios were analysed: Gross Margin, R&D/Sales, Operating Margin, Debt to Equity and cash conversion cycle metrics. These companies do not finish their fiscal year all at the same time. Therefore, for the income statement items, trailing-twelve-months (TTM) information was used directly from Refinitiv Workspace correspondent to the end of December of each year for companies that do not report their results for that period, while for the balance sheet items, quarterly information for the same period was used.

Company Name	Headquarters	Ticker
Eastman Kodak Company	USA	KODK:US
HP Inc	USA	HPQ:US
Fujifilm Holdings Corp	Japan	4901:JP
Ricoh Company Ltd	Japan	7752:JP
Canon Inc	Japan	7751:JP
Agfa Gevaert NV	Belgium	AGFB:BB
Screen Holdings Co., Ltd	Japan	7735:JP

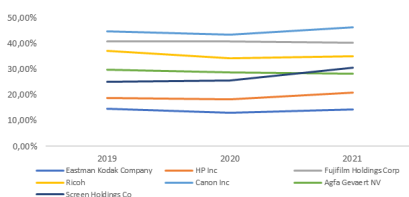
Table 1: Information about Kodak and its competition, as well as their respective headquarters and tickers

In the traditional printing business, Kodak has as its main competitors Fujifilm Holdings Corp and Agfa Gevaert NV. These 2 businesses offer an array of products from printing products, photography, optics, medical electronics, and chemicals-related items. Competition with Kodak stands in the printing business, namely in the pre-press solutions and Computer-to-Plate imaging items. Just like Kodak, this serves as the largest bulk of revenues for Agfa.

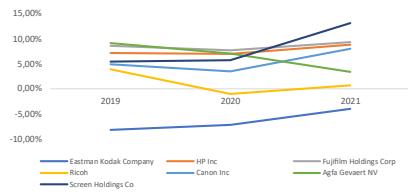
Now, in the digital printing business, Kodak competes with the remaining four peers indicated: HP Inc, Canon Inc, Ricoh, and Screen Holdings Co. It is therefore a large market. According to research, this market was estimated to be valued at \$27 million, at a global scale. Digital printing alternatives for the more traditional methods are provided for commercial and consumer use, although Kodak focuses only on commercial clients.

ii. Peers' analysis

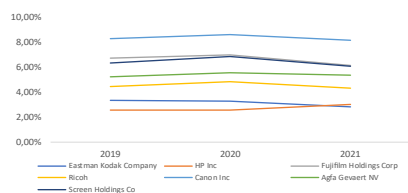
We start by analysing the Gross Margin of the companies. Graph 4 shows Canon Inc has the best gross performance out of the group, averaging around 42%, while Kodak is underperforming everyone, showing that there is a possibility they are not utilising their assets in the most efficient way. A possible explanation by the management team, which is the aging of manufacturing facilities which affects production efficiency and with no current big manufacturing updates expected, Kodak may continue to suffer from low gross margin at least in the short term.



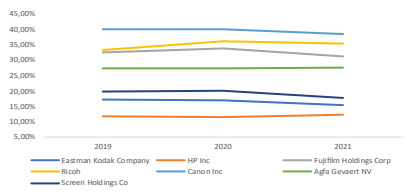
Graph 4: Gross Margin of selected companies over the period of 3 years, color-coded



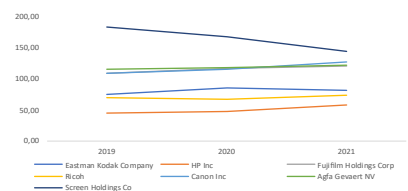
Graph 5: Operating Margin of selected companies over a period of 3 years, color-coded



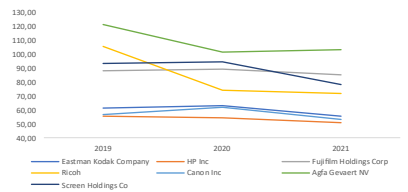
Graph 6: R&D over sales of selected companies over a period of 3 years, color-coded



Graph 7: SG&A over sales of selected companies over a period of 3 years, color-coded



Graph 8: Average Holding Period of select companies over a period of 3 years, color-coded



Graph 9: Average Collection Period of selected companies over a period of 3 years, color-coded

Operating margin shows a slightly worse picture for Kodak. Graph 5 shows a negative operating income over the last three years for them but with improvements year-on-year. There has been a positive development by Screen Holdings Corporation, outperforming the competition in 2021 while on other hand, there has been a negative development by Agfa, losing the top position in 2020. Canon Inc, the company with the best gross margin is now around of the average of the group. To better understand why, the 2 major cost-groups were analysed: selling, general and administrative expenses (SG&A) and Research and Development (R&D) over respective sales.

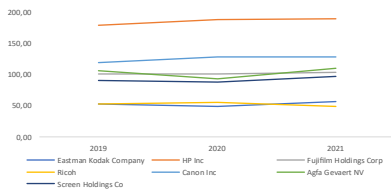
Starting with the R&D expenses (see Graph 6), Canon Inc. presents the biggest year-on-year (YoY) investment in innovation with over 8% of their revenues invested over the last years. Conversely, HP Inc is the enterprise from this group which least invests in innovation with an average of two-three per cent. Kodak follows the trend of HP Inc, with an approximate of 3% invested over the last years. Overall speaking, the pandemic did not seem to affect R&D spending on these companies. If all, there was a very slight increase in 2020.

Going to the general expenses, with the aid of Graph 7, we see Canon Inc. is once again the business that spends the most in this specific caption, with almost 40% of their revenues spent every year. Similarly, Ricoh and Fujifilm also recorded more than 30% of their gross sales spent in these indirect production costs. Contrarywise, Kodak and HP Inc. seem to be the ones that spend the least, with 16% and 11%, on average, during the last years. SG&A Expenses change with a variety of factors like what type of costs are undertaken by each company, different salaries among regions and businesses.

Going to a more operational measure, specifically to the Cash Conversion Cycle, we have divided it into its 3 components: Average Holding Period, Average Collection Period and Average Payables Period.

Graph 8 describes the behaviour of the average holding period of these companies over the historical period selected. Kodak seems to be the company that takes the longest to sell its inventory. However there has been a decreasing trend and the difference between Kodak and its competition is much lower than in 2019. HP Inc seems to be the company that converts more rapidly its inventory with almost 50 days on average to do so.

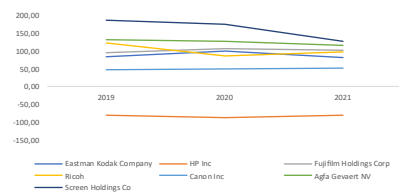
Next, on graph 9, we describe the average collection period (ACP) which tests the company's ability to receive the cash derived from its clients. HP Inc once again seems to perform better overall with about 50 days on average to receive the



Graph 10: Average Payables Period of selected companies over a period of 3 years, color-coded

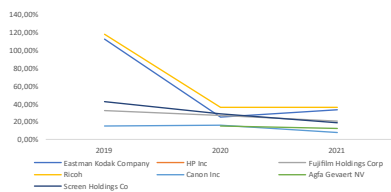
money from clients. Kodak is shortly after HP Inc. and Canon Inc, with around 55-60 days on average. Agfa seems to be the business from this group with the highest number of days, around 110 days.

Lastly, the Average Payables Period on graph 10 shows that HP Inc is again the best performing among the group by a large difference. HP Inc takes approximately 170 days on average to pay its suppliers while the second best-performer (Canon Inc) takes about 110 days. On the other hand, Kodak and Ricoh are the businesses that pay their suppliers first, in about 52 days each.



Graph 11: Cash Conversion Cycle of selected companies over a period of 3 years, color-coded

Overall speaking and looking at the cash conversion cycle (see Graph 11), HP Inc seems to have a negative CCC, which means it is selling its inventory before they pay their suppliers. Kodak is among the average CCC for the group of companies, standing in 90 days until it converts inventory until cash-flows. The remaining companies are on the 50-150 days range. This study is important to better understand the liquidity of the companies and compare them with one another.



Graph 12: Debt-to-Equity of selected companies over a period of 3 years, color-coded

Lastly, we study the amount of debt in relation to equity of each company (D/E). HP Inc was excluded from graph 12 since it has negative Equity in the last 3 reportable years. Kodak and Ricoh have lowered their debts a lot from 2019 to 2020, both in a similar fashion. If we look only to 2020 and 2021, we see the debt is between 20% and the 40% mark, in relation to Equity. Kodak ended 2021 with a D/E of 33% which we believe they might continue with this trend, since the main competition seems to follow similar values.

2. The Company

a) Overview

Eastman Kodak Company develops and manufactures imaging solutions for their clients around the world. They focus on providing disruptive and innovative technologies in the commercial and digital printing markets, along with some products in the advanced materials and chemicals department, all of this to corporate customers.

Created in 1880 by George Eastman and incorporated in 1901 in the state of New Jersey, this company is well known for their innovations in the amateur photography world as well as in the movie business. This is caused by the over 31 000 patents earned over the 130 years of R&D, with pioneering products like the technology that allowed Hollywood movies to be filmed in the early stages. Moreover, the founder of the company, George Eastman put the first photography

camera into the hands of consumers in 1888, having the vision of making the world of photography “as convenient as the pencil”. Kodak was able to provide reasonable priced photography cameras with very good quality, giving an international meaning to the words “Kodak Moment”, synonym for a moment worthy enough of capturing in a photograph.

Kodak was one of the pioneers on the development of the Digital Camera back in 1975, which for the technology of the time, was a pathbreaking innovation achieved by the company. However, they failed to accept the future would go around digital cameras and promote this product and themselves as forerunners of this technology. Top decision-makers in the company failed to realise the future would not contain analogic photography and therefore affecting its transition and investment to digital photography. As time went by, competitors like Canon Inc were able to present their own innovations and successfully transition to the digital photography and gain market share from companies suffering from this change like Kodak. Progressively losses lead to the company filing for Chapter 11 Bankruptcy Protection in January of 2012, listing more than 100 000 creditors and \$7bn in Debt. (Waters and Bradshaw 2012).

During this dark chapter, the company had to sell off assets to have a prospect of survival in the future. As a result, whole business units like its personalized imaging and document imaging, along with a bunch of patents from their extensive and longstanding portfolio to the UK Kodak Pension Plan for \$650mn, in exchange for a pardon of \$2.8bn claim. A challenging nineteen months later, after further selloffs, cost cuts and major operations shutdown, Eastman Kodak Company was lifted from its insolvency status. A whole new business plan was formed, transforming into a much smaller company with sober operations with their focus on printing technologies corporate clients as a target. (Waters 2013; Summerfield 2013).

Headquartered in the huge 1,200-acre Eastman Business Park in Rochester, New York, which is home to most of Kodak’s activity, from corporate functions to manufacturing and R&D. Kodak is still present all over the world, with other manufacturing facilities throughout the US (Daytona, Ohio and Columbus, Georgia), alongside factories in Canada, Germany, Japan and China and some additional regional distribution centres located within and outside of the US.

Last reportable year (2021) saw an improvement of Kodak’s revenues that have been decreasing for four years already. Our estimations for the current year (2022) are that Kodak will be able to keep growing their revenues (Graph 13).



Graph 13: Revenues of Eastman Kodak Company since 2017 until 2021 and our estimation for 2022

Kodak’s share price has been having a lot of volatility involved and currently it is much lower than when they got out of the insolvency status. On September 30th, 2013, shortly after it was lifted, the price was shy of \$25. Graph 14 shows the behaviour of Kodak stock price since November 2020 until December 2022, in a weekly behaviour. Clearly, it is on a downwards trend, as investors are not receiving any dividends from holding the shares (more on that later) and as a result valuing Kodak at a lower value than what it is worth. More recently, in the past 3 months, investors have been having a very pessimistic view of this company, resulting in drops of price from 5.00\$ to \$3.60, close to the 52w low (see Graph 15).

b) Operating Segments

In 2020 (Eastman Kodak Company 2022), the company reformulated the way they divided their business from having six reporting segments to having only four: Traditional Printing, Digital Printing, Advanced Materials and Chemicals and Brand. Graph 16 shows how their revenues spread through the different economic areas in 2021. Most their sales come from outside of the US, only around 39% coming from their home country, 35% coming from the EMEA economic space, 23% from the Pacific Asia and the remaining from the Latin America space. The two first and major operating segments described below account for about 80% of their total revenues. Graph 17 shows the percentage of revenues that each segment occupies in the total revenues of Kodak since 2019.

Traditional Printing: comprises of Kodak’s digital offset plate offerings and computer-to-plate (CTP) imaging solutions. Kodak sells the printers for commercial use as well as the necessary new plates required for each printing run, on which they follow a contract-based strategy for this segment to provide their clients with the necessary consumables as well as necessary maintenance in exchange with steady and stable cash-flows from their clients. These products serve a variety of commercial uses, including commercial print, direct mail, book publishing, newspapers, magazines, and packaging.

Challenges are arising for Kodak mainly driven by the increase in raw material prices, namely aluminium. Despite this, Kodak is looking to moderate said effects through a combination of surcharges and price increases as well as implementing improvements to manufacturing efficiency and cost reduction initiatives. This is the main revenue stream, accounting for an average of 58% of the firm’s total sales in the last three reportable years.

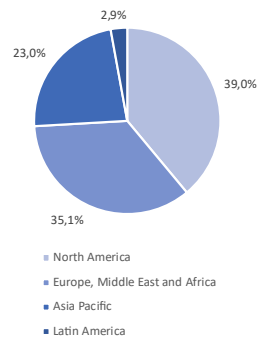
Digital Printing: contains what Kodak calls Electrographic Printing Solutions,



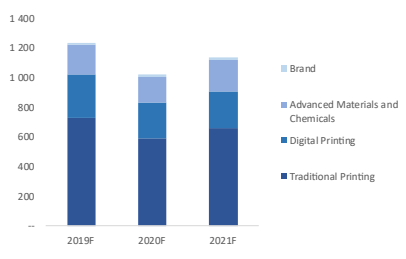
Graph 14: Eastman Kodak Co.'s stock price behavior for the last 2 years, with weekly data



Graph 15: Eastman Kodak Co.'s stock price behavior for the last 3 months, daily data



Graph 16: Total Kodak sales by geography



Graph 17: Revenues of Kodak per operating segment, from 2019 to 2021

Prosper™ Press Systems and their respective components and consumables, Versamark™ Press Systems (Proper's predecessor) and Software. All these products represent a high-quality gamma of digital printing solutions using electrically charged toner-based technology, production press systems, maintenance, and consumables as well as the software necessary to run the printers. The products are distributed both through Kodak distribution centres and third-party resellers.

The main printing applications for these printers are close the previous segment, with revenues accounting for an average of 23% in the last 3 years.

Advanced Materials and Chemicals: This segment contains some different ventures pursued by Kodak that do not represent most of the net revenues of the company. The business units included here do not necessarily correlate to one another. Kodak also houses here the Kodak Research Laboratories, which is responsible for research and development activities, as well as patent licensing.

It mainly involves three lines of business: Industrial Film and Chemicals, with several professional and consumer use photography film products, as well as films used by the electronics industry to make printed circuit boards. Motion Picture business, where they sell film products and processing directly to studios and external laboratories with strategic onsite processing services and Advanced Materials and Functional Printing, where the primary focus currently is the light blocking particles for the textile market (denominated as Kodalux) which is a recent innovation that comes from the research laboratory and Kodak is studying its implementation into the market. Finally, it is also included in this segment the array of revenues derived of intellectual property licensing.

Brand: includes the licensing of Kodak's brand to third parties. Currently the portfolio of products selling under the brand are a range of consumer products like digital, instant print and 35mm film cameras, printing and scanning consumer use devices, batteries as well as apparel and eyewear. The goal is to continuously grow its portfolio of brand licenses to generate both on going royalty streams and upfront payments.

Others: Although Eastman Kodak does not recognize a fifth segment, they do separate remaining revenues in the income statement under a separate segment. These revenues are incurred mainly due to operations in the Eastman Business Park, a more than 1 200-acre technology centre and industrial complex. This complex features a set of technology, transportation, and utility infrastructure assets, including an on-site rail and its own wastewater treatment facility, along

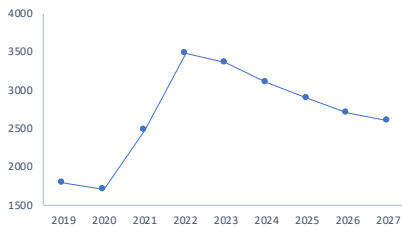
with manufacturing, distribution, and lab divisions.

c) Strategy

For the upcoming years, overall strategy is to focus product investment in core competency areas of print and advanced materials and chemicals; Leveraging Kodak's proprietary technologies to deliver technologically advanced products; Focus on revenue growth, increasing overall share and profitability; Capitalize the existing infrastructure and continue to streamline cost reduction processes and improve operating leverage. A more detailed understanding of the main challenges and strategies faced by each operating segments follows.

i. Traditional Printing:

As explained briefly in the upper section, this segment is experiencing challenges driven by higher prices and availability of raw materials, digital substitution, and competitive pricing pressure. According with the IMF, aluminium price is expected to reach around \$2600 per metric ton by 2027, which would be represent an increase of 15% from current level (see Graph 18)(Knoema.com 2022).

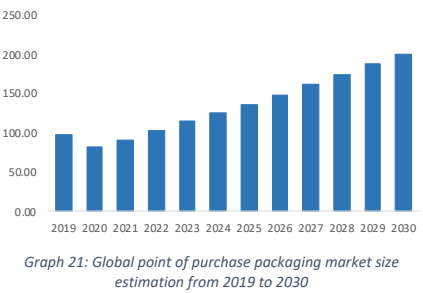
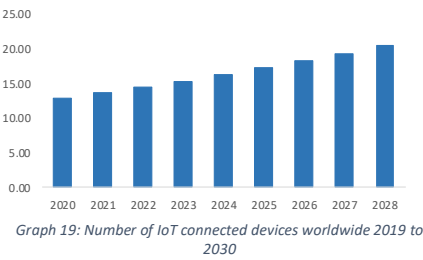


Graph 18: Aluminum prices per metric ton, according to the IMF

In parallel, while trying to understand Kodak's competitive advantage in the Traditional Printing segment, the authors notice that, for the year of 2021 the Operational EBITDA accounted for 1% of respective Segment Revenues, across the three major players in this market. Hence, we can intuitively conclude that the rising of raw material prices, such as the aluminium, will continue to have a great impact on the company's results. Kodak plans to mitigate such pressures through the combination of surcharges and price increases, improved production efficiency and cost reduction initiatives. Alongside with such measures, Kodak is focused on leading the way to sustainable practices in the printing process. The company plans to take full advantage from current industry trends, including customers' increasing focus on sustainability initiatives, by introducing sustainable innovations in product offerings. The project is ambitious, but continuous innovations in product lines are expected to be offset the impacts of long-term market dynamics on pricing and volume pressures.

ii. Digital Printing:

Globally, the conventional printing technologies, like offset printing are expected to keep losing market share, that would be later absorbed by the digital. In order to anticipate such trends, Kodak is committed to continue to invest in digital print technologies, adapting its business to an increasingly intelligent, connected and digitized world. Graph 19 shows that the number of IoT connected devices worldwide from 2020 to 2028 in the manufacturing industry; the ability to connect the printers and other consumables is making it possible to create real impact with the collection of data, by allowing to measure performance in terms of energy, sustainability and to improve and personalize the customer experience. The continuous investment in new digital printing technologies envisions to mitigate the supply and cost risks of traditional printing products and eliminate the significant carbon footprint associated with the manufacture and distribution of such products. Kodak is currently expanding its business towards growing retail, point of purchase and packaging markets with new product offerings. To illustrate the potential of entering such markets, on the left-hand side we dispose Graph 21 showing the projected evolution of the global point of purchase packaging market size from 2019 to 2030 and Graph 20 showing the growth by region of the retail-ready packaging market from 2019 to 2024. For the long-term, plans are being made to extend Digital Printing business towards the 3D printing, a market that, according with a *MarketstoMarkets* research, is expected to reach \$35 billion within 2024, suggesting a CAGR of about 23-26%.



iii. Advanced Materials and Chemicals

Based on Kodak’s deep expertise in chemistry and strengths in deposition and coating processes that come from decades of experience in film manufacturing. Coating of substrates is a critical aspect of manufacturing materials for batteries and Kodak plans to capitalize on its expertise in coating technology to develop opportunities in this area. In table 2 below, we properly analysed the M&A landscape in the global electric vehicle and energy storage battery materials industry and recognized three critical reasons for companies to make acquisitions. Firstly, allows the acquiror to expand or consolidate the presence within a territory, secondly allows to incorporate into the company a product or service that enables diversification and lastly, allows to invest in companies that can offer pioneering technological services and software, as the one conducted by Kodak on July 13, 2022. Investing \$25 million to acquire a minority preferred equity interest in Wildcat Discovery Technologies, Inc. (“Wildcat”), a private technology company that is developing a breakthrough EV and energy storage ‘super cell’ battery technology.

Looking forward, any M&A transaction would require significant expenditure by Kodak, which the authors do not think would be the best strategy for the company. Kodak’s investment should be directed towards developing the necessary structures to drive smart revenue for the company. Within this segment, various other investment opportunities are being looked at and developed. The ones that stood out are, and as referred in the upper section b., the light-blocking particles technology that Kodak has been developing for the textile market and also leveraging its proprietary copper micro-wire technologies and high-resolution printing expertise to contract manufacture custom transparent antennas for automotive, commercial construction, and other applications requiring excellent radio frequency and optical performance. This gains even more relevance, when we look at the rapid expansion of 5G and overall increase in radio frequency communications. The aesthetical part of being transparent is a bonus point, that makes these antennas, even more attractive to multiple end-use markets(Hering and Dholakia 2022).

Deal Type	Date	Target Name	Acquiror Name	Deal Value (In Billion USD)
Minority Preferred Equity Interest	Jun-22	Wildcat Discovery Technologies Inc.	Eastman Kodak Co.	0.25
Reverse merger	Jul-22	Deep Medicine Acquisition Corp.	Chijet Motor Co. Inc	2.26
Acquisition 100%	2022	TES-Envirocorp Pte. Ltd.	SK ecoplant Co. Ltd.	1.00
Acquisition 100%	Jul-22	Dynapower Co. LLC.	Sensata Technologies Holding PLC	0.58
SPAC Deal	2021	Lucid Group Inc.		11.75
Minority stake	2021	Tesla Inc.	Panasonic Holdings Corp.	3.6
Coinvestment	2021	SES AI Corp.	Koch Strategic Platforms LLC	0.275
Series D round (Unkown %)	2021	Wildcat Discovery Technologies Inc.	Koch Strategic Platforms LLC	0.9
IPO	Jan-21	LG Energy Solution Ltd		10.7
Share Sale	Jun-22	Contemporary Amperex Technology Co.		6.7

Table 2: M&A landscape in the global electric vehicle and energy storage battery materials industry

d) SWOT Analysis

Eastman Kodak Company is a company currently focusing on printing and imaging solutions. This is a company always known for their innovations in the past, namely in the photography department. Regardless, Kodak keeps investing in their R&D so new products and services serve as an opportunity for the business to shine in the future. However, the accelerated transition to digital due to the pandemic might serve as a threat to this opportunity, as well as some other aspects. Table 3 presents the SWOT analysis of Eastman Kodak Company.

	Positive	Negative
Internal	<p>Strengths</p> <ul style="list-style-type: none"> • Large portfolio of products • Investment in R&D in technology innovation • Focus on environmentally friendlier products and solutions • Brand marketing • Global Presence 	<p>Weaknesses</p> <ul style="list-style-type: none"> • High reliance on the printing segment • Unclear long-term strategy • Low P/L due to high-cost structure • Aging infrastructures

External	Opportunities
	<ul style="list-style-type: none"> • Expected future innovative products might bring Kodak up to the game again • Expansion to direct consumers rather than just corporations • Investment in 3D printing might serve a profitable opportunity

Threats

- Future global macroeconomic outlook has high inflation thus higher costs, lower growth
- Fierce competition
- Pandemic accelerated digitalization which affects main source of income

Table 3: SWOT Analysis

i. Strengths:

Kodak has a wide variety of products and services offered, as seen by their segments in the previous sub-chapter. As such, they can have several revenue streams. Not only do they sell around the globe, but they also possess manufacturing facilities for their several business segments around the globe too, namely in the US, Canada, Germany, China, and Japan. Furthermore, some regional distribution centres are also located within and outside of the US. This allows for a better cost effectiveness in the longer term and better market and customer-base opportunities.

Technology innovation was and still is one of the main focuses of this company with an average of 3% of their total revenues dedicated each year (based on their last 3 reportable years) to research of the next innovations. Their R&D team is focused on their headquarters, the Eastman Business Park, in New York. This once more gives opportunity for new business opportunities in the future.

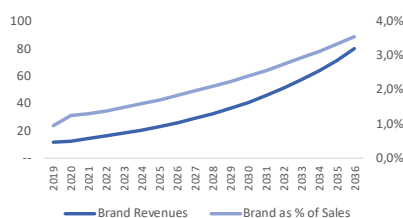
Following the growth of environmental awareness in the past few years, Kodak has committed itself to slowly make changes in their portfolio of products and processes with the aim of environmentally friendlier solutions. As a result, current offerings in the traditional printing segment eliminate the usage of chemicals, water, excess energy, and waste in the production, delivering clear cost savings but also a clear eco-friendlier practice.

Finally, the third-party licensing of the Kodak brand has been serving as an additional revenue stream given that the name is broadly known in the world. Kodak can monetize this recognition and further increase sales on this stream. In our valuation model we assumed the brand-derived revenues would improve throughout our estimation period, as graph 22 shows.

ii. Weaknesses

Despite having an extensive selection of items, the fact is around 80% of their revenues comes from printing alone. This might come as an issue due to the threat of digitalization in the longer term.

The presence in several markets might also show itself as a weakness in the sense



Graph 22: Brand Segment revenue stream of Kodak from 2021-2036. We expect improvements over the years of third-party licensing revenue.

that it is not very clear what their long-term strategy might be or what products they might want to focus on the future. For example, Kodak is currently focused on the printing business, but they still hold business in the pharmaceuticals industry since 2020 which is obviously very R&D intensive for product distinction.

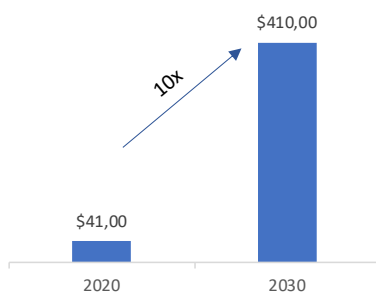
In the past 3 reportable years, Kodak presented negative operating income. This is mainly due to their low gross margins, even comparing with direct competition (14% versus an average of 30% of its peers) and negative operating margins in the last 3 years. Net income at the end of 2021 was positive due to secondary stream of income originated from their complex pension asset structure. This means their core business is currently not creating value. This is deal-breaking for investors, along with the fact that Kodak has not been paying any dividends to common shareholders.

Lastly, manufacturing facilities are starting to feel aged and with the current financial conditions of the company it might be difficult in the future to renovate them. This might affect the way Kodak implements new products in the future. This could also serve as an opportunity to better improve margins, but Kodak does not seem to have it in their short-term strategy to renovate said facilities.

iii. Opportunities

In mid-2022, Kodak has implemented a new product on its portfolio, the replacement for one of their products in the Digital Printing segment, more advanced and more useful for their clients than its predecessor. Aimed at the retail, point of purchase and packaging markets, Kodak is hoping to gain a few more customers and thus sales from this new product. In the future they also might enter the 3D printing market, where current investments are being made as R&D is dedicated to this opportunity, which might be profitable in the future. Research shows a CAGR of 24.3% for the period 2022-2029 (fortunebusinessinsights 2022). It might be a very profitable decision. However, capital must be invested to convert some of its production and additional research must be done to come up with a differentiated product.

Kodak is aiming to provide base materials for battery manufacturers which might prove like a profitable opportunity in a world where the demand for batteries is growing mainly due to the electrification of every car manufacturer's fleet to reach neutral carbon by 2050. Recent research from McKinsey & Company shows very optimistic expectations for battery manufacturers in terms of market growth, with over 10x expected growth until 2030 (Graph 23) (Campagnol, Pfeiffer, and Tryggestad 2022).



Graph 23: Expectation of growth for the battery manufacturing value chain. Source: McKinsey & Company

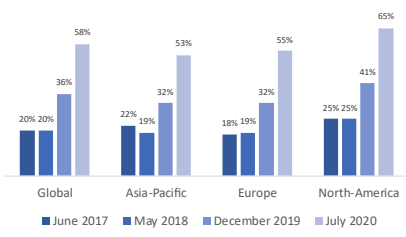
Another opportunity for Kodak is the expansion of their client base from just institutional to also direct consumers. For that, Kodak would have to release new products directed to consumers.

iv. Threats

Current macroeconomic conditions due to the reasons already mentioned in the external environment chapter, the global economy is slowing down, with high inflation rates affecting the prices of raw materials harming company’s margins. Kodak is suffering from these conditions, namely from aluminium prices, which is the main raw material used in manufacturing.

Furthermore, competition is also a threat for all the markets Kodak operates in. They are all very competitive, with major players like Canon, HP, Fujifilm, Screen, Agfa present. Kodak’s motion picture sub-segment may suffer from competition from digital substitution with digital capture solutions.

Rapid changes in technology like the sudden transition to digital during the pandemic makes companies like Kodak, which main business is printing have the probability in the future of suffering. McKinsey & Company has released a survey in October 2020 studying how Covid-19 has pushed companies to increased digitalization and how it has accelerated the digitalization more in a few months than the average rate from 2017 to 2019 (see Graph 24) (LaBerge et al. 2020). Additionally, sophistication in their products, is a must to thrive in the technological market. The future might harm the way Kodak adapts to new changes and new trends, particularly if capital expenditures need to be made to modernize production facilities to face these new changes and trends (MarketLine 2020).



Graph 24: Average share of customer interactions that are digital over the course of the pandemic in comparison with the period June 2017-May 2019. Source: McKinsey & Company

e) Ownership

On September 30 of 2022, Eastman Kodak reported 79.4 million common shares outstanding. Table 4 shows the biggest shareholders. Philippe Katz, top holder, is a board member of Kodak. The other 2 individuals in the top 3 are investors. The remaining top 10 are institutional investors Geographically, the top 10 holders of Kodak’s shares are all based in the USA (CNNBUSINESS 2022).

Most of them are US-based investment advisors with focus on long-term value. In fact, the Vanguard Group, based on Pennsylvania, USA has recently strengthened their position on the company, with the acquisition of 4 million shares (1.6% more), turning them into the shareholder with highest participation. Geographically, the top 10 holders of Eastman Kodak Co. are all based in the USA.

Holder	%Held
Katz (Philippe D)	13,51%
Richman (Darren L.)	8,04%
Karfunkel (George)	6,31%
The Vanguard Group, Inc.	4,83%
BlackRock Institutional Trust Comp	4,77%
Kennedy Lewis Investment Managei	4,66%
State Street Global Advisors (US)	2,82%
UBS Financial Services, Inc.	1,96%
Geode Capital Management, L.L.C.	1,42%
Great Lakes Advisors, LLC	1,27%

Table 4: Institutional Shareholders of Eastman Kodak Company, as of 15/12/2022. Source: CNN Business

f) Payout

Since filing for bankruptcy, Kodak has not distributed any dividends and does not plan to change that in the short term, as their current financial structure does not allow such payments. However, if a company never ever is expected to distribute any money to its shareholders, it is obviously creating zero value for them. Therefore, and according with our projections we project dividend payments from 2031 onwards, at a dividend pay-out rate of about 66.7%.

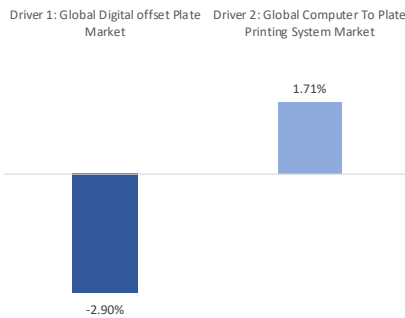
Market	CAGR
Traditional printing	2.35%
Digital offset plate offerings	-2.90%
Computer to Plate (CTP)	1.71%
Digital Printing	6.84%
Digital Printing	6.84%
Advanced Materials and Chemicals	6.88%
Industrial Film and Chemicals	4.00%
Motion Picture	8.50%
Functional Printing	19.26%

Table 5: Assumptions taken in forecasting of the revenues

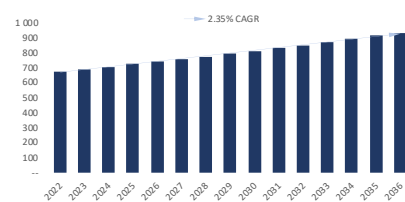
3. Value Drivers

a) Revenue breakdown

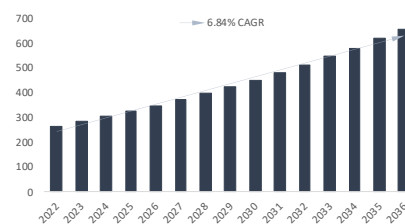
We decide to analyse the three main business segments, trying to purpose the reader an evolution of what the authors think could be the behaviour of Kodak in the production traditional, digital and chemicals units. Kodak provides information about its revenues by segment, and these are further divided by type (Sales and Services). However, the authors understood that each segment could be split into a combination of several other sub-segments which are perceived as important to understand the overall market's, behaviour and expectations for the future. Therefore, Kodak's revenues were forecasted by using an aggregation of each sub-segment's correspondent market size projection CAGR, such projections are showed in table 5.



Graph 25: Kodak's segments and its sub-segments and its respective CAGRs the future



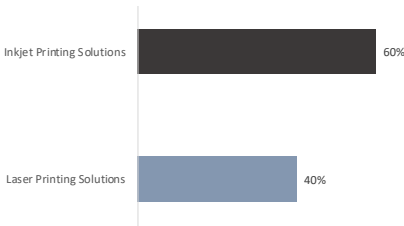
Graph 26: Kodak's forecasted revenues for the estimation period 2022-2036



Graph 27: Digital Printing segment revenues per year until 2036

Traditional Printing revenue forecasted is based on 1) the global digital offset plate market and 2) the global computer-to-plate printing system (see graph 25). Most notably the computer-to-plate market, where Asia-Pacific is the fastest growing region, due to corporate and government investment in digital platforms, as well as increased demand for modern solutions in the printing industry. North America is also expected to have significant growth over the forecasted period (MaximizeMarketResearch 2021). Therefore, we estimate the Traditional Printing revenues to grow accordingly, at a CAGR of 2.35% from 2022 to 2027 (see graph 26).

Digital Printing revenues are predicted to grow accordingly with the global digital printing market, at a CAGR of 6.84% (see Graph 27). Such growth is mostly driven by investments in IoT (see Graph 20) and artificial intelligence technologies as well as the rise in the usage of laser and inkjet printing solutions. Regarding the previous point, in Graph 28 we illustrate the global market share of each type of print head. However, despite accounting for a lower market share, the laser printing



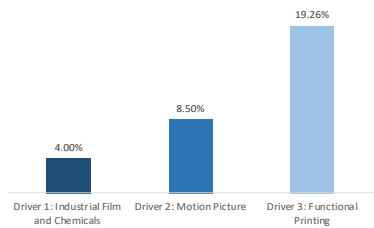
Graph 28: Market share of each type of print head

Region	Global RS 2021 (%)	Kodak Revenues 2021
North America	38%	117
Europe, Middle East and Africa	33%	85
Asia Pacific	22%	43
Latin America	7%	4

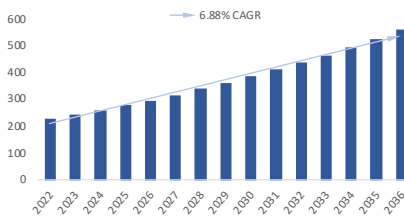
Table 6: Market share split by geography for 2021 globally and for Kodak

solutions have a higher projected growth over the estimation period. Lastly, alongside with Traditional Printing trends, Asia-Pacific is, also, projected to be the fastest growing region in the market, at a CAGR of 5.7% from 2022 to 2030, majorly driving Kodak’s revenues in the long-term. In Table 6 we provide the comparison between the market share split by geography for 2021 and Kodak’s geographical digital printing revenues for the same period.

Between the wide range of industries that the **Advanced Materials and Chemicals** aggregate, the authors selected the ones that found most relevant for Kodak. Hence is projected to be driven by 1) industrial film and chemicals market, 2) motion picture Industry and 3) global functional printing market (see Graph 29). Most notably the functional printing market, where the printing technologies have been demonstrated to be highly efficient and compatible with flexible polymeric materials such as inks and substrates. The flexible substrates for the wide range of applications such as sensor, display, battery, photovoltaic and others are thus, highly demanded. As explained in the strategy section, Kodak has chosen to develop and invest in battery, light-blocking particles, and copper micro-wire technologies, and as those are also seen as the most interesting prospects in the market, we expect Kodak, by its proven expertise to be able to follow the same trends. Combined the projected growth rates result in an overall CAGR of 6.88% from 2021 to 2029 (see Graph 30).



Graph 30: Value drivers for the Advanced Materials and Chemicals



Graph 29: Revenues for the advanced materials and chemicals segment until 2036

b) Costs breakdown

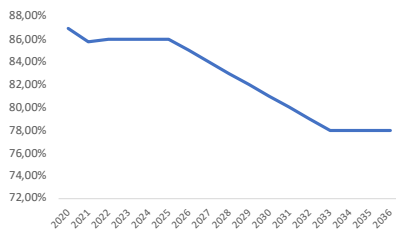
Next, we provide a rundown of the total costs of the core business of Kodak. This chapter analyses three different type of costs: COGS, SG&A and R&D expenses. Each sub-chapter will present an overview of the cost and what affects it, along with the chosen assumptions for the estimation period from 2022 until 2036. Kodak does not disclose a proper and detailed overview of each caption, but it provides relevant comments on their annual reports.

i. Costs of Goods Sold

The ongoing global impacts associated with the COVID-19 pandemic and, most recently, the war in Ukraine continue to impact Kodak’s operations. Kodak has been impacted by supply chain disruptions, travel restrictions, shortages in materials and labour, and higher raw material prices like aluminium, which was mentioned in the strategy chapter and graph 17 shows an estimation of its cost per metric ton over the next few years, distribution, and labour costs. More specifically, results of the ongoing war in Ukraine disrupted the worldwide supply of aluminium and electronic components, as suppliers are starting to divert from Russian

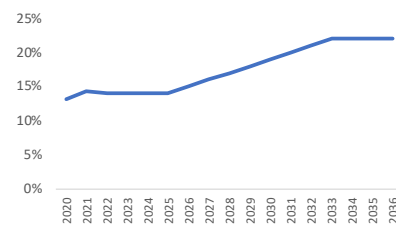
sources. These events are also playing a major role in the ongoing global energy crisis, and, therefore increased costs of energy and transportation, are expected to surge.

Cost of goods sold is the largest expense on Kodak’s income statement (see Graph 31). In 2021, that item alone accounted for almost 86% of total revenues, meaning a gross margin of about 14%, distant from the industry average of 30%. We assume, in the short-term, for that ratio to maintain equal to its historical average (for the sake of our valuation model, we considered until 2025). Although there might be operational improvements in the manufacturing, the rise in variable costs, like the ones previously mentioned, are considered to be enough to offset such improvements.



Graph 31: COGS as a percentage of revenues in our estimation period

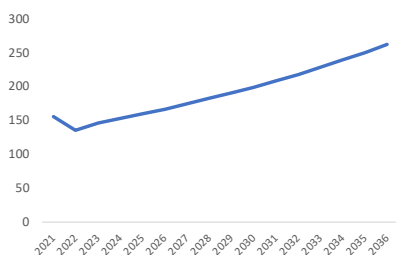
As Warren Buffet once said, “Without a crystal ball, it’s hard to know if and when a recession will hit or how long it might last, but if history is any indication of the future, the economy always recovers.”, meaning that eventually the economy will start to recover from the current recession indications. Macroeconomic growth will slow down and stabilize in the longer term and disruptions will ease down. This, along with strategic investments undertaken by Kodak will allow them to improve operating efficiencies, knowing that technologies and innovation will make machines and blue-collar workers more productive and consequently being able to enrich their margins. Graph 31 and Graph 32 show the behaviour of the COGS over revenues (as a percentage) and Gross Margin from 2020 until the end of our estimation period, where our main assumption is that they will be able to decrease said proportion over the years 2025-2033 period at a decrease of 10 percentual points per year, stabilizing in 2033 as they are closer to the industry average.



Graph 32: Gross Margin of Kodak over our estimation period

ii. Selling, General and Administrative Expenses

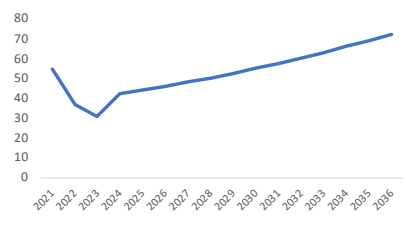
In absolute terms, we expect that SG&A costs continue to increase (see Graph 33), primarily driven by the increases in Property, Plant and Equipment, but also, by the increased salary expectations, pushed by surging inflation and the more significant needs of white-collar R&D employees, as the investment in R&D will continue to grow. Thus, we assume a static ratio equal to its historical average over PP&E, of the last known years.



Graph 33: SG&A Evolution since 2021 until 2036

iii. Research and Development

Kodak’s general practice is to protect its investment in research and development and its freedom to its inventions by obtaining patents. The ownership of such

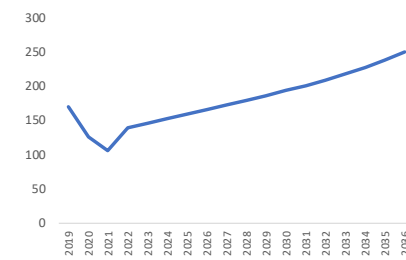


Graph 34: R&D Expenses since 2021 until 2036, as per our assumptions

patents contribute to Kodak’s ability to provide industry-leading products. The broad range of areas touched by those patents are very important to existing and emerging business opportunities that bear on Kodak’s overall business performance. As we perceive that, if the investment in research and product developing were inadequate, Kodak’s response to changes in customer needs and market dynamics may be too slow, and therefore adversely impact revenue streams.

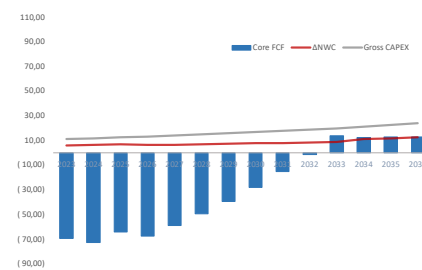
Taking that into account, we estimated that Kodak will grow its R&D expenses (see Graph 34) in the same rate as the revenues, as prior year’s show an approximate 3% of investment, as we understand that those are deeply related, as the increments in revenues are supported by the years of R&D investments and innovation.

c) Working Capital and Cash-Flow



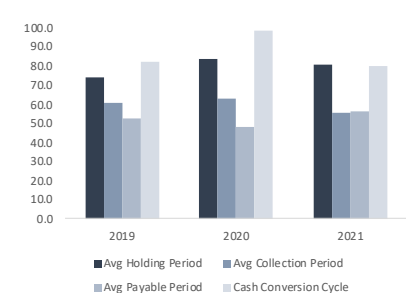
Graph 35: NWC over the estimation period

Kodak has not generated positive operating FCFs without supplementing such cash flows from with financing and monetization transactions over the past several years. The evolution of Core FCF alongside the year-on-year change in NWC is illustrated in Graph 36.



Graph 36: Core Free Cash-Flows alongside the Gross CAPEX

The NWC negatively affects FCF in 2023 especially for an increase of 4.3% in finished good inventory driven by the expected difficulties of manufactures in delivering products due to supply chain disruptions, a 4.4% increase in trade receivables, due to Kodak’s high historical collection period, balanced by a 4.6% increase in trade payables, that were estimated via the historical Average Payable Period, recently rose by the post-pandemic extension in payments time. We will have to wait until 2026 to see significant growth in FCFs until the stable state. This will be possible for three reasons: a gradual increase in NOPAT due to improvements in Gross Margin, a steady gross CAPEX, and a good working capital management.

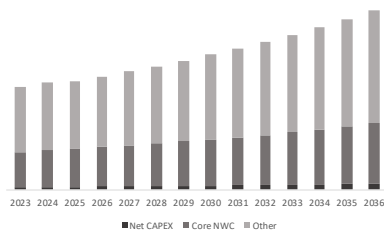


Graph 37: Cash Conversion Cycle and its captions

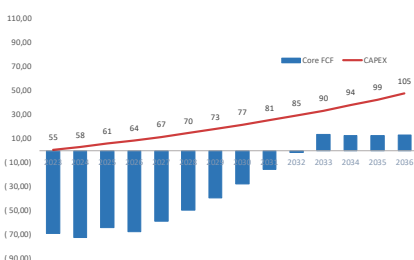
The cash conversion cycle gives the opportunity to analyse Kodak’s performance in the regular trade cycle. As shown in Graph 37, Kodak have been presenting a very healthy CCC over a recent past. Considering the expected stable trade cycle trends of the industries in which Kodak operates, we believe that Kodak will be able to maintain this speed in converting inventory into cash, and we are expecting to AHP, ACP and APP to remain stable and equal to the historical average level observed.

d) Capital Expenditures

As shown in Graph 38, the invested capital is projected to increase over the estimation period, and it is characterized by a high intensity of NWC and a low contribution of Net CAPEX. We forecast PP&E (including Operating leases right-of-use assets) in function of the Capital Asset Turnover, in order to accurately represent its evolution over time. The ratio for 2022 is calculated based on historical data and has a result, PP&E is estimated to increase 15% in relation to 2021. Onwards, we estimate the capital asset turnover to remain equal to its historical average of about 5.77, maintaining that level until the end of the estimation period. The idea behind this, is to grow PP&E, in the long term, accordingly with revenue growth, and to present accurate values of investment in PP&E for the short-term. It is logical that Kodak will keep investing in CAPEX to support the digital transition with up-to-date manufacturing facilities. Also, the value of D&A is never higher than CAPEX, which supports the idea that Kodak will continue to make small investments beyond those made to replace machines that have reached the end of their useful life. Assets, although we estimate for those to keep rising accordingly with If failing to capitalize its investments in CAPEX, Kodak may expect equipment failures, further obsolescence, and additional loss of employees with the specific knowledge base. Kodak's Capex is also influenced by Intangible assets, as we expect Kodak to continuously grow its patent portfolio. As one can see in Graph 39, CAPEX investments are projected to grow accordingly with the evolution of the future core free cash flows, reflecting the relevance of such driver over the company's future.



Graph 38: Invested Capital breakdown by Net CAPEX and NWC



Graph 39: Core Free Cash-Flows and Capex evolution over the estimation period

4. Valuation

a) WACC

i. WACC Assumptions

The **risk-free rate** used in the computation of the WACC was the US 10Y Treasury Bond yield with a settlement date of November 15th, 2022, and maturity November 15th, 2032, accessed on December 3rd, 2022, with a current yield of 3.50% (Risk-Free Rate).

Cost of net debt is equal to the risk-free rate since the net debt is negative and therefore the opportunity cost for the excess cash is equal to the riskless rate, which is 3.50%.

To estimate the appropriate **cost of equity**, the CAPM method was used. To

Company Name	Headquarters	Ticker
Eastman Kodak Company	USA	KODK:US
HP Inc	USA	HPQ:US
Fujifilm Holdings Corp	Japan	4901:JP
Ricoh Company Ltd	Japan	7752:JP
Canon Inc	Japan	7751:JP
Agfa Gevaert NV	Belgium	AGFB:BB
Screen Holdings Co., Ltd	Japan	7735:JP

Table 7: List of companies used to estimate the cost of capital

Company	Kodak	HP Inc	Fuji	Ricoh	Canon	Agfa	Screen	Average
β (Levered)	1.19	1.09	0.59	0.12	0.16	0.53	1.00	
β (Unlevered)	0.95	1.09	0.51	0.09	0.15	0.48	0.87	0.59
β (Relevered)	0.74							

Table 8: Betas levered and unlevered of each company derived from a regression between price history of each company upon the SPY SP500 ETF Fund, over a 2Y period

estimate the appropriate beta, a historical regression was conducted between Kodak, its main competitors (see Table 7) and a reference index as a proxy to the market, in this an ETF that follows (with over 99% correlation) the S&P500 index (SPY SP500 ETF), in a weekly two-year historical period since November 27th, 2020, until December 2nd, 2022. Kodak's sensitivity to the market is estimated at 1.19. A measure for the comparable group was also calculated, by unlevering each of the company's betas with their own D/E ratio and averaging the resulting unlevered betas. The result was an average unlevered beta of 0.59 and a relevered beta, accounting for Kodak's debt structure, of 0.74 (as Table 8 describes). It was decided to use Kodak's beta in relation to the market to compute the cost of equity. The market risk premium chosen was 5.6%, an estimation taken directly from Statista on December 9th, 2022. Variables considered, the CAPM estimation for the cost of equity is 10.17%.

Finally, the **equity and debt weights** were computed as per percentage of the Enterprise value. Kodak at the end of year 2021 had a Net Debt to Enterprise value of -29% and a debt-to-equity of 32.52%. This difference is due to amount of excess cash Kodak possessed in this year. When accounting for the debt-to-equity ratio, Kodak is among the average of its competitors. Therefore, the same ratio of debt to enterprise value will be used for this estimation.

Lastly, a **component for the preferred stock** was considered since it presents a considerable portion of the enterprise value. The cost of preferred stock is simply the interest rate of the preferred payments made by Kodak to preferred shareholders, which is 5.61%.

All variables considered, equity, debt and preferred stock and each accounting in terms of weight of the enterprise value, the **after-tax WACC** is estimated to be **9.92%**.

ii. Terminal Value Drivers

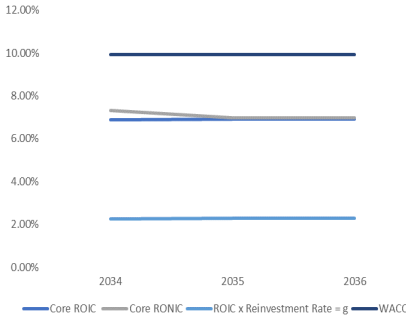
The authors believe that in the sectors that Kodak operates, companies' growth is directly linked to incremental invested capital. It is known that the continuing value formula should only be used if and when the cash flows are growing at a constant rate, or close to constant. We forecasted financials until 2036F to derive Kodak's future cash flows. The results obtained are a stable growth of future FCF from 2035 onwards, that consists at the same time-period where the estimated ROIC and RONIC became very close to each other, at level of about 7% (see Graph 40). Such results are somehow alarming, since in the terminal period we found ourselves with a ROIC lower than the estimated WACC, which could imply that the investments are destroying value instead of creating it, however such condition does not make it a poor investment now, as we expect Kodak to continuously assess the non-performing assets and get rid of them. For the terminal value of the business, we estimated a perpetuity growth rate (g) derived from the following formula: $ROIC \times \text{Reinvestment Rate}$ (see Graph 40). The considered 2.30% lies between the 2.00% growth rate of the future core free cash flows in the steady state and the projected long-term nominal GDP growth estimates, from IMF, OECD and Worldbank, of about 3.00%, on average.

b) Valuation Methods

i. DCF

The first assumption in our DCF model is about the core free cash flows of the company, estimated with the forecasting beliefs already described and subsequently discounted with the WACC of 9.92%. The terminal value was estimated with the long-term growth rate and also properly discounted. This way, the value of the core operations of Kodak was computed.

Secondly, the non-core business side of Kodak's operations was computed through its current book value. This is a reasonable assumption since the major bulk of the non-core invested capital and revenue stream is associated with the pension assets/liability's structure currently owned by Kodak, which represents over 62% of the total invested capital. Without a specialized analysis of these captions, which is outside of our scope and capacity, it is rather difficult to accurately estimate the appropriate value of this side of the company. Therefore, this book-value approach was chosen to complement the core company value and consequently estimate the intrinsic value of the whole company. The Non-core value was estimated with information from the last quarter of available information (as of September 30th), as we believe these captions would not change a lot in



Graph 40: Evolution of key profitability metrics in the long-term

value until the end of the year. As for the net debt, we assumed Kodak maintained the debt structure from the previous year, also taken in consideration in the WACC.

In spite of this, the core cash-flows of the company seem to allow for a negative valuation of the company by themselves, as table 9 (DCF Summary) show, which is probably the reason why investors in the market have been having such a pessimistic view of this stock, with current share price reaching 52-week low, as previously said. What seems to increment our DCF is the non-core business, which is valued at \$678m and consequently bumps up the share price to the theoretical value of \$4.77.

Despite this share price, we understand that it is difficult to comprehend a theoretical recommendation of a BUY when we are expecting the company to have negative cash-flows soon, so we decided to be critical about our results and further the study of the volatility of the price, by using different valuation approaches to better understand its value.

ii. Asset-based Approach

As stated throughout this report, our narrative has been that Kodak will be able to converge its gross margin towards the industry average, from 2025 onwards, leading to a positive valuation for the year of 2023. However, we also believe that if such assumption does not happen, meaning if the weight of COGS over Revenues remains equal to its historical average, the best solution for Kodak shareholders might be to liquidate the company.

In order to understand the value of the company based on the market price of its assets less the market price of its liabilities, an Asset-based Approach was performed. However, there must be adjustments made to get a fair value of the companies' assets (see Table 10).

Starting with the asset side of the firm, one can observe from the balance sheet from the Q3 2022, quarterly report that property, plant and equipment, PP&E amounted to \$147 Million. However, as stated by the company, the machines, manufacturing facilities and other such assets are starting to feel aged and with the current financial conditions of the company it might be difficult in the future to renovate them. Despite being hard to estimate a fair price for the machines and facilities, we find it reasonable to adjust the book value of this entry, down to 75%.

Looking at Current Assets, one can see that accounts receivable had negative change for the quarter, implying that receivables are being paid. However, Inventories had a positive change for the quarter, which is only normal due to the current macroeconomic conditions of the globe.

Amount in \$ millions, except per share data	2023
Company Value	(218)
Non Core IC @Book Value	678
Net Debt	(84)
Equity Value	376
Shares Outstanding	79
Share Price	\$4.77
Share Price (As of 14/12/2022)	\$3.45

Table 9: DCF Summary and Implied value per share

The authors believe the book value for accounts receivable to be reasonable, however, some small adjustments will be made, merely to be on the safe side. The entry will be adjusted down to 95% of book value, which amounted to a change of -\$8 million.

	Recovery Rate	2023
Assets		
Trade receivables, net	95.00%	155.80
Inventories, net	115.00%	313.95
Total current assets		731.75
Property, plant and equipment, net	75.00%	110.25
Goodwill	0.00	0.00
Intangible assets, net	0.00	0.00
Operating lease right-of-use assets	0.75	30.75
Total assets		2202.75
Total Liabilities		
	100%	1157.00
Preferred Stock	100%	201.00
Liquidation Value of Kodak		844.75

Table 10: Asset-based approach and the recovery rate estimated for each balance sheet caption

The book value of inventory amounted to \$273 million, which has to be adjusted as if they were to be sold today. The book value represents purchasing cost of the inventory, and as stated by the company they are stated at the lower cost or net realizable value, therefore if they were to be sold today it would be at a higher price. To estimate this inventory value correctly is very subjective and requires experience and knowledge beyond our understanding. However, an attempt will be made of fair market value. The authors will set a premium of 15% above book value. Which is thought to be fair, making the adjusted inventory to \$314 million. Putting the total assets to \$2203 million from the original \$2259 million.

To be conservative there will be no adjustments made to the liabilities, assuming the closing balance of the entry to be paid in full by Kodak. With the adjustments being made to Kodak's assets and liabilities it can now be seen as market values.

Total adjusted assets of \$2203 million and liabilities of \$1157 million. A fair estimated liquidation value would be equal to the difference between them. Resulting in a company value of \$845 Million.

iii. Market-based valuation

To study the cash-flow valuation approach, a market-based approach was done, with the use of the companies we have analysed in the external environment, in order to test how the market is valuing the company. The ongoing assumptions in this method would be to value Kodak through the application of relevant multiples based on the market value of comparable companies and test if the market's valuation goes or not in line with our DCF results.

Percentile Information	EV/Revenue	EV/EBITDA	P/E
High	1.13x	12.08x	28.43x
75th	1.00x	7.43x	20.33x
Average	0.67x	6.32x	9.54x
Median	0.71x	5.74x	14.36x
25th	0.41x	5.41x	7.06x
Low	0.08x	1.09x	-26.89x
Values in Millions, except per share data	EV/Revenue	EV/EBITDA	P/E
Implied EV	812.70	-86.06	344.56
Net Debt	41	41	41
Implied Market value	772	-127	345
Shares Outstanding	78.4	78.4	78.4
Implied Value per Share	\$9.84	-\$1.62	\$4.39
Mean		\$4.21	

Table 11: Statistical information about the multiples approach and implied price per share for each multiple analyzed

The used multiples for this valuation method were the broadly used EV/Sales, EV/EBITDA as well as the P/E. The following table 11 includes information about several relevant percentiles and statistical information about the estimated multiples, as well as the share price derived from each multiple, where the median values were chosen to compute the implied enterprise value for Eastman Kodak Co. The average share price for the three multiples is **\$4.21**.

Examining the results, what in most situations would be the best multiple for estimation purposes, the EV/EBITDA (or EV/EBIT for this matter) is irrelevant since Kodak presents negative operational results in the last periods. Using the Revenues/EV multiple instead, the result comes as too optimistic (\$7.75) given

that it gives the wrong picture for the company because it does not have in consideration important components of the company like the Capex or NWC or intrinsic operational costs themselves, so it tends to investigate companies in a more optimistic way. The price to earnings ratio however, despite more in line with our DCF results (implied value per share of \$4.39), can mislead investors because it bases too much the performance on the net result of the companies. On stable companies, it may be a valid ratio to use to compare performance based on the market. However, it becomes unrealistic when companies present negative operating income in the past and at the same time positive net returns. For this reason, we believe a market-based valuation is not credible enough to correctly assess Kodak's fair value. The fact that the core business has been having negative results and still come up with positive net results is worth to go through the DCF and study the impact of these costs. It is important to understand how the market is behaving and valuing Kodak, through its peers but again, the theoretical value behind the market-based valuation overvalues the business, when comparing with recent share price performance. Given all the variables behind it (macroeconomic conditions, company financials conditions), we cannot take any plausible conclusion from this method.

c) Scenario Analysis

After Sharing our predictions about Eastman Kodak and its behaviour over time through the DCF, we wanted to test the validity of the model to see how the price would change if two different scenarios were implemented, besides the one initially imagined. We have developed two scenarios that can quantitatively represent the potential advantages and disadvantages of this sector. Consequently, we have applied several assumptions in what the authors consider to be core elements of the model, such as: Revenues from Traditional Printing, Digital Printing and Advanced Materials and Chemicals, COGS, SG&A and Working Capital. We do not think that the company will change its CAPEX investment percentage over total revenues; in fact, Kodak will need to continuously support the digital transition by investing in the modernization of its machinery and facilities, since as stated by the company the state of the current ones can be a risk factor to the company success in the long term. Moreover, scenario assumptions are driven by a more deepened analyses of Kodak peers' behaviour, capital structures and operating ratios. Also, by the notion that Kodak's Revenues are strongly influenced by its ability to meet demand and to overcome the ongoing macroeconomic disruptions, therefore we assumed a scenario in which the problems arising from components shortages and supply chain disruption could be extended over time, and a scenario where

such problems are rapidly overcome.

i. Bear Scenario:

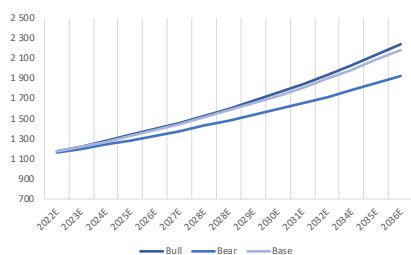
In this scenario, we have imagined that the negative impacts of supply chain disruptions and component shortages may spread until 2030, down changing the CAGRs of the three major business segments of Kodak. The authors assumed that the Traditional Printing segment would be affected by the residues of the pandemic; the projected decrease in this segment CAGR, is mostly driven by the assumption that sporadic and local lockdowns will continue across the Asia Pacific region, since it accounts for one of the highest market shares in the industry and is one of the biggest selling geographies of Kodak in this particular segment. Such events will limit growth and decrease the CAGR. For the Digital Printing and Advanced Chemicals and Materials businesses a decrease in revenue CAGRs of 1.2% and 1.0%, respectively, is projected. It is known that digital printing products are more costly than the ones traded in the conventional printing sector, therefore the authors assumed a scenario where the impacts of the rising inflation could be extended over time, denting the purchasing power, and decreasing revenue growth. Also, the authors believe that the printing volumes lost by the fall of traditional printing techniques, would be captured by the digital markets, offsetting a more brutal fall of this industry CAGR. We assumed, that Kodak would not be able to converge its margins towards the industry average, as fast as in the base case, in other words, the decrease in weight of COGS over Total Revenues happens at a lower rate. Graph 41 illustrates the evolution of the Gross Margin throughout the estimation period, in three different scenarios, better showing the impacts of such events. Lastly, the average holding period if the units in inventory will increase as Kodak will not be able to deliver all orders received, which will also contribute to the decrease in revenues.



Graph 41: Evolution of the Gross Margin over the estimation period, given the assumptions of each scenario

ii. Bull Scenario

The obstacles that Kodak is encountering in the introduction of successful innovative products at market competitive prices is not justified. As a result, the revenue CAGRs of the Digital Printing and Advanced Materials and Chemicals segments increase by 0.3%, simultaneously. Total revenues start to diverge mostly from 2027 onwards, as shown in Graph 42, the same time-period where the authors start to change the respective pace of gross margins convergency towards the industry average. Annual Digital Printing and Advanced Material and Chemicals revenue growth compared to the base case is shown in Table 13. On the other hand, the authors have estimated a decline in COGS over Total Revenues of about 1.5% per year in 2025-2032. Ultimately, this would result in



Graph 42: Revenues per scenario, color-coded

Bull Scenario	
Equity Value	1,027
Shares Outstanding	78.90
Share Price	13.02
Bear Scenario	
Equity Value	3
Shares Outstanding	78.90
Share Price	0.04

Table 12: Share price of each scenario. Above price is for the BULL scenario and below price is for the BEAR scenario

Kodak achieving a Gross Margin of 26% by 2032, as shown in Graphic 42. Such improvements will allow a newfound fluidity in the supply chain and product distribution, leading to a decrease in the Average Holding Period of inventories. The result is also characterised by a long-term organic growth rate of 4.88%.

The resulting share price of each scenario can be observed in Table 12, alongside with the respective equity value.

Taking into consideration our assumptions and given the in-depth analysis of market conditions, the author assesses that the probability of each of the scenarios occurring is 10% for the Bull and 45% for the Bear. Applying the probabilities to the respective share prices, leads to a weighted share price of \$3.47, is not in line with the theoretical value given by the DCF, whereas a HOLD recommendation is achieved which is aligned with the authors true belief.

Bear Scenario Amount in \$ millions, except per share	2023E	2024E	2025E	2026E	2027E	2028E	2028E	2029E	2030E	2031E	2032E	2034E	2035E	2036E
Revenues														
Traditional Printing	681.73	693.39	705.25	717.30	729.57	742.05	754.74	767.64	780.77	794.12	807.70	821.51	835.56	849.85
%Base Scenario	98.75%	98.14%	97.53%	96.92%	96.31%	95.71%	95.11%	94.52%	93.93%	93.34%	92.76%	92.18%	91.60%	91.03%
Digital Printing	277.88	293.55	310.11	327.60	346.07	365.59	386.21	408.00	431.01	455.31	480.99	508.12	536.78	567.06
%Base Scenario	97.77%	96.67%	95.58%	94.51%	93.45%	92.40%	91.36%	90.33%	89.32%	88.32%	87.32%	86.34%	85.37%	84.41%
Advanced Materials and Chemicals	237.66	251.64	266.44	282.10	298.69	316.25	334.85	354.54	375.38	397.46	420.83	445.57	471.77	499.51
%Base Scenario	98.14%	97.23%	96.32%	95.42%	94.53%	93.65%	92.77%	91.91%	91.05%	90.20%	89.36%	88.52%	87.70%	86.88%
Costs														
COGS	-1056.47	-1094.28	-1133.98	-1168.84	-1205.31	-1243.49	-1283.48	-1325.37	-1369.30	-1415.37	-1463.71	-1523.76	-1587.16	-1654.11
% Base Scenario	98.43%	97.65%	96.86%	96.08%	95.29%	94.51%	93.73%	92.95%	92.17%	91.39%	90.62%	89.86%	89.09%	88.34%
Gross Profit	172.15	178.31	184.78	198.41	212.89	228.29	244.68	262.12	280.68	300.47	321.55	344.74	368.67	393.38
Gross Margin	14.01%	14.01%	14.01%	14.51%	15.01%	15.51%	16.01%	16.51%	17.01%	17.51%	18.01%	18.01%	18.01%	18.01%
SG&A	-157.05	-162.67	-168.57	-174.77	-181.28	-188.13	-195.34	-202.92	-210.91	-219.33	-228.20	-237.56	-247.45	-257.89
% Base Scenario	98.43%	97.65%	96.86%	96.08%	95.29%	94.51%	93.73%	92.95%	92.17%	91.39%	90.62%	89.86%	89.09%	88.34%
CCC														
Inventories	298.25	308.93	320.14	329.98	340.27	351.05	362.34	374.17	386.57	399.57	413.22	430.18	448.07	466.98
AHP	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04	103.04
Bull Scenario Amount in \$ millions, except per share	2023E	2024E	2025E	2026E	2027E	2028E	2028E	2029E	2030E	2031E	2032E	2034E	2035E	2036E
Revenues														
Traditional Printing	690.33	706.54	723.14	740.13	757.51	775.31	793.52	812.16	831.24	850.77	870.75	891.21	912.15	933.57
%Base Scenario	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Digital Printing	285.88	306.32	328.22	351.69	376.84	403.78	432.65	463.58	496.73	532.25	570.30	611.08	654.77	701.59
%Base Scenario	100.58%	100.87%	101.17%	101.46%	101.75%	102.05%	102.34%	102.64%	102.94%	103.24%	103.54%	103.84%	104.14%	104.44%
Advanced Materials and Chemicals	243.63	261.17	279.97	300.13	321.74	344.90	369.74	396.36	424.90	455.49	488.28	523.44	561.13	601.53
%Base Scenario	100.60%	100.91%	101.21%	101.52%	101.82%	102.13%	102.44%	102.75%	103.06%	103.37%	103.68%	103.99%	104.31%	104.62%
Costs														
COGS	-1075.97	-1124.97	-1176.91	-1230.48	-1285.37	-1341.62	-1400.28	-1461.41	-1525.05	-1591.24	-1660.05	-1731.51	-1805.85	-1883.93
% Base Scenario	100.25%	100.39%	100.53%	100.68%	100.83%	100.99%	101.16%	101.33%	101.51%	101.69%	101.89%	102.08%	102.29%	102.49%
Gross Profit	175.32	183.31	191.77	222.23	255.28	291.14	330.06	372.30	418.17	467.98	522.08	579.20	638.67	701.59
Gross Margin	14.01%	14.01%	14.01%	15.51%	17.01%	18.51%	20.01%	21.51%	23.01%	24.51%	26.01%	26.01%	26.01%	26.01%
SG&A	-159.95	-167.23	-174.95	-183.14	-191.82	-201.04	-210.83	-221.23	-232.29	-244.05	-256.56	-269.89	-284.08	-299.21
% Base Scenario	100.25%	100.39%	100.53%	100.68%	100.83%	100.99%	101.16%	101.33%	101.51%	101.69%	101.89%	102.08%	102.29%	102.49%
CCC														
Inventories	235.05	245.76	257.10	264.44	272.06	279.98	288.20	296.75	305.63	314.85	324.42	341.27	359.22	378.35
AHP	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74	79.74

Table 13: Bear and Bull scenarios assumptions

d) Sensitivity Analysis

A sensitivity analysis was conducted to study the impact of changes in relevant factors on the share price obtained with the DCF method. The tested variables were the change in WACC and the change in the long-term growth rate.

The cost of capital is subjected to change due to the nature of the several variables among which it is estimated. The computation of WACC is dependent on a set of assumptions and estimations that can easily vary, for example, the beta, which was used on the CAPM to calculate the cost of equity, was estimated by studying the regression between Kodak and the SP500 ETF index fund over a 2-year period. However, if we extend or shorten this period, the slope will change and

therefore the cost of equity will also change. Other variables like the risk-free rate, or the cost of debt, which, as previously said, will have in the short term a bigger volatility associated due to the macroeconomic conditions described. Other variable that will impact the cost of capital is the capital structure of Kodak, which they may decide to change in the future. All in all, by testing the share price, subjected to overall changes in the WACC, we are accounting for possible changes in all these variables inside of it.

As for the terminal growth rate, we decided to adjust it by 20%, 30% and 40%, in both upside and downside, to test the impact on the share price.

Following the analysis, table 14 shows a better view of the different combinations among the 2 variables. What we see is that changes in the WACC or the growth rate does not change a lot the outcome of our DCF. This is because FCFs in longer term are low in absolute terms and the terminal value is also quite low so, it's natural that bigger discount rates will not affect the share price that much. Same reasoning for the growth rate. What seems to keep the share price inside the BUY interval is once again the Non-Core Invested capital because it is not affected by either the WACC or the organic growth. Therefore, this sensitivity analysis does not allow us to take any consolidated conclusions either.

	WACC							
	8.43%	8.93%	9.43%	9.92%	10.42%	10.91%	11.41%	
Long-term organic growth (g)	3.22%	\$5.12	\$5.01	\$4.93	\$4.86	\$4.82	\$4.78	\$4.76
2.99%	\$5.07	\$4.97	\$4.90	\$4.84	\$4.80	\$4.76	\$4.74	
2.76%	\$5.03	\$4.94	\$4.87	\$4.81	\$4.78	\$4.75	\$4.73	
2.30%	\$4.95	\$4.87	\$4.81	\$4.77	\$4.74	\$4.72	\$4.70	
1.84%	\$4.88	\$4.81	\$4.77	\$4.73	\$4.71	\$4.69	\$4.68	
1.61%	\$4.85	\$4.79	\$4.74	\$4.71	\$4.69	\$4.68	\$4.67	
1.38%	\$4.82	\$4.76	\$4.72	\$4.70	\$4.68	\$4.66	\$4.66	

Table 14: Sensitivity Analysis of our DCF results

e) Football Field

Below, in Graph 43, we present to the reader a football field chart, in order to give a visual summary of the most relevant results, achieved throughout the report. For the comparable metrics, we used P/E and EV/Revenue, 25th and 75th percentile, as the low and maximum values, respectively. We also present the share prices achieved through the DCF method, in the Bull and Bear scenarios, and lastly the highest and lowest value from the previous 52-week trading range.



Graph 43: Football field of current share price and comparison with results obtained through the different methods used.

5. Investment Recommendation

Following all the analysis and despite the positive expectations derived from the DCF result, we do not forget that this is still a no dividend-paying, CCC+ (speculative grade) rated business and there is too much risk in the company and in the economy to bet on the success of this company. Our recommendation will follow the conclusions of the scenario analysis, which contain 3 scenarios with slightly different assumptions and therefore we recommend **HOLDING**.

The future of Kodak depends heavily on the success of the decisions taken in the short term. Again, they suffer from very low to negative margins, even when comparing with their direct peers. All things considered, there are plenty of areas in which Kodak must improve. Obviously, by assuming Kodak will have its revenues growing accordingly with the market, we are assuming that they will be able to do so, which is a bit optimistic. However, the future is uncertain and given the ongoing macroeconomic conditions, it might be possible that Kodak is not able to thrive and improve their results. In all honesty, the key case for the 130+ year old business seems to be the successful implementation and success of new business lines in the foreseeable future, since their main source of revenue does not show very good expectations. This leads to their research and development team. Kodak must be able to come up with innovative technology to have competitive advantage in new markets. There is definitely an opportunity in the battery technology industry for example, but large capital investments are needed to make this happen, which Kodak does not seem to have right now. In second place, Kodak must be able to improve their cost structure and that implies cost reduction measures. In fact, some have already been implemented, as per information of the quarterly reports of 2022, to cope with increasing costs of raw materials and electricity.

If they fail however to make the correct decisions, to improve their margins, overall profitability, as well as solvency ratios, it might be the case in the future that the company must resort to bankruptcy filing and possibly liquidation. It will ultimately come down to their ability to make big changes in their line-up to save themselves from this scenario.

In conclusion, we are confident that the **HOLD** recommendation is the most adequate, given everything already described.

6. Appendix

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b) Reformulated Income Statement

	December 31,																	
(In millions of \$, except share and per share data)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Core Business																		
Revenues by segment																		
Traditional Printing	727	592	659	674	690	707	723	740	758	775	794	812	831	851	871	891	912	934
%Revenues	58.5%	57.5%	57.3%	56.4%	55.3%	54.2%	53.1%	52.0%	50.9%	49.8%	48.7%	47.6%	46.4%	45.3%	44.2%	43.1%	42.0%	40.9%
Digital Printing	293	241	249	266	284	304	324	347	370	396	423	452	483	516	551	588	629	672
%Revenues	23.6%	23.4%	21.7%	22.2%	22.8%	23.3%	23.8%	24.4%	24.9%	25.4%	25.9%	26.4%	27.0%	27.5%	28.0%	28.5%	28.9%	29.4%
Advanced Materials and Chemicals	200	172	212	227	242	259	277	296	316	338	361	386	412	441	471	503	538	575
%Revenues	16.1%	16.7%	18.4%	18.9%	19.4%	19.9%	20.3%	20.8%	21.2%	21.7%	22.1%	22.6%	23.0%	23.5%	23.9%	24.3%	24.8%	25.2%
Brand	12	13	15	17	19	21	23	26	29	33	37	41	46	51	58	64	72	81
%Revenues	1.0%	1.3%	1.3%	1.4%	1.5%	1.6%	1.7%	1.8%	2.0%	2.1%	2.3%	2.4%	2.6%	2.7%	2.9%	3.1%	3.3%	3.5%
Others	10	11	15	12	13	13	14	14	15	16	16	17	18	19	20	21	22	23
%Revenues	0.8%	1.1%	1.3%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Total Revenues	1242	1029	1150	1196	1248	1303	1361	1423	1488	1557	1630	1708	1790	1877	1970	2068	2173	2284
COGS	(1060)	(894)	(986)	(1028)	(1073)	(1121)	(1171)	(1209)	(1250)	(1292)	(1337)	(1383)	(1432)	(1483)	(1536)	(1613)	(1695)	(1781)
Gross Profit	182	135	164	168	175	183	191	214	238	265	294	325	358	394	434	455	478	503
Gross Margin	14.7%	13.1%	14.3%	14.0%	14.0%	14.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%	21.0%	22.0%	22.0%	22.0%	22.0%
SG&A, net of D&A	(156)	(135)	(146)	(153)	(160)	(167)	(174)	(182)	(190)	(199)	(208)	(218)	(229)	(240)	(252)	(264)	(278)	(292)
D&A	(55)	(37)	(31)	(42)	(44)	(46)	(48)	(50)	(53)	(55)	(58)	(60)	(63)	(66)	(70)	(73)	(77)	(81)
Other operating (income) expense, net	(15)	14	6	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5
Research and development costs	(42)	(34)	(33)	(38)	(40)	(42)	(43)	(45)	(47)	(50)	(52)	(54)	(57)	(60)	(63)	(66)	(69)	(73)
Core Result Before taxes	(86)	(57)	(40)	(63)	(66)	(69)	(72)	(61)	(49)	(35)	(21)	(5)	13	33	54	57	59	62
Statutory Tax	18	12	8	13	14	14	15	13	10	7	4	1	(3)	(7)	(11)	(12)	(12)	(13)
Tax Adjustments	(22)	6	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Core Result	(90)	(39)	(11)	(50)	(52)	(54)	(57)	(48)	(38)	(28)	(16)	(4)	10	26	43	45	47	49
Core Margin	-7.24%	-3.79%	-0.92%	-4.16%	-4.16%	-4.16%	-4.16%	-3.37%	-2.58%	-1.79%	-1.00%	-0.21%	0.58%	1.37%	2.16%	2.16%	2.16%	2.16%
Non-core Business																		
Restructuring costs and other	(16)	(17)	(6)	(14)	(14)	(15)	(16)	--	--	--	--	--	--	--	--	--	--	--
Pension income excluding service cost component	104	98	102	107	111	116	121	127	133	139	145	152	160	168	176	185	194	204
Other income (Charges), net	(46)	(386)	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Non-Core Result before taxes	42	(305)	101	93	97	101	106	127	133	139	145	152	160	168	176	185	194	204
Statutory Tax	(9)	64	(21)	(20)	(20)	(21)	(22)	(27)	(28)	(29)	(31)	(32)	(34)	(35)	(37)	(39)	(41)	(43)
Total Tax Adjustments	(22)	(253)	(19)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Non Core Result After Taxes	11	(494)	61	73	77	80	84	100	105	110	115	120	126	132	139	146	153	161
Other comprehensive income (Loss)	(6)	(29)	667	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211
Earnings from discontinued operations, net of income taxes	207	3	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Core Result	212	(520)	728	284	287	291	294	311	316	320	326	331	337	343	350	356	364	372
Financial Business																		
Interest expense	(16)	(12)	(33)	(33)	(42)	(50)	(59)	(67)	(76)	(85)	(94)	(104)	(115)	(125)	(137)	(141)	(145)	(149)
Loss on early extinguishment of debt	--	(2)	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial Result before taxes	(16)	(14)	(33)	(33)	(42)	(50)	(59)	(67)	(76)	(85)	(94)	(104)	(115)	(125)	(137)	(141)	(145)	(149)
Statutory Tax	3	3	7	7	9	11	12	14	16	18	20	22	24	26	29	30	30	31
Statutory tax rate	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	22.1%	32.1%	42.1%	52.1%
Financial Result	(13)	(11)	(26)	(26)	(33)	(40)	(46)	(53)	(60)	(67)	(75)	(82)	(91)	(99)	(108)	(111)	(114)	(118)
Total Comprehensive Income (Reformulated)	110	(570)	691	208	202	197	191	210	217	226	235	245	257	270	284	290	296	303

c) Free Cash Flow Map

Free Cash Flow Map	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Core Activities																	
NOPAT (=Core result)	(39)	(11)	(50)	(52)	(54)	(57)	(48)	(38)	(28)	(16)	(4)	10	26	43	45	47	49
D&A	37	31	42	44	46	48	50	53	55	58	60	63	66	70	73	77	81
Gross CF	(2)	20	(7)	(8)	(8)	(9)	2	14	27	41	57	74	92	112	118	124	130
ΔNWC	(44)	(19)	33	6	6	7	6	6	7	7	8	8	8	9	11	12	12
CAPEX	(1)	13	78	55	58	61	64	67	70	73	77	81	85	90	94	99	105
ΔNet Other Operating Assets	(18)	7	1	0	0	(12)	0	0	0	0	0	0	0	0	0	0	0
Core FCF	61	19	(120)	(69)	(73)	(64)	(68)	(59)	(50)	(39)	(28)	(15)	(2)	14	12	13	13
Non Core Activities																	
NOPAT (=Non Core result)	(520)	728	284	287	291	294	311	316	320	326	331	337	343	350	356	364	372
Change in Non Core IC	(15)	796	205	(7)	(7)	(8)	(9)	(10)	(10)	(11)	(12)	(13)	(14)	(15)	(17)	(18)	(19)
Non-core FCF	(505)	(68)	79	294	298	302	320	325	331	337	343	350	357	365	373	382	391
Free cash flow Firm	(444)	(49)	(41)	225	225	238	252	266	281	298	315	335	356	378	385	394	404
Financial Activities																	
Financing Result	(11)	(26)	(26)	(33)	(40)	(46)	(53)	(60)	(67)	(75)	(82)	(91)	(99)	(108)	(111)	(114)	(118)
ΔNet Debt	(93)	62	67	(192)	(186)	(192)	(200)	(206)	(214)	(223)	(233)	(244)	(257)	(81)	(81)	(82)	(84)
ΔEquity	(22)	704	208	202	197	191	210	217	226	235	245	257	270	95	97	99	101
Total Comprehensive Income	(570)	691	208	202	197	191	210	217	226	235	245	257	270	284	290	296	303
Financing FCF	444	49	41	(225)	(225)	(238)	(252)	(266)	(281)	(298)	(315)	(335)	(356)	(378)	(385)	(394)	(404)

d) Reformulated Balance Sheet

(In millions of \$, except share and per share data)	2019	2020	2021	1Q22	2Q22	3Q22	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Net Cash provided by (used in) Operations	12	(35)	(47)	(43)	(103)	(130)	(26)	(27)	(28)	(30)	(31)	(32)	(34)	(35)	(37)	(39)	(41)	(43)	(45)	(47)	(50)
Inventories, net	215	206	219	247	262	273	225	234	245	256	264	273	282	292	302	313	324	336	352	370	389
Trade receivables, net	208	177	175	182	191	164	196	205	214	223	233	244	255	267	280	293	308	323	339	356	374
Other current assets	36	39	42	43	37	37	41	43	45	47	49	51	54	56	59	62	65	68	71	75	79
Property, plant and equipment, net	230	200	187	192	188	188	215	224	234	245	256	267	280	293	307	322	337	354	372	390	410
Goodwill	12	12	12	12	12	12	12	12	12	--	--	--	--	--	--	--	--	--	--	--	--
Intangible assets, net	47	39	34	32	32	30	42	44	46	48	50	52	55	57	60	63	66	69	73	76	80
Other long-term assets	37	37	37	--	--	36	39	41	43	44	46	49	51	53	56	58	61	64	68	71	75
Accounts payable, trade	(153)	(118)	(153)	(153)	(182)	(168)	(148)	(154)	(161)	(168)	(174)	(180)	(186)	(192)	(199)	(206)	(213)	(221)	(232)	(244)	(256)
Other current liabilities	(148)	(143)	(129)	--	--	--	(148)	(154)	(161)	(168)	(176)	(184)	(192)	(201)	(211)	(221)	(232)	(243)	(255)	(268)	(282)
Other long-term liabilities	(24)	(42)	(35)	--	--	--	(36)	(38)	(39)	(41)	(43)	(45)	(47)	(49)	(52)	(54)	(57)	(59)	(62)	(66)	(69)
Core Invested Capital	472	372	342	512	437	442	412	430	448	456	475	496	518	541	565	591	618	647	680	714	751
Restricted cash - current portion included in other assets	12	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Restricted cash	45	53	54	58	57	57	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Current assets held for sale	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Other long-term assets	18	18	18	--	--	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Pension and other postretirement assets	173	262	1022	1 049	1 181	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198	1 198
Deferred Income Taxes	147	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Operating leases	(60)	(61)	(58)	(54)	(51)	(48)	(55)	(52)	(49)	(46)	(44)	(41)	(39)	(37)	(35)	(33)	(31)	(29)	(28)	(26)	(25)
Pension and other postretirement liabilities	(378)	(406)	(382)	(375)	(358)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)	(336)
Other current liabilities	(53)	(21)	(13)	--	--	--	(30)	(31)	(32)	(34)	(35)	(37)	(39)	(40)	(42)	(44)	(47)	(49)	(51)	(54)	(57)
Other long-term liabilities	(207)	(170)	(170)	--	--	--	(191)	(200)	(208)	(218)	(228)	(238)	(249)	(261)	(273)	(286)	(300)	(315)	(331)	(347)	(365)
Non-Core Invested Capital	(301)	(316)	480	687	838	919	685	678	671	663	654	644	634	623	610	597	583	567	551	533	514
Total Business Invested Capital	171	56	822	1 199	1 275	1 361	1 097	1 108	1 119	1 118	1 129	1 140	1 152	1 163	1 175	1 188	1 201	1 215	1 230	1 247	1 264
Net Debt																					
Excess Cash	(221)	(231)	(409)	(352)	(392)	(346)	(336)	(595)	(846)	(1 102)	(1 364)	(1 639)	(1 924)	(2 220)	(2 529)	(2 853)	(3 193)	(3 362)	(3 473)	(3 587)	(3 702)
Financial Debt	111	19	254	257	309	313	254	322	388	451	514	582	653	726	802	882	966	1 053	1 084	1 116	1 148
Redeemable, convertible preferred stock	182	191	196	198	199	201	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
Net Debt	72	(21)	41	103	116	168	108	(84)	(269)	(461)	(661)	(867)	(1 081)	(1 304)	(1 537)	(1 781)	(2 038)	(2 119)	(2 199)	(2 282)	(2 365)
Equity	99	77	781	782	901	901	989	1 192	1 388	1 579	1 790	2 007	2 233	2 468	2 713	2 969	3 239	3 333	3 430	3 529	3 630

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Report Recommendations

Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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