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Kakao Corporation: Equity Valuation

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Acknowledgements

It feels only right to begin a project of this dimensions- and not just in its number of pages- with some words to my loved ones. The ones who need to be acknowledged here since their names are not allowed in the cover as well. This might sound overly dramatic but that is exactly what this thesis is to me. And like in all good drama, there are several characters playing their part every day in order to keep the story going. The main character alone would not be able to pull it through. Fortunately, I was never alone.

Yet, it was still a rollercoaster of a plot to this day. A plot filled with learning, doubts, long-term thinking, more doubts, some more learning and a lot of patience from all the special characters in my life that I NEED to give thanks to, from now on:

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This chapter has ended now so I can look back and admit how hard, happy, unpredictable, tiresome and exciting it was. As any other good, respectable plot should be.
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Resumo

Esta tese apresenta uma avaliação de capital próprio da Kakao Corporation, uma empresa digital sul-coreana, com o obejtivo de determinar se o preço das suas ações no fim do ano de 2023 estavam de acordo com o seu valor intrínseco. Desta forma, será possível realizar uma recomendação sobre decisões de investimento na Kakao. Foi utilizado o modelo de Fluxo de Caixa Descontado (DCF) como método principal de estimativa, acupulado com uma Análise de Sensibilidade tendo em conta as variáveis predominantes que influenciam o seu preço. Como método secundário e de suporte à análise absoluta realizada previamente, uma análise Relativa foi tambem efetuada. Assim, recorrendo aos Múltiplos considerados mais pertinentes, os rácios EV/EBITDA e P/S, é possível obter uma avaliação mais confortável e em linha com outras empresas cotadas em mercados semelhantes.

Os resultados indicam que a Kakao Corp estava sobrevalorizada pelo mercado à data do estudo, concluindo portanto que o recomendável seria vender as suas ações. Além de servir como orientador no sentido da decisão venda/compra, este projeto também oferece *insights* sobre os potenciais riscos e retornos associados à mesma.

Classificação JEL: G17 – Previsão e Simulação Financeira; G30 – Mercados Financeiros Gerais; G32 – Política de Financiamento; Risco Financeiro e Gestão de Risco; Estrutura de Capital e Propriedade.

Palavras-chave: Avaliação de Capital Próprio, Kakao Corp, Coreia do Sul, Avaliação Intrínseca, Decisão de Investimento, Fluxos de Caixa Descontados, Avaliação Relativa, Múltiplos.

Abstract

This thesis presents an equity valuation of Kakao Corporation, a South Korean digital company, to determine whether its stock was correctly priced by the end of 2023 and to provide a recommendation on whether to invest in the company. Utilizing a combination of fundamental analysis, financial forecasting models, and valuation methods such as the Discounted Cash Flow (DCF) model and Price-to-Sales (P/S) ratio, this research project aims to derive the intrinsic value of Kakao Corp's equity and compare it with the market's percerpction at the same date.

Key financial metrics were forecasted based on historical performance, industry trends, and macroeconomic factors. Sensitivity analysis was conducted to account for varying assumptions regarding revenue growth, profit margins and discount rates. The results indicate that Kakao Corp's stock was overvalued at the time, since its intrinsic value according to this project was not as high as its market price. Thus, the recommendation based on the findings was to sell the stock, while also offering insights into the potential risks and rewards associated with that decision.

JEL Classification: G17 – Financial Forecasting and Simulation; G30 – General Financial Markets; G32 – Financing Policy; Financial Risk and Risk Management; Capital and Ownership Structure.

Keywords: Equity Valuation, Kakao Corp, South Korea, Intrinsic Valuation, Investment Decision, Discounted Cash Flows, Relative Valuation, Multiples.

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Glossary

CAGR - Compound Annual Growth

CAPEX - Capital Expenditures

CAPM - Capital Asset Pricing Model

CEO - Chief Executive Office

CIT- Corporate Income Tax

CPI - Consumer Price Index

CRP- Country Risk Premium

D/E Ratio - Debt-to-Equity Ratio

DMA- Digital Markets Act

D&A - Depreciation & Amortization

DCF - Discounted Cash-Flow

E - Equity

EBIT - Earnings before Interest, Taxes and Depreciation & Amortization

EV - Enterprise Value

EV/EBITDA - Enterprise Value to Earnings before Interest, Taxes and Depreciation & Amortization Ratio

FCF - Free Cash-Flow

FCFF - Free Cash-Flow to the Firm

FY- Fiscal Year

GDP- Gross Domestic Product

IPO - Initial Public Offering

KCC- Korea Communications Commission

KFTC- Korea Fair Trade Commission

KRW- Korean Won

MRP - Market Risk Premium

NOPLAT - Net Operating Profit Less Adjusted Taxes

NPV- Net Present Value

NWC - Net Working Capital

P/S- Price-to-Sales Ratio

R&D - Research & Development

ROA - Return on Assets

ROE - Return on Equity

ROIC - Return on Invested Capital

SNS- Social Networking Services

TGR- Terminal Growth Rate

TV- Terminal Value

WACC - Weighted Average Cost of Capital

WC - Working Capital

Introduction

Equity valuation is a topic that never loses relevance in corporate finance, thus, in the world. Its essence of trying to attain the closest to a company's fair value is what moves people through trust. A robust valuation model is able to inspire confidence in investors, companies and other stakeholders to make informed decisions about capital allocation, investment opportunities and risk management.

This equity research in particular focuses on Kakao Corporation, a South Korean technology giant, to assess its financial performance and market valuation for the year ended in 2023. As a leading player in the digital industry, Kakao Corp operates across a diverse array of sectors, including mobile messaging, online platforms, entertainment, and financial technology, making it a key contributor to the South Korean economy and a major player in the global tech market. In 2023, Kakao faced a dynamic business environment, marked by heightened competition, regulatory pressures, and shifting consumer preferences, particularly in its core services like KakaoTalk and KakaoPay. At the same time, the company explored new growth opportunities in artificial intelligence, digital content, and global expansion, aiming to diversify its revenue streams and enhance its market position.

To reach the primary objective of this project, evaluating whether Kakao Corp's stock was correctly priced by the end of 2023, some theoretical study was needed regarding which would be the best models to apply to Kakao's specificities. That knowledge is comprised in the first chapter, followed by a macroeconomic overview of South Korean markets and industry trends, emphasizing the ones Kakao operates in. After gathering insights about the financial, legal and economic environment where the company is inserted, another chapter begins with an outlook about Kakao Corp. Understanding the business to a certain extent is fundamental to interpret historical data and its evolution over time. Finally, for the fourth and last chapter, using a combination of the Discounted Cash Flow (DCF) analysis and relative valuation, supported by a set of assumptions thoroughly explained, a result was obtained: Kakao Corp was trading at a discount at the time.

This analysis concludes with a recommendation to sell Kakao Corp's stock, considering both risks and opportunities as the company navigates the evolving digital landscape in South Korea and beyond.

1. Literature Review

1.1 Valuation

Security valuation stands as a fundamental process in the financial landscape, providing investors with a systematic framework to assess the worth of financial instruments such as stocks, bonds and other securities. But in applying analysis to the field of securities we encounter the serious obstacle that investment is by nature not an exact science (Graham & Dodd, 2009). This statement encapsulates the essence of security valuation - a dynamic discipline that navigates the complexities of financial markets.

To succeed at valuation, a concept one should attempt to grasp is of value itself. In the context of economics and finance, the term value can be related to price, but they are not the same. While price is a quantifiable and objective measure determined by market forces, value is a more personal and qualitative assessment that varies among individuals. It represents the overall satisfaction from that purchase, encompassing factors beyond the monetary transaction. According to Damodaran (2012), the models that we use in valuation may be quantitative, but the inputs leave plenty of room for subjective judgments. Thus, the final value that we obtain from these models is colored by the bias that we bring into the process.

Regardless of its subjective nature, a thoughtfully conducted valuation serves to pinpoint necessary measures for enhancing a company's worth, drawing in fresh capital, or forecasting potential gains from an initial public offering. Ultimately, the objective of the valuation is to give current shareholders, managers, potential buyers, and other related stakeholders an overall value of what a company is worth at a point in time (Steiger, 2008). Hence, it is a process that should not be understated, given its central role in measuring how well a firm is attaining its goal of value creation. And, just like Koller et al. (2020) highlighted, companies create value for their owners by investing cash now to generate more cash in the future.

That said, over the years, a diverse array of models has been developed for this purpose, with some of them more suitable for certain companies than others. To Young et al. (1999), there is not only one model, which is correct and though more reliable every time. The imperfections of the data should be the drivers to choose the correct approach to use. Bearing this in mind, Damodaran (2012) proposed three approaches to valuation: discounted cash flow (DCF) valuation, relative valuation and contingent claim valuation; the latter used to price assets with options' features.

In this research project the first two methods will be carried out to estimate Kakao's share price by the end of 2023. This choice of methodologies is justified by Kaplan & Ruback (1994),

who agree that using both DCF and comparable methods, explain significantly more variation in transaction values than either method alone.

1.2 Discounted Cash Flows (DCF) Model

Ever since the introduction of the DCF model by John Williams in 1938, brought to the forefront by Fama and Miller in 1972, this method is likely the most widely employed to estimate a company's value. In Fernández (2002) opinion, it is the only conceptually correct valuation in the financial world.

Obtained by following the principal that the value of a company can be derived from the present value (PV) of its projected free cash flows (FCF) discounted at an appropriate rate of return. FCF are the amount of cash available to companies after certain claims are met. Depending on which stakeholder´s point of view is considered, the valuation may proceed as follows:

$$Value\ of\ equity = \sum_{t=1}^{t=n} \frac{CF\ to\ equity_t}{(1+R_e)^t} \quad (1)$$

$$Value\ of\ firm = \sum_{t=1}^{t=n} \frac{CF\ to\ firm_t}{(1+WACC)^t} \quad (2)$$

where n = life of the asset; CF_t = Expected Cash Flow in period t; R_e= cost of Equity.

$WACC$ = Weighted Average Cost of Capital.

On one hand, Free Cash Flows to Equity (FCFE) or Levered Free Cash Flows represent the amount generated by companies' operations available to shareholders to distribute as dividends, shares buybacks or other uses. It is the value left once operating expenses, taxes and investments in operating capital are settled, net of debt and non-operating assets. From FCFE the Equity Value (EQV) is attainable but frequently challenging to, given the complexity of predicting future net borrowings.

On the other hand, Free Cash Flows to Firm (FCFF) or Unlevered Free Cash Flows, comprehend the residual value both equity and debt holders are entitled to, after deducting all capital expenditures (Capex). This time, the Enterprise Value (EV) is the output stemming from discounting directly the FCFF, as shown in equation (2).

Equity and Enterprise Values are two valuable metrics in analysis and valuation, and they yield consistent estimates of value for equity if you are consistent in your assumptions,

despite using different definitions of cash flows and discount rates (Damodaran, 2012). On this account, both are described in this project to arrive at an equity value per share, given by the quotient between total equity and number of outstanding shares.

1.2.1 Free Cash Flow to Firm

This approach, firstly noted by Modigliani and Miller (1958), considers the leverage used by the company in financing its business, which can be written in the following manner:

$$FCFF = NOPLAT + D\&A - Capex - \Delta Working\ Capital \quad (3)$$

where, *NOPLAT*= Net Operating Profits Less Adjusted Taxes; *D&A*= Depreciations and Amortizations; *Capex*= Capital Expenditures, which differ from expenditures in *Working Capital*, as they contribute to the expansion or enhancement of productivity rather than operational day to day costs.

As previously mentioned, the enterprise value (EV) is obtained by discounting all the FCFF, including the Terminal Value (TV), at the cost of all financing components, weighted by their market value proportion - the WACC. The formula below can be separated into two segments, reflecting the growth evolution of the firm before and after stability (in perpetuity):

$$Enterprise\ Value = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{TV_n}{(1+WACC)^n} \quad (4)$$

Upon reaching the EV value, it transforms to the EQV once subtracted the value of net debt. In line with Pinto et al. (2010), the quality of the analyst's forecasts, particularly the expectational inputs used in valuation models, is a key element in determining investment success. Ergo, hereon comprehending those components becomes the focus of this chapter.

1.2.1.1 Weighted Average Cost of Capital (WACC)

Discount rates reflect the minimum compensation required by investors for delaying consumption and their required compensation for the risk of the cash flow, as Pinto et al. (2010) and Reilly & Brown (2012) described. Consequently, their value should encompass not only the opportunity cost of time, but also the opportunity cost of choosing to invest in a specific security over another at the same level of risk.

In a DCF model, the FCFFs are discounted at the Weighted Average Cost of Capital (WACC). This discount rate incorporates both equity and debt costs, considering the tax shield effect of the latter, in relation to their percentage present in the firm, as shown:

$$WACC = W_d * R_d(1 - T) + W_e * R_e \quad (5)$$

where $W_d = \frac{D}{D+E}$, how much of the capital is financed through debt; $W_e = \frac{E}{D+E}$, how much of the capital is financed through equity; R_d = Cost of Debt; R_e = Cost of Equity. T= Corporate Tax Rate.

Prior to analyzing the individual inputs from equation above, knowing the benefits and setbacks of using WACC in valuation is essential to a satisfactory performance. For one, by adjusting cash flows for taxes and applying Modigliani and Miller's Proposition I (1963), it is assumed that the WACC remains constant for different levels of leverage (Kaplan & Ruback, 1994), making it a consistent measure with easy appliance. Furthermore, it gives investors a comprehensive picture of the overall cost in raising funds, in agreement with the firm's capital structure. Additionally, within the WACC, the current market interest rates, the risk-free rate, and the company's beta are contemplated, providing a dynamic estimate that tries to illustrate real market conditions.

Even though this is all true, according to Kaplan & Ruback (1994) the WACC approach requires the cost of capital to be recomputed each period to include the effect of changing leverage over time. This "detail" is often overlooked because of the complexity it would bring into the process, reason why a single required return is generally used to discount all expected future cash flows (Pinto et al., 2010).

Then, it is evident however useful and commonly employed, this discount rate has its limitations as well. In fact, some of them share a role of positive and negative impacts, such assuming a constant level of risk and a constant capital structure, which are considered the main ones. Some say WACC-based models are only suited for companies with a stable financing strategy and debt-to-equity ratios. Koller et al. (2010:114) disagree, reflecting on how the WACC can accommodate a changing capital structure, though deemed a complicated process. In turn, there are alternative methods such as Adjusted Present Value (APV) that look more viable for that circumstance. The authors also suggest the use of multiple cash flow scenarios instead of changing the cost of capital when pondering specific projects with substantially different levels of risk from the company's average. In their point of view, it is not the WACC that ignores these "outliers", it is the case they should be accounted entirely elsewhere.

The last drawback in using WACC is its high sensitivity to the assumptions made. Small changes in the key variables mentioned, such as costs of debt and equity, can lead to significant changes in the value of WACC, hence, in the entire model.

Moving forward, the aim is to partially solve this concern by minimizing inaccuracies in forecasts and assumptions. For the same purpose, by the end of chapter four, a sensitivity analysis on the results is conducted.

1.2.1.2 Cost of Debt

The first step in estimating all risky parameters for the WACC equation is deriving the before-tax cost of debt, or only cost of debt (R_d). In Ross et al.'s (2003) words, the cost of debt can normally be observed either directly or indirectly, because the cost of debt is simply the interest rate the firm must pay on new borrowing, and we can observe interest rates in the financial markets. The simplest setting when estimating the cost of debt occurs when a firm has long-term bonds outstanding that are widely traded (Damodaran, 2012). In this instance, the yield to maturity (YTM) on those bonds is the market-required rate on the firm's debt (Ross et al., 2003). This is not always possible, because for companies that do not issue bonds frequently, the YTM of the past has no meaning for new capital and its cost today. The best second estimate emerges from companies' ratings, tabled with the corresponding default spreads. When none of these methods serve to find our unknown, Damodaran (2012) suggests looking at recent borrowing history or estimating a synthetic rating, based on rated peers. Formally, the pre-tax cost of debt is given by:

$$R_D = r_f + default\ spread \tag{6}$$

The risk-free rate and the default spread increase the cost of debt because, typically, required returns are higher for riskier investments (Omisore, Yusulf & Christopher.I., 2012).

Finally, the after-tax cost of debt, $R_d(1 - T)$, is calculated by applying the marginal tax rate to the pre-tax cost, however it was estimated. Interests are tax deductible, implying there are savings linked to debt financing, also called the tax shield effect. The WACC takes this effect into account because we are concerned with after-tax cash flows and because cash flows and rates of return should be calculated on a comparable basis, we adjust the interest rate downward due to debt's preferential tax treatment (Brigham & Houston, 2009).

1.2.1.3 Cost of Equity

The second key input required to determine WACC is the cost of equity, R_e. Contrary to R_d, there are multiple models proposed to estimate this cost. The most appropriate choice depends on various factors, including the company's financial characteristics, growth prospects, and risk profile.

The development of the Capital Asset Pricing Model (CAPM) by Treynor (1962), Sharpe (1964), Lintner (1965) and Mossin (1966) introduced the world to the capitalization-weighted market portfolio and relates an asset's expected returns to its market risk, or beta (Blay, 2023), translated as follows:

$$CAPM\colon\ R_e = r_f + \left[\beta(E(R_m) - r_f\right] \tag{7}$$

where, R_e = cost of Equity; r_f = risk-free rate; β = stock's sensitivity to the market; (R_m) = expected return on the market.

Several authors built new models after this original CAPM, especially those who consider the market portfolio as multifactor efficient and the need of additional betas to explain expected returns. Fama and French (1993, 1996) propose a three-factor model based on this rationale. Despite their critics concerning the unpractical applicability of the CAPM, they recognize its attraction as it offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk (Fama & French, 2004). Koller et al. (2020) go even further, stating CAPM has been challenged by academics and practitioners, but so far, no practical competing model has emerged.

- **Risk-free rate**

The risk-free rate is the theoretical return on an investment with no risk of financial loss, either from default risk, liquidity risk or inflation risk. Damodaran (2012) draws attention to the mandatory fulfillment of the two basic conditions for an asset to be considered risk free: not only default risk cannot exist, as already mentioned, reinvestment risk must be nil, too. To guarantee the second prerequisite, the duration of the risk-free should match the one of the cash flows forecasted in the model.

Once this definition is understood, it becomes clear why risk-free rates serve as a baseline for determining the expected return on investments that carry varying levels of risk. In the financial world, risk-free investments are often associated with short-term stable

government instruments such as treasury bills or government bonds. They are considered low-risk due to the perceived creditworthiness of the issuing government. Fernández (2004) considers the risk-free rate used in the model must be the government bond interest rate in the same currency of the cash-flows.

- **Market Risk Premium**

The following input to be assessed corresponds to the extra return an investor expects from a risky investment in a particular asset over the risk-free rate. This suggests the market risk premium should reflect compensation for the asset's exposure to systematic or market risk, analytically corresponding to:

$$MRP = E[R_m] - r_f \tag{8}$$

It is worth noting the market premium expressed above is not a realized return but an expected one. Since it is only rooted in the expectation of how present economic and financial variables should move forward, it is logical to estimate this premium directly from current information (Pinto et al*.,* 2010). On this ground, some call it a forward-looking estimate, with origin in averaged historical data.

- **Beta**

The beta *(β)* coefficient is associated with the volatility of an individual stock, capturing the company's risk in comparison to the overall risk of the stock market. CAPM features the link between these variables, whereas the magnitude and direction of said relationship depends on the value of beta. There is not a unique infallible method to estimate beta, but several imperfect ones widely used, since its value cannot be promptly observed on the market. Damodaran (2012) proposes three approaches using 1) historical data; 2) fundamental characteristics; 3) accounting data.

To begin with, as the author explains, estimating betas through a regression against the market index is very common. The outcomes are the called historical market betas. Regarding the second approach to this matter, fundamental betas incorporate individual firm's decisions along the computation process, instead of solely relying on past data.

Koller et al. (2005) agree that, to improve the precision of beta estimation, we should use industry, rather than company-specific, betas. Companies in the same industry face similar operating risks, so they should have similar operating betas, according to them. For example, the more sensitive a business is to market conditions, the higher its beta (Damodaran, 2012).

Bottom-up betas' alternative consists of a five-step method that, by including specific business risk and financial leverage characteristics, allows a more thorough assessment of a firm's beta. These steps begin with identifying publicly traded peers to the target company and averaging their unlevered betas, β_U. Afterwards, weighting the industry beta according to the percentage value it creates for the target company, gets the individual unlevered beta. As a final step, it is possible to get the firm's levered beta, utilizing their following correlation:

$$\beta_U = \frac{\beta_L + \beta_D * \frac{D}{E} * (1-t)}{1 + \frac{D}{E} * (1-t)} \quad (9)$$

$$\beta_L = \beta_U + (\beta_U - \beta_D) * \frac{D}{E} * (1-t) \quad (10)$$

Considering that,

$$\beta_D = \frac{R_D - (r_f + CRP)}{MRP} \quad (11)$$

where, β_U= Unlevered/Asset beta; β_L= Levered/Equity beta; β_D= Debt beta.

$\frac{D}{E}$ = Debt-to-Equity ratio; t = corporate tax rate; MRP = Market Risk Premium.

CPR = Country Risk Premium; r_f= risk-free rate; R_D= Cost of Debt.

Brigham and Houston (2009) note that a firm can influence its market risk (hence, its beta) through changes in the composition of its assets and through changes in the amount of debt it uses. Consequently, it is crucial to distinguish unlevered (asset) from levered (equity) betas, because only the latter reflects the impact debt financing has on the stock's systematic risk. With this approach, market return is representative of the stock market's performance, aligning with the business scope of the company proving it is an upgrade from historical betas.

Finally, the third and last approach mentioned by Damodaran (2012) has its roots in accounting earnings, moving away from traded prices, used in the last two methods. Accounting

betas are considered to have the more pitfalls of the three approaches, while bottom-up betas provide the best beta estimates, in the author's opinion.

1.2.1.4 Equity and Debt Target Weights

After all variables studied thus far, and according to equation (5), only two unknows remain to investigate. W_E and W_D are the ratios measuring the proportion of the company's total capital structure funded by equity and debt, respectively:

$$W_E = \frac{E}{E+D} \tag{12}$$

$$W_D = \frac{D}{E+D} \tag{13}$$

with, E = market value of Equity, calculated by multiplying the number of outstanding shares from the latest annual report by the stock price on the corresponding date; D = market value of Debt (net of cash), which is the sum of short-term and long-term debt; $E + D$ = total capital employed by the company.

In summary, the WACC is precisely a weighted average of costs, balancing the expenses of the relative contribution of equity and debt to overall capitalization. Koller et al. (2020), however, advice the cost of capital should rely on target weights, rather than current weights, because at any point a company's current capital structure may not reflect the level expected to prevail over the life of the business.

1.2.2 Terminal Value

Equation (4), used to compute the Enterprise Value, depicts a sum of two parcels, with the numerator of the second being called the Terminal Value (TV). This numerical figure conveys the present value of all future cash flows (CF) beyond the explicit forecast period. It is not feasible to project CF indefinitely and, for this reason, an interval usually between five and ten years is chosen to do so. After that forecast period, it is determined a "final CF" as indicated:

$$TV_t = \frac{FCFF_{t+1}}{WACC - g} \tag{14}$$

where, g = stable growth rate.

This equation holds validity if considering that, in perpetuity, the company will continue to grow at an unchanging rate, *g*. The value of *g* must be subtracted from the discount rate (WACC for FCFF) to impact positively the expected present value. Both Damodaran (2012) and Koller et al. (2020) stress how this is the most critical input in valuation, especially for high-growth firms. Acknowledging how substantial this portion of the DCF analysis is, can really be decisive to obtain a sound result. This topic is now further discussed with utmost carefulness, since it might drive the whole model.

- **Growth Rate**

To generate high value a company must not only excel at pricing power, cost competitiveness, or capital efficiency, but also must be able to sustain this competitive advantage over long periods (Koller et al., 2020). These authors, straightforwardly, separate high growth from "healthy" growth, which is the one creating value. To succeed at value creation, the company's new customers, projects, or acquisitions have to generate returns on invested capital (ROIC) greater than its cost of capital, they stated.

Besides the cause-effect relationship between ROIC and growth that is explicit and agreed upon across the main literature, a company's individual expected growth must not surpass the growth of the entire economy. That would mean a single firm outperformed the market forever, which is implausible, especially because even the fastest growers struggle to maintain high growth rates, Koller et al. (2020) noticed. Since every market has a limited size, even the best performers must eventually track market growth. Hence, most large companies struggle to grow once they reach a certain size (Koller et al., 2020).

Considering these aspects, Damodaran (2012) presented again three methods to forecast growth rates with 1) historical analysis; 2) analysts' analysis; 3) firm's fundamentals analysis. Regarding their applicability, the author considers that the soundest way of incorporating growth into value is to make it endogenous i.e., tie it in more closely to the actions taken by a firm to create value and sustain it. This is only possible through a fundamental analysis, that examines determinants such as ROE (return on equity) and ROIC, instead of extrapolating the past or having extreme confidence in privileged information from tracking analysts. By investigating fundamentals that drive growth and qualitative factors influencing it, namely marketing strengths and management decisions, they become automatically quantified in its value.

1.2.3 Free Cash Flow to Equity

As an alternative, the cash flows used in a DCF model might only express the value remaining to common stockholders, once capital suppliers have been paid. Then, the cash flows (net of taxes) that arise from transactions with creditors and preferred stockholders are deducted from FCFF to arrive at FCFE (Pinto et al., 2010), as shown:

$$FCFE = FCFF - interest\ expense * (1 - t) + \Delta Net\ Debt \quad (15)$$

where, $\Delta Net\ Debt$ is the debt issued less debt repaid over the period of CF's calculation.

Again, according to Pinto et al. (2010), if the company's capital structure is relatively stable, using FCFE to value equity is more direct and simpler than FCFF. When that is the case, these cash flows must be discounted at the required rate of return on equity, previously outlined in equation (2). In contrast, levered companies with negative FCFE or those undergoing changes in their capital structure, are better-off using FCFF, reason why it is the approach adopted most of the times.

1.2 Relative Valuation

The concluding content of this chapter explores a distinct model of valuation. The principle behind it is that firms with identical assets yield identical prices and similar performances should be measured with the same multiples, which are standardized prices. Ratios like Price-to-Earnings (P/E) and Enterprise Value-to-EBITDA (EV/EBITDA) are frequently applied because they are considered broad indicators. Not all indicators are suited for every valuation, since selecting multiples is a task constrained by the industry and characteristics of the firm being evaluated. In simpler terms, this method estimates the value of an asset by looking at how similar assets are priced, as put by Damodaran (2012). To employ a relative valuation correctly the author developed a set of four main prerequisites to be obeyed, beginning with consistency and uniformity across the multiples used. This first condition ensures not only the use of equal multiples, but also the equivalence between their definition, accounting system, period of computation and relationship numerator/denominator. Multiples are divided into categories according to the type of value they measure, those being earnings, revenues or book values.

Secondly, the cross-sectional distribution of these metrics should be investigated. To rank the value of a multiple as high, low or on average, one has to know beforehand the industry panorama.

The third condition presented in his literature has to do with fundamentals and their impact on multiples. Despite ratios being computed with data from financial statements, their values are still rooted in the same three variables as in DCF models: risk, cash flows and growth. However, in relative valuation it is more difficult to establish a meaningful connection between them, since it is already implicit in the results accounted for in financial statements.

In the fourth and last step, it is stressed the importance of finding a suitable peer group. Because this model is all about comparison, the benchmark utilized determines the degree of accuracy. Usually, firms in the same sector have similar risk, growth, and cash flow profiles and, therefore, can be compared with much more legitimacy (Damodaran, 2012). In addition, the author states that a more reliable estimation is obtained when using a larger sample of firms less alike across each other than a very small sample of very similar companies. As a last reminder about this matter, it is particularly pertinent to mention in this project that competing firms trading in distinct markets can incorporate the same peer group. With globalization, it is not uncommon to have a worldwide heterogenous group.

Finally, and as quoted from Kaplan and Ruback (1994) at the start of this chapter, relative valuation should mostly serve as a complementary model. Using multiples has some silver linings like the simplicity, data realness, swiftness and detachments from subjective assumptions. Yet, Berk & DeMarzo (2020) view it as "shortcut" to the discounted cash flow methods of valuation. Their take on relative models is that they do not consider the important differences among firms. Thus, and in line with literature, a combination of relative and absolute models should allow to test and validate results from the latter, assuring a trustworthy estimation of the equity value per share.

2. Market Overview

2.1 Macroeconomic Outlook

2.1.1 Hangang River Miracle

The last decades were economically transformative for the Republic of Korea, commonly known as South Korea. In 1953, by the end of the three-year-long Korean War, the country was devoid of capital and natural resources. It was supported by massive foreign aid, principally from the United States, and by a strong inflationary finance. Today, in 2024, it is one of the world's major economic players.

This fast evolution from a war-torn nation was entitled "Miracle on the Hangang River". This "miracle", however unexpected, had a strong government action behind it, enforcing plans for development with strong focus on heavy industrialization and exports. On top of stimulating economic activity, authorities had the simultaneous responsibility of stabilizing inflation rates, that had reached 44% by 1963. Through collective methods and policies, such as applying annual stabilization programs, increasing tax revenues, restraining credit policy, reforming interest rates, liberalizing imports, changing to a fluctuating exchange rate and by receiving a big inflow of foreign private capital, Korea "miraculously" balanced its payments and lowered inflation. Allied with higher levels of investment in education and technology, sectors like the electronics and the automobile were growing at a steep pace.

At that time, between 1970-80, a few families detained companies with market powers close to monopolies: the chaebols. They played a central role in boosting South Korea's economic rehabilitation. Currently, many remain steadfast powerhouses for the country, such as Samsung, LG and Hyundai. Despite having achieved a swift growth in a brief period, that was at the cost of a huge and growing gap between major corporations and small and medium-sized enterprises (SMEs), since the country's economic policy was heavily reliant on exports led by the chaebols.

Even so, this astonishing growth led South Korea to be considered one of the Asian Tigers, alongside Taiwan, Singapore and Hong Kong; later, in 1996, South Korea integrated the OECD countries as well. The country's GDP more than tripled from USD 504.6 billion in 2001 to USD 1,646.3 billion in 2019, becoming the 12th largest in the world (2019). Notably, amidst the global financial crisis of 2008-2010, while most regions faced economic hardships, the country achieved an impressive growth rate of 6.3%.

2.1.2 Recent years

The nation has demonstrated worldwide competitiveness across diverse sectors, including mobile phones, semiconductors, automobiles and chemicals. Moreover, recently, its cultural content, encompassing music, gaming and webtoons, has emerged as a pivotal industry, spearheading advancements in the Korean economy.

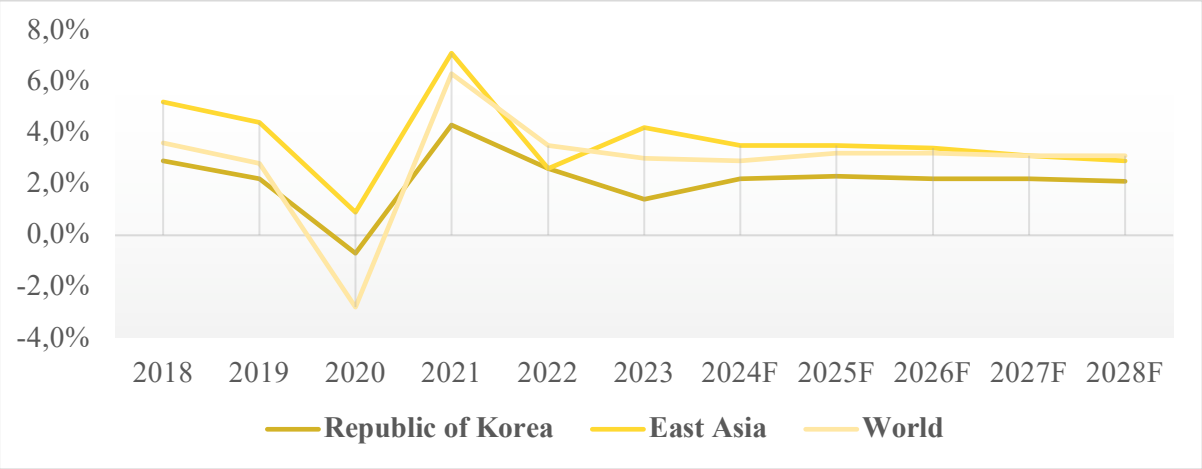

***Figure 2.1**: Real GDP growth rate (annual percent change). Adapted from IMF.*

Nevertheless, with time, its real GDP growth converged to similar levels of the global average, moving away from the East Asian economies that were comparable in the past. **Figure 2.1.** shows how the commence of the global pandemic in late 2019 led growth rates to plunge to negative values for the first time since 2008's crisis and 1998's Asian crisis, the world's and South Korea's, respectively. After only a few months, throughout 2021, a jump recovery exhibited values that peaked as far as 4.3% (South Korea) and 6.3% (world), just to decrease shortly after to meet values close to pre-pandemic ones. According to IMF's forecasts, the next years should be characterized by a stable GDP growth, starting in 2024, if there are no future externalities affecting these predictions.

Additionally, the Russian-Ukrainian war at the beginning of 2022, brought more uncertainty to the overall market panorama. The change in average consumer prices escalated to 8.7% (world) and 5.1% (Korea), affecting especially the energy and food markets. Illustrated below in **Figure 2.2**, it is observable that South Korea, along with other East Asian countries, usually displays lower inflation levels than the average country in the globe. With almost a nil rate in 2020, it grew to 2.5% in 2021 and doubled to 5.1% in 2022. Once more, predictions point to a continuous decrease, slower than GDP's, until 2025-2026, where it is expected to remain roughly unchanged. Comparing the three geographical areas, South Korea will remain the economy where real and nominal prices are closer to each other. This alignment springs

from the past success of governments in forcibly implementing the already mentioned financial stabilization policies.

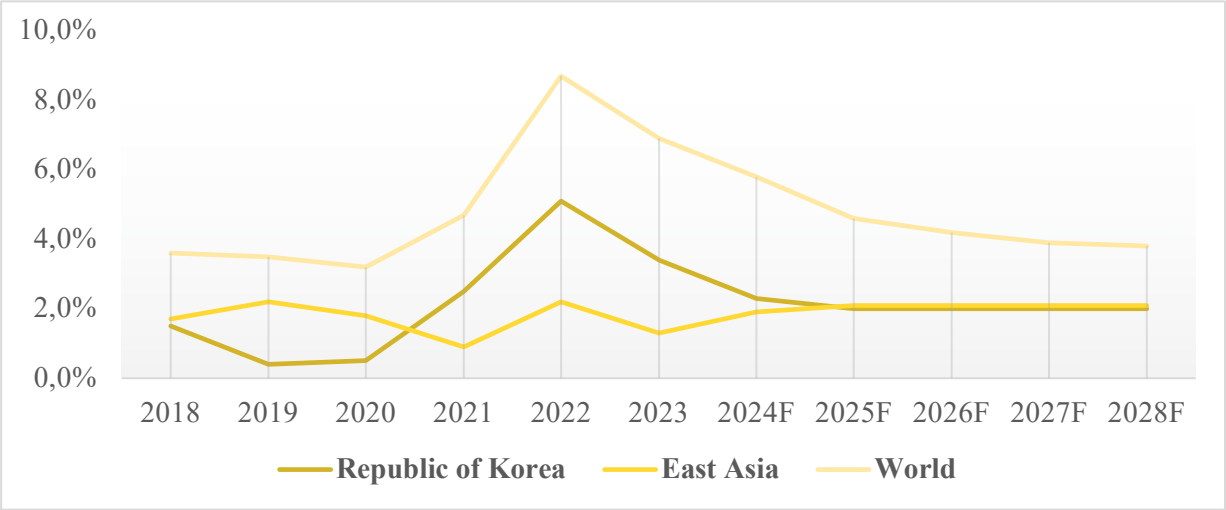

Figure 2.2: *Inflation rate, average consumer prices (annual percent change). Adapted from IMF.*

2.2 Industry Outlook

South Korea is putting every effort into transforming itself into a global economic system. In recognition of such, the country has been in the leading top 10 most innovative economies in the world for several years now, coming in first more than once already. The Bloomberg Innovation Index assesses six metrics to get a global hierarchy, where South Korea stands out in Research & Development (R&D) investing, in the presence of high-tech companies, in postsecondary education and in the amount of earnings from patents. This explains why information technology is the strongest sector in the Korean economy, with computer software, internet, multimedia and communication services thriving every year. The stellar growth of Kakao over the past decade also represents a shift in the country's focus from a manufacturing-oriented nation to a prominent global player in digital sectors. Furthermore, producing and distributing cultural content has been on the rise, with the potential of becoming a new high value-added industry.

These sectors are at the core of Kakao's business and are analyzed separately according to Kakao's own segmentation in financial reports, into Platform and Content businesses. This way, it gets more evident the distinct characteristics of the environment where Kakao is set to grow.

2.2.1 Digital Platform Industry

Nowadays, it is almost impossible to find a service or product that is not available on an online platform. Platforms are foundational computer systems capable of hosting services, facilitating connectivity, resource-sharing and the transaction of products between producers, consumers, entrepreneurs, businesses and the broader public. A digital economy has settled in our daily lives and the market capitalization of the largest companies in the world can prove it; while a decade ago the multinational companies in the oil and gas industry and engineering were at the top, today, companies specializing in intelligence and digital data have become the economic leaders such as Google, Meta, Amazon, Apple and Microsoft. The size distribution of firms in the platform economy is highly skewed, featuring a few exceptionally large firms, thousands of medium-sized ones and millions of small enterprises. When examining the geographical distribution of platform economy firms, the United States takes the lead followed by Asia, while Europe falls behind.

South Korea in particular, with its advanced technological infrastructures and network connectivity, is considered a paradise for these internet conglomerates. Not only more than 95% of the country has internet coverage, but often also the fastest in the world, being the first country to commercially roll out 5G. Data shows there were 50.56 million internet users in South Korea in the beginning of 2023, when internet penetration stood at 97.6%. Moreover, being the home country of the electronics giants Samsung and LG, smartphone ownership is expected to reach 87.13% of total population by 2028, being already number one globally at the moment. Such technological landscape, fostered both by government and big corporations, boosts even further society's consumption patterns. In return, these create ever more favorable conditions for the spread of businesses in the digital sector, encompassing tech gadgets, mainly mobile phones which are the primary vessel to access news in Korea.

Another specificity of this Asian country is that Koreans show preference for domestic web-portals such as Naver and Kakao/Daum in place of Meta-owned platforms like in Western countries. **Figure 2.3.** snapshots the leading social networks in South Korea during the third quarter of 2023. Statistics evidence 85% of the entire population connected via Kakao Talk in that period, with Instagram being the only other platform predominantly utilized by most individuals (>50%).

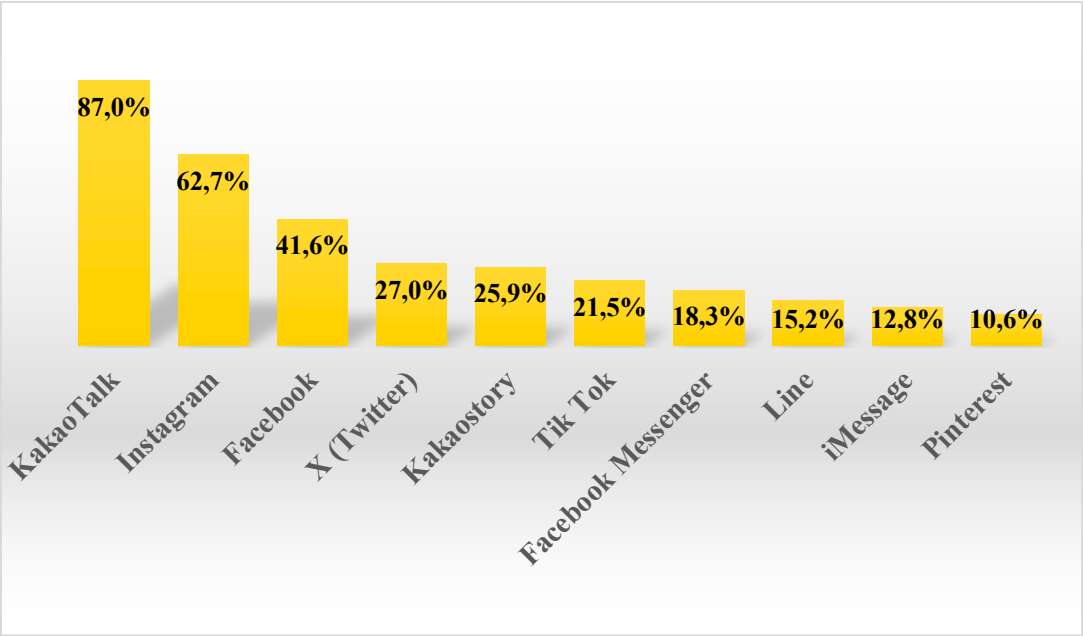

Figure 2.3: *Penetration of leading social networks in South Korea, Q3 2023 (percent of total population): Adapted from Statistica.*

These local platforms are used for socializing and networking, like the ones showed above, but many have gone much beyond. As the services field in the wireless network industry become increasingly integrated, companies seek more users and, consequently, revenues, by investing in all kinds of different outlets. This is not true just for Korea, as the whole globe saw an intensified presence online, including online shopping, during Covid-19 social restraints. From healthcare and insurance to transportation and finance, e-commerce serves population's almost every need, posing a huge source of profit for digital platforms stakeholders. Alongside commerce, advertisement generates the highest cash flow streams for digital apps. For example, marketing and PR in South Korea are mainly accomplished through mobile marketing and SNS (Social Networking Service)[1].

2.2.1 Multimedia Industry

The other fast evolving half of Kakao's business relies on creating and distributing multimedia content from games, music, webtoons (story) to other types of media.

- **Gaming Industry**

Among these multimedia contents, South Korea has the sharpest focus on the video gaming industry, which is at the forefront worldwide with the fourth largest market capitalization of 15

[1] SNS in South Korea refers to social media platforms.

billion USD, following only China, the US and Japan. Smartphones and internet dissemination are showing their impact in this industry too, given that mobile games account nearly half of total gaming revenues globally, with approximately 89.25 billion USD worth in 2023. The anticipated Compound Annual Growth Rate (CAGR) of 8.51% between 2023-2028, reflects the market expansion but at a slower pace after 2022 lockdown. While this fact may seem counterintuitive, it can be explained by household's lower disposable income and by the rise of other short video and streaming services, like TikTok, during that time. Nevertheless, South Koreans enjoy a very vibrant and versatile media ecosystem, which they are a big part of, with over 70% of population considering gaming a hobby of theirs. This high market capacity calls to foreign game developers and investors into the country's market.

- **K-Content Industry**

Apart from gaming, South Korea has been growing in popularity outside of Asia for its overall cultural content, already the seventh most valuable worldwide in 2023, forecasted at 79.1 billion[2] USD by the Korea Trade-Investment Promotion Agency. Predictions indicate a 4.26% average annual rate of growth for K-content until 2026, possibly reaching a market size of 86.4 billion USD. K-pop and K-dramas starred as the initial and main spreaders of typical Korean content. The strong fan base gathered during the last two decades prompted a movement called "Hallyu" or "the Korean Wave". One of its effects from 2018 to 2022 manifested as the increasing overseas' sales and exports of this content, which is currently the nation's top exports driver.

Regarding the domestic market alone, before the digital boom and "Hallyu", Korean citizens were already heavy enthusiastic consumers of native content. Their fandoms are relentless and idolize artists ("idols") to a degree that is not commonly experienced in western cultures. For this reason, companies in the entertainment industry are very appealing to invest in. Advertising companies benefit from the same behavior, eager to profit from idol's images in promotion of their products and services, usually through media.

All in all, Kakao is strategically taking advantage of several economic and social features progressing in the world, particularly in its home country. With its remarkable traits, mentioned thus far, South Korean digital and creative content industries have been pushing one another into success. Also, the evolution of internet and technology enhance efficiency and

[2] This predicted amount includes the gaming industry worth, part of creative content.

affordability of information distribution. Which, in turn, boosts demand making investors more inclined to sustain and further develop said advancements.

2.2.2 Peer Companies

By analyzing similar firms to Kakao, insightful information is produced in relation to its sector and how to best operate in it. The number one rival of Kakao is Naver Corporation, the provisioner of internet advertisement and search portals most used by Koreans, surpassing Google by a large amount, illustrated in **Figure 2.4.**

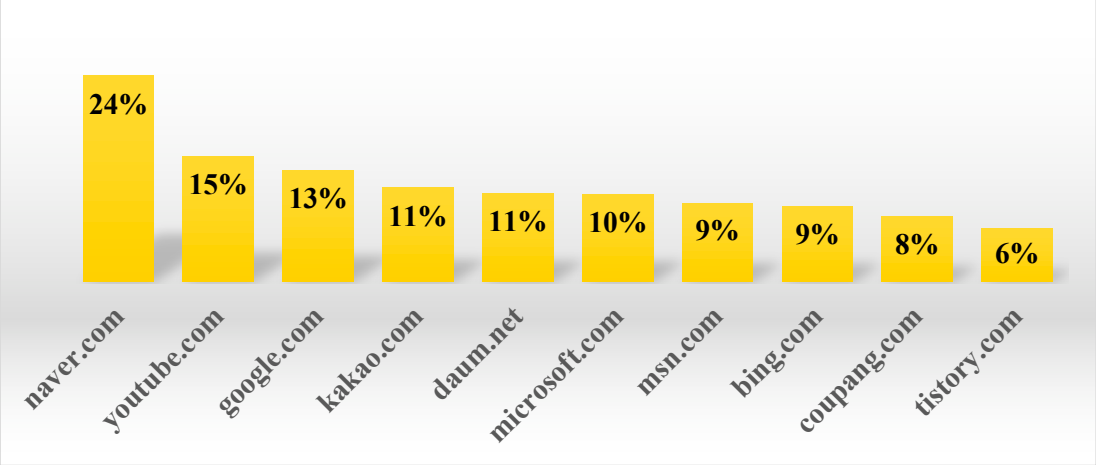

Figure 2.4: *Websites by number of unique visitors in South Korea, October 2023. Adapted from Statistica.*

Conversely to most developed countries, South Korea strongly relies on online domestic websites. Naver has been able to secure the first spot so far in the country as of October 2023, leading as the most used web-portal by the Korean population. Naver Corp is a pioneer in user-generated all-Korean content that includes blogs, web comic service, internet communities and more. It keeps adding services and improving the existents with time, just like Kakao, contesting for users' attention. When it comes to certain domains such as Maps, social media, webtoons and payment services they are constantly overthrowing one another.

Given the wide range of Kakao's activity, there are multiple other firms competing with it in different markets. Namely, Kakao Mobility, operating in the transportation sector, faces inDrive, TMap Mobility, Grab, Didi, GroundK and Lyft as main disputers.

In summary**,** Kakao maintains a steady position among its peers, with highly fluctuating market shares across its many businesses. Kakao Talk is the company's most utilized app, whilst others are growing in popularity and new ones are being constantly introduced. Essentially, Kakao holds such power that can already be considered an established element of the Korean culture brand.

2.2.3 Regulatory Framework

The debate over self-regulation or ex-ante regulation has been taking place amidst authority bodies in South Korea, while they explore the optimal policy solutions inherent to the country's distinctive and dynamic digital economy. Despite stark differences in market structure and regulatory approaches between Korea and the EU, the introduction of the EU Digital Markets Act (DMA) in March 2024 has drawn attention to concerns about safety and fairness within the digital platform industry. The principal objective of this law is identifying and exerting more control over large digital platforms- the "gatekeepers"- that are at the core of some services. To accomplish this, the DMA outlines a series of obligations and prohibitions, along with the authority to fine companies that fail to meet them. Meanwhile, EU's competition rules remain fully applicable since the European Commission enforces DMA as a complement to the legislation already in place.

In the case of South Korean jurisdiction encompassing mobile app stores, since August 2021 the country became the first to enact an issue concerning in app-payments, mentioned in Article 50 of the Telecommunications Business Act (TBA). The legislation addresses unfair competition, with Apple and Google as primary targets, after the latter announced the possibility of prohibiting alternative systems to in-app payments in 2020. Since then, these two gatekeepers have been investigated about the high charges they practice on app developers and about their market share on operating mobile systems. Even though obliged to comply with the Korean legislation and allow app store operators different payment options, Google did not accept out link payments as one of them. Coincidentally, this was the method used by Kakao and ensued a dispute between the two companies. Succeeding several interactions trying to hurt one another, negotiations ended with Kakao stepping back and with Korea Communications Commission (KCC) opening a case on the occurred. The inspection on the hypothetical violation of the app store regulation is still ongoing, together with other complaints about anti-steering competition from domestic app developers against Apple as well. The Korea Fair Trade Commission (KFTC) conducted a probe on Apple Korea based on these allegations.

In the end, South Korea is safeguard by KCC and KFTC. They have been able to protect national digital companies from dubious policies based on existing rules. At the same time, the evolving landscape of the industry and the observed outcome from DMA-like ex-ante regulations, if positive, may justify a revision or introduction of new digital platform legislation in the future.

3. Overview of Kakao Corporation

3.1 Company's milestones: past to present

Kakao Corporation, originally solely a messaging app, was founded by Kim Beom Soo in 2010 and is headquartered in Youngpyong-dong, Jeju City, Korea. At the time, Kakao's chairman had worked for Samsung and co-created one of the primordial software engines in the country, Hangame. However, Kim Beom Soo aspired to further innovate and used his expertise to establish the very first native free messenger application, Kakao Talk. Quickly it became a communication channel for 5 million people by December 2010 and, after only two years, had gathered 70 million users around the country. Its release followed the introduction of iPhone and iOS Appstore which he understood as a big opportunity in the digital market. In fact, WhatsApp itself had debuted just a few months in advance of Kakao Talk, in February 2009.

Nowadays, Kakao operates across various services, including gaming, content delivery, financial technology and, of course, communication.

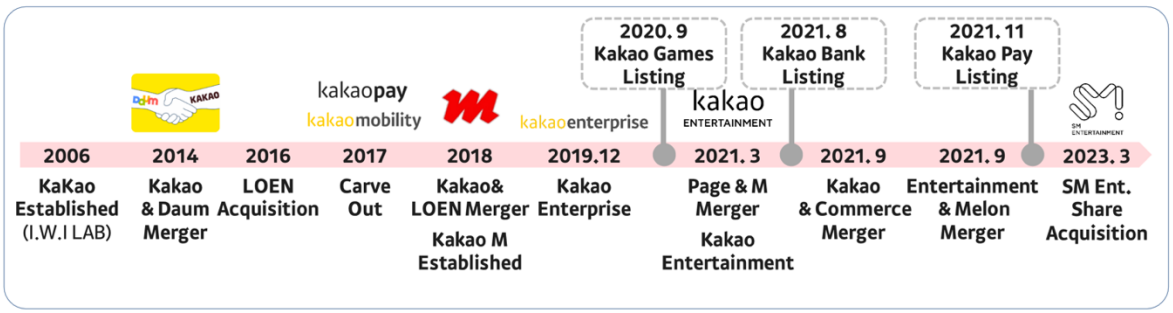

Figure 3.1: *Kakao Corp evolution (2006-2023). Source: Kakao Investor Relations 3Q 2023.*

Throughout the years, Kakao was subject to numerous changes in structure and activity as showcased in **Figure 3.1** which pictures the most significant marks in Kakao's history, disclosed in their IR 3Q 2023's report. This chronology dates to 2006 because that was Kim's first investment on several web 2.0 projects under the name I.W.I LAB. However, it took four years and smartphone adoption in 2009 in Korea to the startup to prosper. The following success allowed Kakao (then, Kakao Talk) to acquire the second web portal preferred in the country, Daum Communications, in a 3.3 billion USD all stock transaction in 2014. Daum Kakao was the result of the huge merge that conceded the former private company a spot in the Seoul Stock Exchange, debuting with the largest market cap in KOSDAQ. Daum was publicly traded since 1999 and Kakao used this event as a growth and backdoor listing strategies, alternatively to an IPO. Consequently, South Korean government rebranded Kakao as a large company, which was a groundbreaking achievement for a tech start-up at the time. In 2015, the firm was renamed

Kakao Corporation and in 2017 was transferred to the KOSPI market, the primary Korean stock market index and one of the major indices in Asia.

The timeline above summarizes Kakao's main milestones ever since, comprising various acquisitions, with SM Entertainment- one of the biggest music labels in Korea- as the latest. March 2023 was evidently notorious for the firm's history, after becoming SM's largest shareholder with a 39.9% stake on it. Furthermore, very recently thus not yet represented, on March 29, 2024, the first female CEO took over leadership after approval from shareholders and the board of directors. Until then, Shina Chung was the head of Kakao Ventures hence gifted with extensive experience and understanding of the company. These were non-negotiable characteristics sought to lead the very necessary reform amid possibly the toughest time in Kakao's 13-year history, as the firm faces investigations over Kakao Mobility's commission charging system and over alleged stock manipulation during SM's acquisition. For these reasons, it is a challenging and decisive period for Kakao to regain market trust and rebuild shareholder value, guided by a refreshed governance.

3.2 Business Model

Kakao Corp consolidates its subsidiaries based on K-IFRS's acquisition method. Its affiliates, such as Kakao Bank, are accounted according to the equity method. The company's consolidated revenues according to its several businesses segments, as of December 2023, are depicted below in **Figure 3.2**.

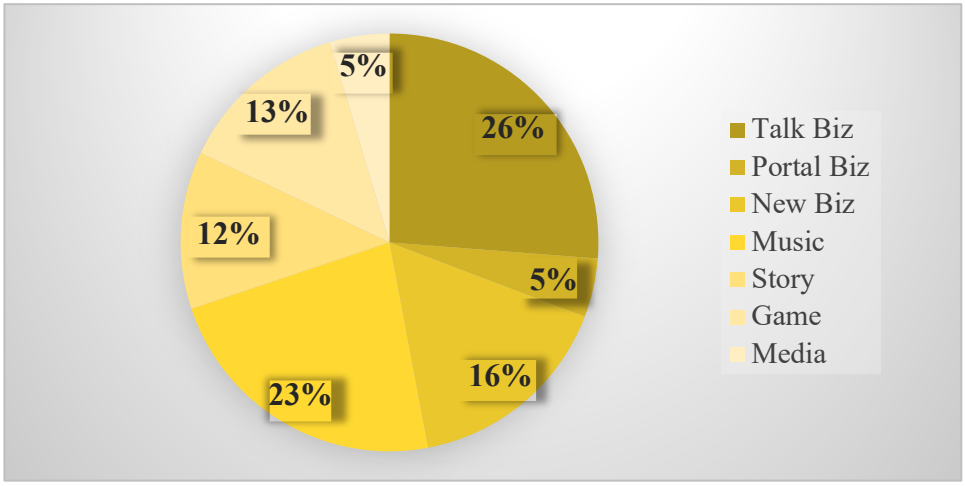

***Figure 3.2**: Market breakdown of revenues: Own estimations.*

Since 2019's restructuring, Kakao reports revenues from two main segments, Platform business and Content business. Each segment counts on several "sub-segments" composing it, with Talk Biz[3], Portal Biz and New Biz making up the Platform one; while Game, Music, Story and Media comprise the amount of revenue from Content. Remarkably, this amount surpassed the revenue stream incoming from Platform during the FY2023 for the very first time, with 53% stemming from the Content segment.

Despite its efforts to expand beyond Korea's border, Kakao remains mainly a domestic company. In terms of total revenues, no single foreign customer contributed with more than 10% during the FY2023.

3.2.1 Platform Business

The core of Kakao has always been communication since its launch in 2010. Thereafter, Kakao Talk has been evolving into a digital space that offers tabs to create friends, to chat, to open groups, to shop, to park and to use a calendar, map and wallet, for example. It became a personalized portal that enables its users to easily and better manage their relationships, time and money. On top of introducing such a wide range of amenities, Kakao's growth is rooted in innovation.

For instance, Kakao Bank set itself apart immediately in 2016 as it was introduced in the market by being the only bank operating 100% online. In contrast to traditional banks that spend large sums on branch operations and back offices, this digital-first banking model eliminates those costs and distributes the gains among customers. As a result, their customer base reached 22.3 million as of September 2023, in a country with a population barely surpassing 51 million people. Currently experiencing a CAGR superior to 23%, Kakao Bank was recognized as the best Asian digital bank in 2023 by Euromoney Awards for Excellence.

Additionally, recent years have seen a rise in AI and Healthcare investments aimed to secure new growth drivers. In 2022, Kakao Healthcare was the latest app made available by the firm, with the goal of promoting public health and improving medical services. Yet new platforms take time to capture clients and bring in cash, advertising and eCommerce are generally markets with a smooth integration that aid in that process. In comparison with 2022, 2023 reported a total increase of 3% in the Platform segment.

[3] Biz stands for Business; Kakao reports with this terminology.

3.2.2 Content Business

On the other hand, entertainment production and distribution were not the initial focus of Kakao but, in time, they have settled roots deeply as a centerpiece business. In fact, as mentioned already, the year of 2023 was marked by Content overcoming Platform in generating revenues. This first-time event coincides with the share acquisition of SM Entertainment, officially concluded on March 2023 for 963 million USD.

The creative path of the company started with Kakao Games' launch, dating almost back to the founding years, in 2013. This approach was only natural, considering the gaming market penetration in South Korea. For ten years, developing and publishing games was the most lucrative business in the Content segment. Last year Music overtook Games but, even before that, it saw a steady increase in proportion to earnings, heavily backed by a solid growth of Melon, a subsidiary and the No.1 music streaming platform in Korea. The merge of Kakao Entertainment with Melon in 2021 boasted 33 million users and 5 million paid subscribers that were integrated into Kakao's music division. This synergy also improved its competitive edge within the K-pop industry.

Moving on to the third element in the entertainment industry, called Story, Kakao Webtoon and Kakao Page are the two mobile platforms assuring its domestic growth. Internationally, Kakao Piccoma, a Japanese subsidiary of Kakao Japan Corp and a prominent global manga platform, secured the highest position for consumer spending among apps in Japan in 2023. Piccoma not only claimed the top spot in Japan, but also reached 15th position globally (excluding gaming apps) in the overall mobile app market consumer spending rankings. Moreover, in a significant expansion move in 2021, Kakao Entertainment extended its global presence to North America through the acquisition of two digital storytelling platforms: Tapas and Radish.

Finally, the Media business segment includes production firms such as Logos Film, Baram Pictures and Moonlight Film, with 80 renowned writers and 150 actors under management. Dramas and movies are part of their original portfolio in expansion, using distribution channels like Netflix, Disney+ and Amazon Prime to reach broader audiences.

Kakao intends to create a solid chain of value from entertainment content by linking them all through a narrative that is born from stories (manga), presented on TV and complete with an in-house composed original soundtrack. This strategy implies that one business can directly stimulate demand for others.

3.2 Financial Analysis

The company's financial analysis will be carried out using information from December 2023 and comparing with previous years. The following figure expresses how each business segment contributes to total yearly revenues.

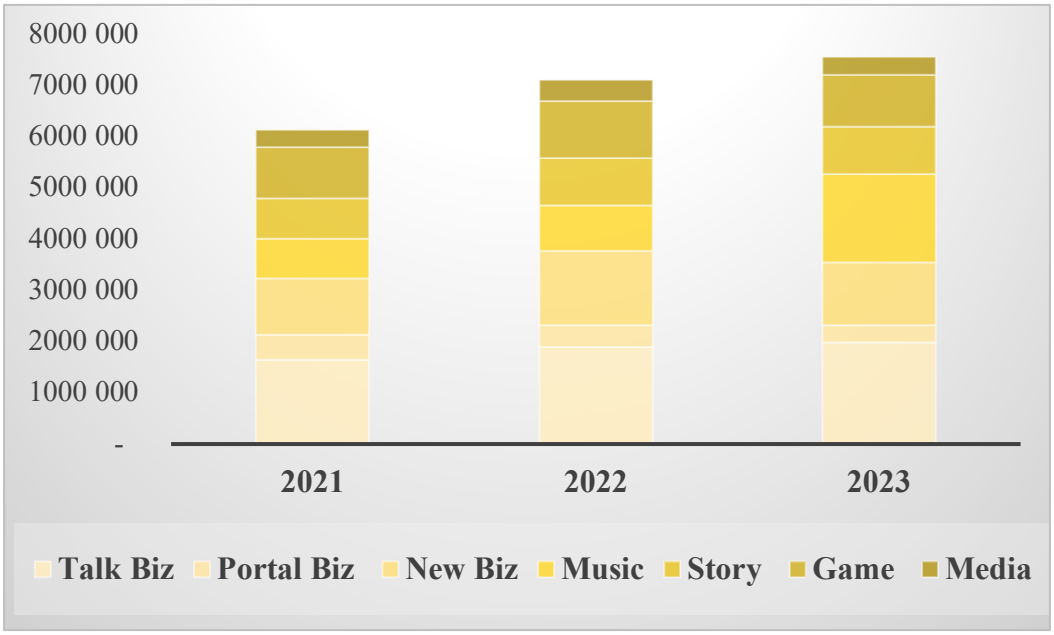

Figure 3.3: *Revenue's breakdown by business (million KRW). Adapted from Kakao's Earnings Release FY2021-FY2023.*

From **Figure 3.3** it is perceptible Talk Biz has been Kakao's main player regarding financial activity, always yielding the highest percentage of profits during the analyzed time interval. Yet, the gap between this segment and the other six has been diminishing as the later fortifies their user bases. Moreover, the past three years reveal a trend of growth that together with higher dispersion of revenues per industry, assures Kakao does not depend too strongly on one sub-segment alone. Diversification mitigates specific risk by reducing exposure which, in this case, are the different industries. Between 2021 and 2023, overall growth of revenues stood at an average rate of approximately 15.81%. While these are optimistic results, the hit value of 7.106.836 million Korean won was attainable merely due to the leap occurred the year before. 2021 brought an increase of 47.63% to 2020's revenues, which contributed to a remarkable CAGR of 28% between 2020 and 2023. Furthermore, in 2023, revenues surpassed operational expenses by only 16.02%.

This margin does not fall very far from the comparable years, which can mean the high level of costs to maintain regular activity might be the outcome of a strategy that relies on innovation backed by heavy investment decisions.

Following this rationale of a forward-looking strategy, it is not surprising that EBITDA margin presents little fluctuations and stands somewhat below the average values for internet and technology industries. Despite the average value for this metric ranging widely from 20% to 40%, Naver Corp's EBITDA margin in 2023 was only 22.64%. Taking the biggest competitor as reference is very insightful as it controls for market conditions while positioning its operating efficiency and competitive advantage against the "best" possible benchmark. This is a relevant take because allows digital platform companies to establish strong network effects, efficient cost structures and diversified revenue streams, as they are the main conditions to improve financial health and operating profitability.

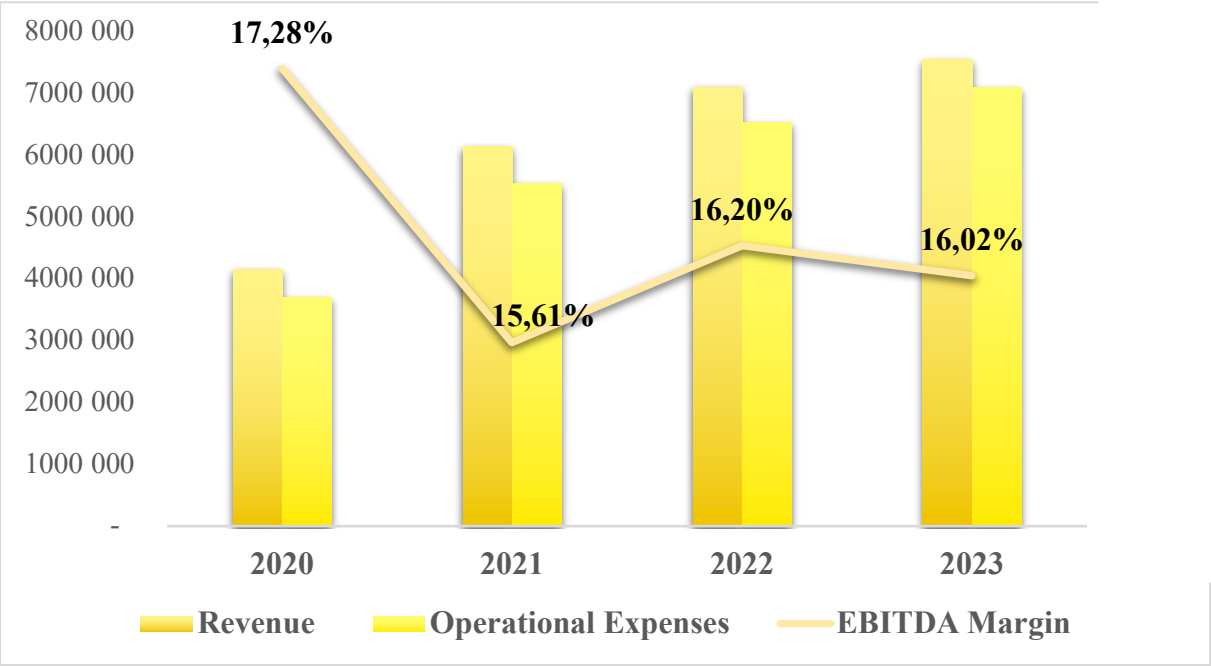

Figure 3.4: *Revenues and Operational Costs (million KRW); % EBITDA Margin: Own estimates.*

Another key analysis to perform rests in assessing a company's ability to meet its short-term financial obligations promptly. With this in view, three ratios were computed and displayed in **Figure 3.5**.

Each indicator measures liquidity according to different degrees of caution: Current ratio, Quick ratio and Cash ratio, stricter in their valuation in this order. All of them, if above one, mean that inputted assets cover current liabilities. Trailing this logic, the higher the ratio the higher the capacity of the firm in obtaining liquidity, thus, in avoiding financial distress.

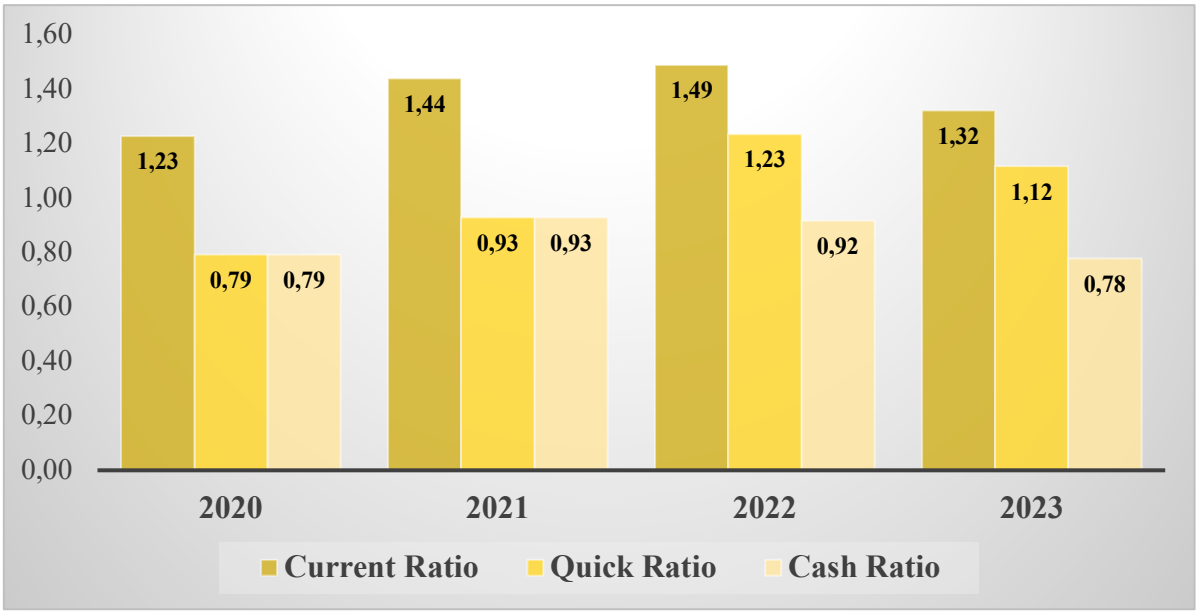

Figure 3.5: *Liquidity Ratios: Own estimates.*

However this is true, a trade-off should be noted when cash reserves are distinctively large: there are fewer resources to allocate to productive investments. So, depending on the business and industry, each with different liquidity needs and risks, the optimal ratios will vary. For this reason, increasing accessibility to cash will be only beneficial until a certain point. It falls under liquidity management to decide cash allocations and how they are best employed at a given time. With that said, these are still useful metrics that help to position a company in terms of liquidity restraints.

Firstly, **current ratio** describes the portion of current assets in relation to current liabilities. Observing the figure above, a moderate outlook stands out with an amount of available assets just enough to face short-term obligations. Generally, values between 1.5x and 3x are deemed comfortable for the digital sector, meaning Kakao would benefit from more flexibility with a slightly higher value for this metric in the future. **Quick ratio**, on another hand, accounts solely the most liquid assets able to meet immediate financial needs. Hence, its value reveals deeper insight about the fraction of quickly convertible assets available to pay off debt without delay. Inventory, for example, is not included in this computation, even though it represents a big share of assets for retailers and other industries. Conversely, Kakao's activity does not hinge heavily on this type of holdings, thus attributing special importance to this measure of liquidity. Quick ratio was below one unit before 2022 but approaching it and, for the past two years, it has been steady over one. Once more, this assessment conveys a safe approach to liquidity in forms of cash, cash equivalents and accounts receivable, without being overly prudent. It maintains an equilibrium, ensuring that promising investment opportunities

are not missed out on. Lastly, **cash ratio** is the one providing the most stringent evaluation as it focuses only on cash and cash equivalents to entirely support short-term responsibilities. As expected, it is the ratio entailing the lowest value from the three presented, just shortly behind one unit (with a decrease to 0.78 in 2023), as shown in **Figure 3.5.** Hence, it is possible to infer Kakao's strategy has enhanced the deployment of cash reserves at a pace that does not disrupt new businesses and innovation.

The final analysis of Kakao's financial health relates to its aptitude in transforming capital into profit. Possessing a vast array of assets, investments and high net worth, do not determine the success of a company by itself. If said characteristics do not translate into net income or net profit, operations undergone by the firm are questionable in efficiency. In other words, the return generated over the type and amount of capital, classifies a firm as profitable or nonviable. The next figure represents the three main ratios usually utilized in this classification for the years spanning from 2020 to 2023 as well.

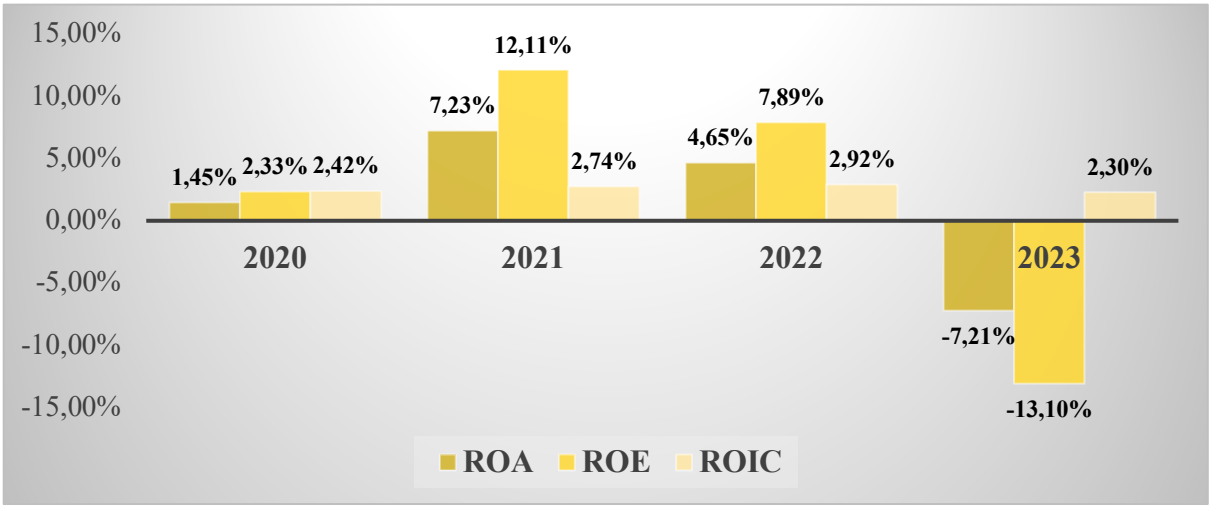

Figure 3.6: *Return Ratios. Own estimates using data from Kakao's Reports*

Return on Assets (ROA) measures, in percentage, the size of net income relatively to average total assets. As observable, it was estimated at 1.45% in 2020, which can be considered unsatisfactory for a company like Kakao, with significant resources and market presence. A year later, 2021's results yielded a ROA almost six times higher, only to fall to 4.65% in 2022 and again in 2023 to -7.21%. The inconsistency in this indicator may be explained by Kakao's core business, intensive in intangible assets, such as intellectual property, software, and human capital, which are not fully captured in asset-based measures like ROA. Moreover, to prioritize growth initiatives, as the firm has recently, immediate profitability is frequently forfeited. As a second method to assess the level of proficiency in obtaining profit, stemming from average shareholder's Equity, **Return on Equity (ROE)** was calculated. This ratio nearly doubles ROA

in absolute value, showcasing how profits after all expenses, taxes, and interest payments, represent a much bigger share of returns for its shareholders. Its evolution pattern is like ROA's, coming from 2.33% in FY 2020 to 12.11% the following year. Yet again, 2023 saw a sharp decrease in this ratio, with a ROE of -13.10%, making difficult for Kakao to sustain investor confidence in management if this ratio does not show signs of recovery in the coming years. Despite being a transition period, facing the costs and challenges of a high-value merge, the market eventually needs proof of its success integrating and generating returns.

Finally, **Figure 3.6** is complete with a column with the percentage value of **Return on Investment Capital (ROIC).** Contrary to previous ratios, ROIC considers all sources of financing, debt and equity, to judge a firm's performance. It is a tool just as fundamental to compare firms across the same sector as to guide internal decisions regard capital allocation for multiple projects within a firm. Higher values of ROIC are preferred since they indicate higher return on each monetary unit of capital invested. Nonetheless, ROIC assumes values of 2.42%, 2.74%, 2.92% and 2.30% from 2020 to 2023, respectively, which are low for a company like Kakao. In case of cost of capital being greater than its return, measured by ROIC, then Kakao is destroying shareholder value with its investments. Even when profitable on a net income basis, it is not creating economic value.

For the time being, Kakao has been tied to heavy-investment projects that place it in an expansion phase where short-term returns are sacrificed for long-term gains. Hence, only if the future holds persistently low ratios like the ones presented, they should be alarming with respect to inefficient investments or structural issues in the business model.

In conclusion, a combined examination of all these parameters enables investors and analysts to build a snapshot of the firm's financial position. That knowledge, together with some research for a deeper understanding of what lies behind them, are key to make informed and coherent decisions when investing.

3.3 Stock performance, Shareholder structure and Dividend Policy

3.3.1 Stock Performance

In November 1999, Daum Corporation, which would later become part of Kakao, was listed for the first time on the KOSDAQ stock exchange. Subsequently, following their merge in 2014, Kakao Corp was automatically included on KOSDAQ. Later, on July 2017, Kakao Corp was transferred to KOSPI, the main index of the country operated by the Korea Exchange (KRX), after soughing trading beyond KOSDAQ -renowned for technology-driven listings and for enabling the trading of stocks not featured on the primary stock exchange. This move

intended to attract a greater number of high-net-worth investors and broaden its access to different transactions.

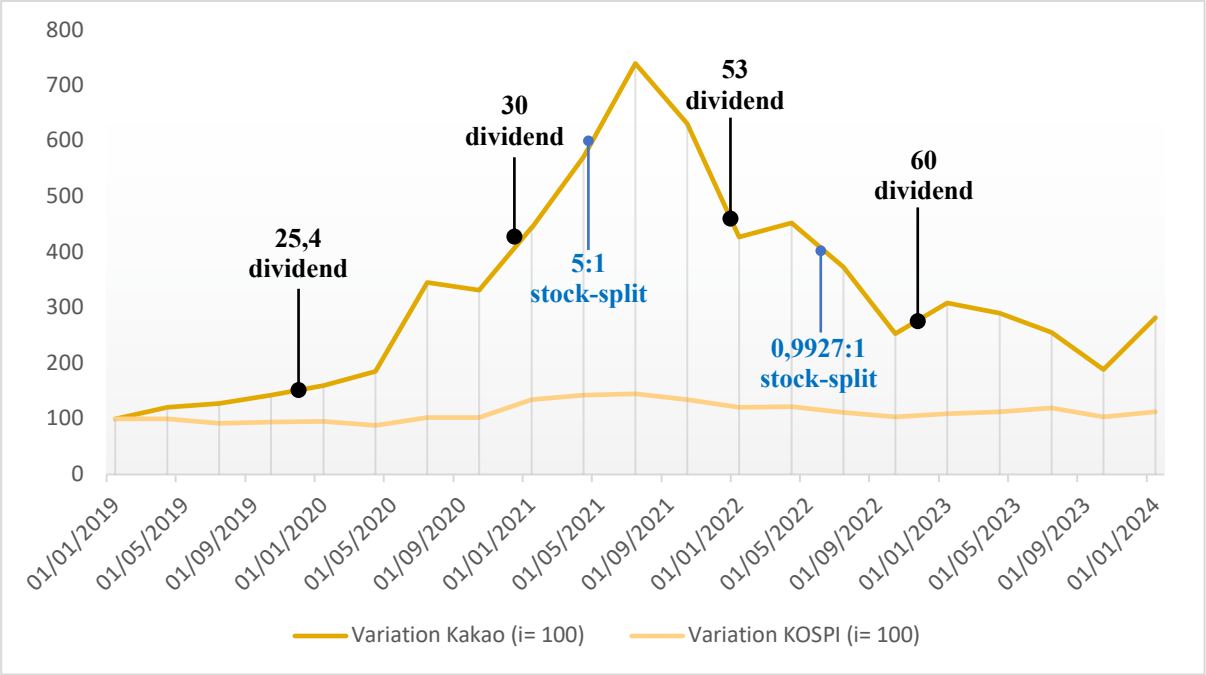

***Figure 3.7**: Relative Stock Performance: indexed to an initial value of 100 (2019-2024). Adapted from Yahoo Finance.*

Taking special attention to 2019 onwards, Kakao's stock prices have presented two opposite trends, evidenced in **Figure 3.7**. Until mid-2021, Kakao experienced a period of almost exclusive growth. In particular, a very steep one between October 2020 and July 2021, when it peaked at 148.081 won per share. The highest price was reached right before Kakao Bank's IPO, which plummeted ahead Kakao Corp's worth. However, from that month onward, Kakao suffered a decline of similar magnitude. Predominantly, this negative variation can be explained by a decline in earnings from mainstay domestic advertising operations. Due to an almost total predominance as an app messaging in the market already, penetration rates naturally came to a halt. In consequence to a stable number of users, the pace of growth experienced thus far proved impossible to maintain.

On a positive note, the latest market data indicates the start of a new recovery during the last quarter of 2023, coming from a price of 37.800 won, the lowest registered for the past three years. The beginning of an upward trend by the end of the year might bring some hope to investors about the coming year of 2024. Moreover, two stock-splits were implemented, a 5-for-1 on April 15 of 2021, and a 0.9927:1 on May 16 of 2022. The values of the dividends paid, explicit in the graph, are already adjusted for both splits.

A last remark rests on how **Figure 3.7** was assembled: instead of using absolute values in the axis x and directly observing their prices through time, the two variables were indexed to an initial common reference point of 100 for this scenario. By doing so, it is obtained a relative performance of the company's stock compared to the broader market, represented by KOSPI. This standardization facilitates interpretation of patterns between them since their market prices differ too much to visualize on the same scale. If two scales were utilized instead, the relationship between the two stocks would be partially disregarded.

3.3.2 Shareholder Structure

According to 2023's final report, there were 444.849.878 outstanding ordinary shares as of December 31, 2023, divided below by their percentage of ownership. Kim Bum Soo, Kakao's founder and chairman, is the major single and insider shareholder with a 13% stake on Kakao. K Cube Holdings Co., which is entirely owned by Kim Bum Soo as well, detains circa 10% of the company, followed by Maximo Pte, a regulatory company from Singapore with 6%.

Institutionally, the major investor is the National Pension Service, securing 6% of total stock. Finally, the remain 65% of Kakao are held by the public (i.e. free float), actively investing on the open market, illustrated in **Figure 3.8**.

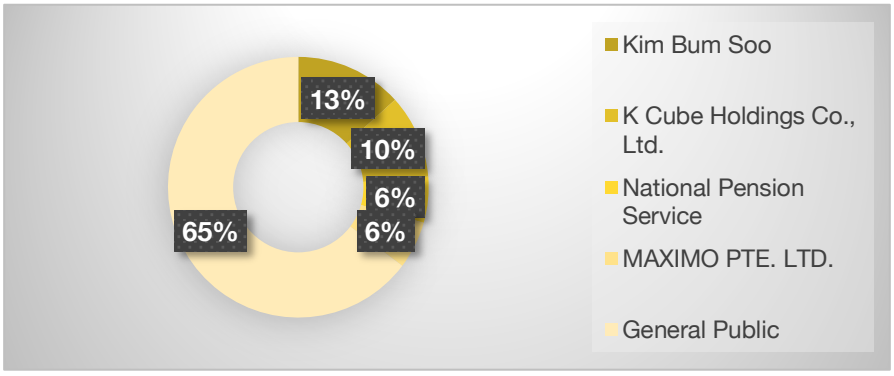

Figure 3.8: *Ownership structure. Adapted from Kakao's 2023 Audit Report.*

The firm retired 1,897,441 of its treasury shares during 2023, therefore, total par value of capital stocks issued differs from total par value of capital stocks outstanding. This is important to remark because Kakao is undergoing a strategy that involves shares buybacks, for different purposes, which are further explained in the coming sub-chapter.

3.3.3 Dividend Policy

Kakao Corp does not have a regular dividend payment schedule to its shareholders, although it might seem so from the period showcased in **Figure 3.7**. The company has occasionally paid dividends in the past, which are agreed on in every annual shareholder's meeting, because they are not issued mandatorily on a regular basis. It does not come as a surprise the company prefers to reinvest profits into the business rather than distributing them and 2023 is the perfect year to exemplify that strategy. During 2023 no dividend was paid but decision regarding year-ended 2023 was to be discussed on March-24, with a total value of 26 740 million KRW on the table to give away, corresponding to a 61 per share.

However, from a shareholder's point of view, a decreasing dividend yield with increased stock's value, with an average as low as 0.06% between 2019 and 2021, it is not agreeable even if it was the outcome of a considerable capital outflow they were anticipating. Thereafter, to improve this metric and overall satisfaction of investors, Kakao implemented a shareholder return policy for the three following years, FY2021~FY2023. This strategy consisted of allocating between 15% and 30% of separate basis free cash flows solely to shareholders return. Kakao wished to accomplish this by managing treasury shares and cash dividends: through treasury share buybacks and cancellation, using a 10%~25% FCF budget, and using the remain 5% to pay as cash dividends. Consequently, Kakao expected to enhance shareholder value and conquer new investors.

Finally, the payout ratios' values of 8.3%, 1.7% and 1.8% for 2020, 2021 and 2022, respectively, indicate the company is distributing a small portion of its earnings to shareholders as dividends. Kakao, despite having this ratio diminishing in percentage, has increased the total amount of Korean won paid out. In fact, the expenditure with dividends more than doubled from 2020 to 2022, fueled by a growth in profitability that allowed to pay higher dividends while maintaining a lower payout ratio relative to its increased earnings.

4. Kakao Corp. Valuation

This chapter is the culminating of the extensive research about several key elements comprising the valuation process. It was reached the stage where the historical data gathered, along with the company's and market's comprehensive analysis', serve to estimate through a DCF model the share price of Kakao Corporation by the end of December 2023. Within said model, a sensitivity analysis is carried out to assess the impact of variations in WACC and Terminal Growth Rate (TGR), the variables most affecting estimation results. As a final and complementary approach, a group of selected peer companies is used as a benchmark to value Kakao relatively. As explained along the first chapter, performing a Relative Valuation enhances the reliability of the Absolute Valuation's outcome.

4.1 Assumptions

Although imperative, research and data gathering need a setting of assumptions regarding their future in order to answer the model's requirements. There is no model able to predict results that are one hundred percent certain, given the subjectivity introduced by the analyst. Hence, analysts should be careful about the assumptions made along the way, striving for minimizing errors that are naturally present in the model. While we do not aim for perfection, we do believe that achieving reasonable projections is possible with the right tools and arguments backing every estimation, which are presented here on.

4.1.2 Revenues

Estimating future revenues and how they grow over time is a good place to start, given their pivotal role in a company's activity and overall value. In this case, it is essential to notice that Kakao Corporation does not operate in one single market. In fact, since founded, Kakao has continuously expanded its sources of revenues, making this a challenging analysis and projections even more so. For this reason, revenues' forecasts were treated in accordance with their nature and segmentation in Platform and Content branches. Platform is composed of three sub-segments and Content of four, totaling seven sub-branches responsible for revenue, ever since FY2020. Before that, results were presented in a different format so, historically, only four years of data were employed in sub-segment computations, from 2020 to 2023.

First and foremost, the three businesses of Platform are Talk Biz, Portal Biz and Other Platforms. **Talk Biz** is the reason behind Kakao's creation and instant success. Even though its CAGR over the last four years averaged to 20%, which is still impressive when comparing to a

10% projection for the instant messaging South Korean market, this growth trend has been strictly slowing down. Having reached already over 50% of the population, as showcased in Kakao's reports, it is not feasible to maintain such growth pace for the next five years. However, mainly due to overseas' users, it is still expected to grow at a 10% rate, half the pace as so far, in line with the CAGR of the domestic market.

Portal Biz is responsible for operating Daum web portal that includes various services such as search engine, news forum and email. This is the only sub-branch in business expected not to grow. It is an assumption that stems from Kakao having set measures to avoid a further decline of this segment by now. We believe it to be enough in preventing further plunging but not enough to turn it around completely in only five years.

Lastly, the analysis of Platform is complete with **Other Platforms**, the sub-segment reporting revenues from new initiatives like Kakao Enterprise, Kakao Brain and Kakao Healthcare. With a historical CAGR of 26%, it is assumed that it will augment up to 35% until 2028, when their incubation period starts to turn profitable. While it might be regarded as a bold assumption, Kakao has been heavily investing in large-scale AI as a medium to long-term growth engine. The recent launch of own generative AI services, like Karlo 2.0 in late 2023, is believed to take some time to be adopted by the market and scale up afterwards. Thus, this is the branch in the firm with most capabilities to sustain high growth, both from the mentioned subsidiaries and from completely new projects in development in the meantime.

Next, the sub-segment profiting from the **Music** industry and part of the Content branch is the latest that boomed in the company. Between 2022 and 2023 there was a 93% increase in revenues proceeding from SM Entertainment's acquisition. This is considered an outlier due to one-time gains from integrating SM's IP and other assets. Apart from being unsustainable to maintain on its own for long, there are also regulatory competition constraints from Korea Fair Trade Commission (KFTC) for the three years following the merge to consider. Bearing this in mind, it can be expected an uplift in revenues after that period, when integration and synergies are more successful in generating returns and post-regulation potential can be explored to the fullest, contributing to global market expansion. Albeit before that, 2024 and 2025 are attributed more conservative expectations set to grow at 20% and 16%, respectively. Because SM was acquired in the second quarter of 2023, the growth rate of the first months of 2024 is still levered by it in comparison to the previous year, which ultimately impacts overall growth of 2024.

Story, on the other hand, has been growing less each year. Even though it registered an historical CAGR of 20% during the analyzed period, 2023 did not experience significant change from the previous one due to a weakened Yen that offset increases in Japanese viewers. Yet,

until 2028, a not so different CAGR is predicted for this sub-segment, boosted by Kakao's investment in overseas' entertainment companies, like in the US. Expansion beyond Korea allows to weight in world's CAGR forecasts, which resulted in a 15% estimate.

Subsequently, another important stream of revenues is the **Game** sub-segment. Its growth is trending downwards as well, although it displays very volatile relative outcomes, depending significantly on single launches. For example, in 2021, revenues more than doubled thanks to the success of mobile game 'Odin'; while 2023 experienced a yearly decrease of 9%. Considering such fluctuations, the main assumption here is that Kakao will follow the gaming market trend on the optimistic side, which corresponds to a CAGR of 12%.

Finally, **Media** presents a similar pattern to Game, so as predictions that lead to a 12% CAGR over that period. Once again, part of this growth is organic and part attributed to SM, that brings in a vast portfolio of popular artists and content, enabling a more positive outlook of the future. For Media in particular, it enhances expertise in content production while expanding distribution through their international fanbase at the same time. **Table 4.1** displays revenues' projections until FY2028, in agreement with the assumptions explained so far:

(in million KRW)	**FY 2024(F)**	**FY 2025(F)**	**FY 2026(F)**	**FY 2027(F)**	**FY 2028(F)**
Talk Biz	2 378 645	2 735 442	3 008 986	3 159 435	3 159 435
Growth	*20%*	*15%*	*10%*	*5%*	*0%*
Portal Biz	309 900	294 405	294 405	309 125	340 038
Growth	*-10%*	*-5%*	*0%*	*5%*	*10%*
Platform- others	1 412 090	1 765 112	2 382 901	3 455 207	5 355 570
Growth	*15%*	*25%*	*35%*	*45%*	*55%*
Platfform	**4 100 635**	**4 794 959**	**5 686 293**	**6 923 768**	**8 855 044**
Growth	***15%***	***17%***	***19%***	***22%***	***28%***
Music	2 068 739	2 399 737	2 879 684	3 570 808	4 570 635
Growth	*20%*	*16%*	*20%*	*24%*	*28%*
Story	1 124 925	1 327 412	1 513 250	1 664 575	1 854 612
Growth	*22%*	*18%*	*14%*	*10%*	*11%*
Game	1 019 624	1 070 605	1 166 960	1 318 665	1 779 135
Growth	*1%*	*5%*	*9%*	*13%*	*35%*
Media	388 654	435 292	487 527	546 030	611 554
Growth	*12%*	*12%*	*12%*	*12%*	*12%*
Content	**4 601 942**	**5 233 046**	**6 047 421**	**7 100 078**	**8 815 936**
Growth	***15%***	***14%***	***16%***	***17%***	***24%***
Total Revenues	**8 702 577**	**10 028 005**	**11 733 713**	**14 023 846**	**17 670 980**

Table 4.1: *Kakao Corp.'s Revenues projections (2024-2028): Own estimates.*

4.1.2 EBITDA Margin

While a robust EBITDA relative to revenues is usually a sign of high efficiency in generating profits, the opposite does not hold completely true. For instance, Kakao has been reporting an average EBITDA margin of 16% for the last five years, which is on the lower side for digital internet companies. However, the appropriateness of this margin depends on various factors including growth strategies, market conditions and the specific business mix of the company. On one hand, Kakao has been expanding and widening its range of services, mainly by launching new apps almost every year. The recent acquisition of SM Entertainment is a solid example of the heavy investments Kakao is capable of undertaking. On the other hand, the competitive landscape in South Korea urges firms to continuously improve on marketing and advertising strategies, which amount to higher operating expenses. This balance is illustrated by Kakao that more than doubled its revenues since 2019 but kept a constant EBITDA margin due to an increase of the same proportion in operating expenses. Hence, 16% might still indicate potential to improve operational efficiency but, in this case, it mostly reflects strategic long-term investments aimed at future growth. Assuming Kakao maintains this goal, the EBITDA of the following years are presented below:

(in million KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
Revenues	8 702 577	10 028 005	11 733 713	14 023 846	17 670 980
EBITDA Margin	*16%*	*16%*	*16%*	*16%*	*16%*
EBITDA	**1 384 168**	**1 594 981**	**1 866 279**	**2 230 531**	**2 810 617**

***Table 4.2**: Kakao Corp.'s EBITDA: Own estimates.*

4.1.3 CAPEX

An identical method was employed in estimating upcoming variables such as CAPEX. By computing an average of historical ratios for each variable relative to revenues, the absolute values were found after multiplying them by forecasted revenues. The underlying assumption is always that the relative growth pattern observed in the past prolongs for a few more years.

Taking Capital Expenditures (CAPEX) as the sum of all costs required to acquire, upgrade and maintain tangible and intangible assets, its value was easily obtained from the Consolidated Statements of Cash Flows released by Kakao. The purchase of property and equipment together with the cost of intangible assets amounted to 9.56% of revenues in 2023, the highest value ever recorded and, again, in line with the augment of revenues.

On average, CAPEX has been 7.41% of total revenues, percentage applied in the table below:

(in million KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
Revenues	8 702 577	10 028 005	11 733 713	14 023 846	17 670 980
CAPEX/Revenues	*7.41%*	*7.41%*	*7.41%*	*7.41%*	*7.41%*
CAPEX	**644 761**	**742 961**	**869 334**	**1 039 007**	**1 309 217**

Table 4.3: *Kakao Corp.'s CAPEX: Own estimates.*

4.1.4 Depreciations and Amortizations

Following the same logic, forecasts for Depreciations and Amortizations are achieved after multiplying expected revenues by 7.60%, the average percentual weight of D&A from 2019 to 2023. Once more, the rise of these expenses over the years mirrors the rise of revenues, which are explicit in **Table 4.4.** D&A measure the cost of both tangible and intangible assets over their useful lives, allowing a match between expenses and the revenues they generate during a certain accounting period.

(in million KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
Revenues	8 702 577	10 028 005	11 733 713	14 023 846	17 670 980
D&A/Revenues	*7.60%*	*7.60%*	*7.60%*	*7.60%*	*7.60%*
D&A	**661 705**	**762 485**	**892 179**	**1 066 311**	**1 343 623**

Table 4.4: *Kakao Corp.'s D&A: Own estimates.*

Additionally, from 2028 onwards, when perpetuity is considered for the model, it is assumed that CAPEX and D&A have the same relative cost for the company. That implies Kakao would reinvest just enough to maintain its current asset base as a mature firm in a steady state usually tends to do in time.

4.1.5 Effective Tax Rate

To conduct a realistic and company-specific valuation, assessing the South Korean statutory tax rate is not enough. Even though this mandatory tax on national firm's income sets the base for tax expenses, there are far many other tax effects to consider when computing the total tax burden. Kakao has been subject to adjustments in prior years, tax credits, expenses/income not deductible for tax purposes and changes in valuation allowance of deferred income tax asset, reasons why its effective and statutory taxes do not coincide. Moreover, beginning on 1 January 2023, a Tax Reform of one percentage point cut was introduced in South Korea for each of its four CIT[4] brackets. This new policy means a 23.1% total tax rate for Kakao, which already includes the 10% local tax on the corporate tax applied.

[4] Corporate Income Tax.

Nonetheless, during the last five years, Kakao actually paid on average 31.70% of its income in taxes. Thus, for the forecast period, this was the average rate considered. Alongside the new tax environment, it results in an effective tax rate of 30.7%. Only in perpetuity seems reasonable to accept the reduction to 23.1%.

4.1.6 Operating Working Capital

An irreplaceable input in the upcoming stage of valuation, the estimation of free cash flows to the firm (FCFF), is a tool for measuring liquidity and operational efficiency. Operating Working Capital (OWC) offers insights into a firm's ability to meet its short-term obligations by subtracting Operating Current Liabilities from Operating Current Assets. Aditionally, its value can indicate how efficient cash flow management is and how operations are funded, depending on whether it is positive or negative. A positive OWC means that current assets are sufficient to cover current obligations. Which, in turn, improves investors' confidence since it descreases potential liquidity and financial risks. Nevertheless, it is not uncommun companies in certain markets and under certain conditions presenting a negative OWC. Kakao is an example of those companies, depicted by OWC's computations in the following table:

(in million KRW)	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Account Receivable	157 221	247 374	398 117	440 899	622 027
Inventory Assets	49 450	45 814	91 808	160 328	138 644
Receivables on Income Tax Assets	-	-	-	-	4 275
Other Current Financial Assets	252 486	225 055	319 120	361 873	575 469
Other Current Assets	193 921	232 535	182 674	236 180	468 099
Op. Current Assets	**653 078**	**750 778**	**991 719**	**1 199 281**	**1 808 513**
Account Payable	578 567	835 983	1 230 985	1 373 954	1 799 199
Other Current Liabilities	919 543	1 355 496	1 720 987	1 801 743	802 219
Op. Current Liab.	1 498 110	2 191 478	2 951 972	3 175 697	2 601 418
OWC	**(845 032)**	**(1 440 700)**	**(1 960 253)**	**(1 976 416)**	**(792 905)**
Revenues	3 070 111	4 156 816	6 136 670	6 799 048	7 557 002
WC/Revenues	*-27,52%*	*-34,66%*	*-31,94%*	*-29,07%*	*-10,49%*

Table 4.5: *Kakao Corp.'s historical OWC: Own estimates & Earnings Releases'.*

There could be several reasons that lead to a situation where current liabilities surpass current assets, resulting in negative values of OWC. Digital companies, such is the case, often have subscription policies, involving the upfront payment of services to be delivered over time. In this context, a high amount of deferred revenues (current liability) is understandable and even

expected. Moreover, companies mainly operating through digital platforms have minimal necessities of physical inventory and fixed assets. Above, **Table 5.5** reveals how OWC has been consistently negative for the last five years. Even though persistant negative values might signal potential sustainability issues, they actually resonate with Kakao's rapid expansion during a period characterized by priorizing growth over positive OWC.

In the same manner as before, historical OWC were averaged to get a mean value in relation to revenues (OWC/Revenues), then used to reach OWC projections for FY2024-FY2028. **Table 4.6** illustrates this approach, as well as yearly OWC absolute changes in the last row. A negative change in working capital results in a cash inflow, thus, increasing FCFF.

(in million KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
Revenues	8 702 577	10 028 005	11 733 713	14 023 846	17 670 980
OWC/Revenues	*-26.74%*	*-26.74%*	*-26.74%*	*-26.74%*	*-26.74%*
OWC	(2 326 857)	(2 681 244)	(3 137 309)	(3 749 634)	(4 724 789)
ΔOWC	**(1 533 952)**	**(354 387)**	**(456 065)**	**(612 326)**	**(975 155)**

Table 4.6: *Kakao Corp.'s OWC projections: Own estimates.*

4.1.7 Terminal Growth Rate

Finally, only the Terminal Growth Rate (TGR) estimation is lacking in order to obtain the last FCFF, also called Terminal Value (TV). This rate is the perpetual growth of a company's free cash flow beyond the explicit forecast period. The higher the TGR, the more optimistic expectations must be about the long-term growth of the firm. This being said, we assumed a TGR equivalent to the sum of the weighted average of expected real GDP growth and expected inflation, predicted by the IMF. In attempting higher accuracy when using these inputs, they were distinguished from each other according to the geographical area responsible for Kakao's revenues in 2023. The Annual Report of 2023 highlights South Korea (80.5%) as the main customer, with no surprises. Followed by the rest of Asia representing 12.7% of revenues, while the missing 6.8% were attributed to "Others", referring to the rest of the world. The outcome was a nominal TGR of 4.54%, with 2.4% assigned to real growth and the remaining 2.1% to inflation.

4.2 Discounted Cash Flow Model

Solving for the price per share through a DCF model entails determining the FCFF and the cost of capital beforehand. In order to do so, all estimates are assembled under the DCF equation,

producing an Enterprise Value. From it, an Equity Value is derived followed by the value per share of Kakao.

4.2.1 Free Cash Flows to Firm

Determining FCFF is straightforward at this point since all inputs have previously been assessed. Therefore, by plugging them in Equation 3, the values summarized below are obtained in that order:

(in million KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
EBITDA	1 384 168	1 594 981	1 866 279	2 230 531	2 810 617
(-) D&A	661 705	762 485	892 179	1 066 311	1 343 623
EBIT	722 463	832 497	974 100	1 164 220	1 466 995
Tax Value	221 762	255 537	299 003	357 361	450 298
NOPAT	500 701	576 959	675 097	806 859	1 016 697
(+) D&A	661 705	762 485	892 179	1 066 311	1 343 623
(-) Capex	644 761	742 961	869 334	1 039 007	1 309 217
(-) ΔWC	(1 533 952)	(354 387)	(456 065)	(612 326)	(975 155)
FCFF	**2 051 597**	**950 871**	**1 154 007**	**1 446 489**	**2 026 256**

Table 4.7: *Kakao Corp.'s FCFF forecasts (2024-2028): Own estimates.*

4.2.2 Cost of Capital

Hereon, several elements are introduced to obtain the cost Kakao bears to raise capital. In other words, the cost of both debt and equity, according to Kakao's particular capital structure. Hence, in a DCF model like this one, the cost of capital goes also by the name of Weighted Average Cost of Capital (WACC) since every company at a certain moment in time has its own mixture of debt and equity.

4.2.2.1 Capital Structure

With the purpose of assessing the percentage of capital funded throught equity and debt, their market values must be observed at the same date. The total market value of equity by the end of FY2023 corresponds to the total number of shares outstanding multiplied by the value per share, worth 24 155 348 million korean won as of 28, December 2023. By the end of 2023, Kakao had 444 849 878 shares outstanding priced at 54 300 korean won each, data from Yahoo Finance.

Similiarly, the market valued debt in 5 980 658 million korean won. The only method feasible to arrive at this value was summing short and long-term borrowings, lease liabilities

and financial lease liabilities, available in the Notes of Financial Statements and assuming their book value is close to their market value.

4.2.2.2 Cost of Debt

Cost of debt reveals the level of risk Kakao is perceived to have in lenders' point of view. The higher probability of default, the higher return demanded. This probability, also called default spread or credit spread, can be estimated from an existent table built by Damodaran where credit ratings are directly linked to percentages of default. Kakao is rated AA by Korea Investors Service (KIS), an affiliate of Moody's, being comparable to an Aa2 rating by the later. Kakao classification according to Damodaran matches a rate of 0.54%, meaning, investors require a yield that surpasses the risk-free government bond of the same maturity in 0.54% to prefer Kakao over the market stock.

This reasoning implies the cost of debt will be equal to the credit spread together with the best proxy to a risk-free rate. In this scenario, the yield of the 10-year South Korean government bond was utilized, averaged daily since 1, January 2022 until 31, December 2023. This brings about a 3.22% return without risk, translating in a pre-tax cost of debt of 3.76%. Yet, the real expense debt bears on Kakao is only 2.60% when taking into account the tax deductibility of interest expenses. This value provides a more accurate measure of the cost of borrowing by factoring in the tax shield, making it the best estimate to include in a WACC calculation.

4.2.2.3 Cost of Equity

The estimation of cost of equity is not as straightforward as the cost of debt, involving its own model with variables not yet analyzed. Pursuant to a detailed explanation in the Literature Review, the Capital Asset Pricing Model (CAPM) incorporates a risk-free rate, an equity market risk premium and a stock's beta to compute the return investors expect from investing in a particular stock.

Risk-free Rate

The best proxy to the risk-free rate in Kakao's circumstances is assumed to be the 10-year South Korean government bond equivalent to 3.22%, as disclosed in the previous cost of debt's calculation.

Market Risk Premium

The market or equity risk premium is the additional return investors require to invest in the stock market over a risk-free investment. Kakao, as a South Korean company, inserts itself within the 5.32% market average of the country, in accordance with Damodaran and Dow Jones estimates between 2022 and 2023.

Beta

Beta is the variable that measures a company's assets systematic risk. If it also considers the impact of its capital structure, it is called beta levered or equity beta. This beta was derived directly from the relationship between the returns of the company and the market index. Once gathered historical returns between 2022 and 2023 for Kakao and KOSPI (Yahoo Finance), the slope function bewteen them solved for the levered beta. The outcome of 1.56 means that Kakao's stock presents 56% more volatility than the overall market.

The price paid by Kakao to raise equity is 11.50% according to **Table 5.8** that complies with the CAPM formula:

Risk-free Rate	3.22%
Levered Beta	1.56
MRP	5.32%
Cost of Equity	**11.50%**

***Table 4.8**: Kakao Corp.'s Market Cost of Equity: Own estimates.*

It was not considered an additional CRP (Country Risk Premium) because foreign risk to Kakao comes mostly from Asia, in particular Japan, which are of similar risk to South Korea.

4.2.2.4 WACC

The value of the discount factor arrived below weights these costs, of debt and equity, as per their share, while factoring in the effect of the tax rate. As shown below, this percentage falls within the WACC's average of similar companies to Kakao, usually ranging from 8% to 12%.

After-tax Cost of Debt	2.60%
Cost of Equity	11.50%
Equity/Capital	80.15%
Debt/Capital	19.85%
Tax Rate	30.70%
WACC	**9.58%**

***Table 4.9:** Kakao Corp.'s WACC: Own estimates.*

4.2.3 Enterprise Value

This chapter has progressively developed with the aim of attaining an Enterprise Value. At last, by completing Equation 4 with the estimates computed so far, Kakao was valued in 24 176 371 million Korean won in 2023. **Table 4.10** portraits the six elements adding up to that total amount:

(million of KRW)	**FY2024 (F)**	**FY2025 (F)**	**FY2026 (F)**	**FY2027 (F)**	**FY2028 (F)**
PV FCFF	1 872 254	791 894	877 054	1 003 242	1 282 501
PV Terminal Value				28 943 194	(in perpetuity)
Enterprise Value				**24 146 286**	**(FY2023)**

***Table 4.10**: Kakao Corp.'s Enterprise Value: Own estimates.*

Five out of these six elements are the FCFF computed beforehand discounted at the WACC of 9.58%. In doing so, the value of those cash flows is adjusted to the present time of valuation, the financial year of 2023. The element left in this sum corresponds to the present value of the cash flow estimated in perpetuity, after assuming it will grow forever at 4.54%. This component must be discounted as well at 9.58% to be in agreement with the timeline.

4.2.4 Equity Value

The Enterprise Value, although very useful and insightful as a metric for investors, it is not the final goal of this valuation. In fact, to achieve a price per share as of FY2023, there are still two steps to go: arrive at an Equity Value to begin with; then, divide it by the total number of outstanding shares at that time.

Following step one, the Equity Value (EQV) can be derived from the Enterprise Value (EV) by subtracting net debt and minority interests. Because it is only intended to evaluate Kakao's worth attributed to shareholders, debt and the portion of the subsidiaries' equity not owned by Kakao are not a part of it. Net debt consists of subtracting non-operating assets (NOA) from total market debt.

Lastly, the second step encompasses just distributing the 21 292 294 million of Korean won (EQV) by the 444 849 878 issued shares owned by shareholders. Their singular price of 47 864 Korean won is then revealed. The knowledge that, by the end of 2023, each share was being traded at 65 050 Korean won, empowers investors to compare Kakao with other public companies and execute market transactions with a fair sense.

(million of KRW)	**FY2023**
Enterprise Value	24 146 286
NOA	7 221 546
Debt	5 980 658
Net Debt	(1 240 888)
Minority Interests	4 094 880
Equity Value	**21 292 294**
Shares Outstanding	444,84988
Price per Share	**47 864**

***Table 4.11**: Kakao Corp.'s Equity Value and Value per Share: Own estimates.*

4.2.5 Sensitivity Analysis

To enhance the DCF approach, a sensitivity analysis was conducted focusing on two key variables: the Terminal Growth Rate (TGR) and the discount rate (WACC) due to their significant impact on the price.

		WACC				
	Price in KRW	7.66%	8.62%	**9.58%**	10.54%	11.49%
TGR	3.63%	63 093	50 090	41 265	34 879	30 042
	4.09%	70 454	54 617	44 291	37 023	31 625
	4.54%	79 959	60 152	**47 864**	39 491	33 415
	5.00%	92 705	67 076	52 145	42 364	35 455
	5.45%	110 690	75 985	57 369	45 750	37 802

***Table 4.12**: Sensitivity Analysis on Kakao's Price Per Share in 2023 (KRW): Own estimates.*

By adjusting these variables in **Table 4.12**, investors can observe how 2023's share price would be under different scenarios and compare it to the real share price on the same date. Consequently, both rates were altered positively and negatively by 1% and 2%, resulting in share prices ranging from a minimum of 30 042 to a maximum of 110 690 korean won. These changes represent a 37.2% decrease and 131.3% increase, respectively, compared to the original price of the DCF model.

Yet agreeable, these are the most extreme values possible to get from this model from these variations. The lower-limit is obtained by combining the highest WACC (11.49%) with the lowest TGR (3.63%) and the upper-limit by combining the lowest WACC (7.66%) with the highest TGR (5.45%).Their opposite effects on the price would be expected given the rates' nature, WACC a discount rate and TGR a growth rate.

4.2 Relative Valuation

Relative Valuation is another approach to evaluate equity, serving as a useful complement to a DCF model since it validates results when their outcome aligns or facilitates detection of errors not evident before when they do not. This method works through comparison between companies competing in the same business sector and similarly valued by the market (size).

As such, selecting a suitable peer group determines how accurate relative valuation ought to be. The five chosen companies to benchmark against Kakao are all digital companies in expansion originally from Southeast Asia. Their operations are also centered in several online services, thus, competing with Kakao in a wide range of businesses rather than just one. Naver, as mentioned earlier, is considered its number one competitor, having a very similar market presence in South Korea, even dominating some markets over Kakao, and with a higher market capitalization for the time being.

Identifier	Company	EV/EBITDA	P/S
035420.KS	Naver Corp.	26.28	3.62
CPNG	Coupang	33.53	1.25
251270.KS	Netmarble Corp.	95.31	1.89
0700.HK	Tencent Hold. L.	11.23	4.73
9984.T	SoftBank Group Corp.	15.40	1.4
Multiples' Average		**36.35**	**2.58**

Table 4.13: *Kakao Corp's peer group's multiples: Yahoo Finance & own computations.*

In addition to competitors, defining which indicators are better fitted to the characteristics of the target company is another priority. Considering Kakao's inconsistent profitability and its negative Earnings-per-share (EPS) in 2023, Price-to-Sales (P/S) and Enterprise Value to EBITDA (EV/EBITDA) were the multiples preferred for this valuation, displayed in **Table 4.13**. Whereas focusing on revenue rather than profitability with a P/S ratio is more insightful about revenue growth potential and sales performance, EV/EBITDA aids in assessing the company's ability to generate cash flow from its core operations. Together, these multiples provide a more comprehensive financial analysis of operating efficiency and profitability of Kakao, as intended.

Once obtained the average for both ratios, EV/EBITDA of 36.35 is multiplied by EBITDA of 2023 to arrive at an Enterprise Value. Analogously, the average of 2.58 computed

for P/S is multiplied by total revenues of 2023, yielding directly an Equity Value of 19 481 951 million Korean won, as shown below:

Relative Valuation	**EV/EBITDA**	**P/S**
Multiple	36.35x	2.58x
Equity Value *(million KRW)*	272 235 423	19 481 951
Price per share *(KRW)*	611 971	43 794

Table 4.14: *Kakao Corp's Relative Valuation for 2023: Yahoo Finance & own estimates.*

4.3 Results

Observing **Table 4.14** which is the summary of relative valuation's results, it is possible to draw two conclusions right away. The first one being that the approach with P/S metric supports the result from the DFC model, even though they are not quite the same. The price per share retrieved from this method was 43 794 Korean won, which is only 8.5% below 47 864 Korean won, the price from absolute valuation.

The second take out is that an EV/EBITDA multiple among this peer group falls short in originating a realistic price for Kakao. Not only the outcome contradicts the others mentioned, but also is absurdly higher than them and, consequently, too far off the true price. There are several reasons that could be behind this inaccuracy, the most probable one being market sentiment and speculation, in our opinion. Especially for tech companies with strong future growth narratives, investors often have high expectations, driving relative valuations to reflect future potential rather than current performance. Also, the latest strategic move pulled by Kakao of investing in SM Entertainment has been accompanied by huge hype, possibly leading to more speculation around this period.

To sum up, when dealing with the many variables involved in a valuation process, it is fundamental to balance actual performance, projections and inherent risks. For decision making purposes, only P/S metric was considered due to the motives already exposed. This way, the findings of this valuation as of December 2023, place a discount on Kakao's stock, attributing it less intrinsic worth than the market at that time.

Conclusion

This equity research on Kakao Corp, using both the Discounted Cash Flow (DCF) model and relative valuation methods, has revealed that the company's intrinsic value was **lower** than the market's assessment by the end of 2023. After thorough research, the DCF analysis, based on forecasts of future cash flows and discount rates, indicated that the company's fundamentals—such as revenue growth, profitability, and risk—were not strong enough to justify the market price at the time. Additionally, the relative valuation approach, through multiples like the Price-to-Sales (P/S) ratio, showed Kakao Corp was trading at a **premium** compared to its industry peers.

This discrepancy suggests that the market was **overpricing Kakao's stock**, likely driven by optimism or speculative behavior, rather than a reflection of the company's true financial health or growth prospects. The overvaluation presents a cautionary signal for investors, as the gap between intrinsic value and market price implies a potential correction in the future.

In light of these findings, the recommendation to investors would be to **avoid acquiring Kakao Corp's shares at that current price**. For those holding the stock, it may be prudent to consider **selling** or reducing exposure, as the stock is likely to face downward pressure once the market adjusts its expectations to more accurately reflect the company's actual value.

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Annexes

Annex A: Historical Balance Sheet

(Unit: KRW Million)	2020	2021	2022	2023
ASSETS				
Current Assets	**4 462 924**	**8 102 194**	**7 755 733**	**8 943 260**
Cash and Cash Equivalents	2 877 514	5 231 504	4 780 244	5 268 779
Short-term Financial Instruments	694 069	1 573 559	1 210 213	1 661 509
Fair value through profit or loss	134 503	305 060	565 644	154 695
	-	-	-	-
Derivatives Instruments Assets	312	352	351	220
Account Receivable	247 374	398 117	440 899	622 027
Other Current Financial Assets	225 055	319 120	361 873	575 469
Inventory Assets	45 814	91 808	160 328	138 644
Other Current Assets	232 535	182 674	236 180	468 099
Assets held for sale	5 749	-	-	49 543
Receivables On Income Tax Assets	-	-	-	4 275
Non-Current Assets	**6 987 396**	**13 711 985**	**14 451 091**	**15 090 187**
Long-term Available for Sales	10 174	10 139	10 132	12 992
Fair value through profit or loss	303 222	302 249	502 078	484 753
Fair value through other comprehensive income	702 575	1 219 163	1 449 567	1 658 868
Derivatives Instruments Assets	1 504 419	-	6 211	12 340
Investments in Associates and Joint Ventures	121 291	3 215 802	2 651 898	2 941 239
Other Non-current Financial Assets	430 668	144 002	269 788	289 480
Tangible Assets	3 351 553	554 916	885 397	1 322 051
Intangible Assets	-	6 347 795	6 022 352	5 688 508
Investment Properties	345 325	101 296	20 878	73 807
Right-of-use Assets	-	1 399 234	1 715 592	1 770 900
Invested asset for postemployment benefit	-	6 297	69 448	60 429
Other Non-current Assets	166 487	339 172	353 770	255 674
Deferred Income Tax Assets	51 683	71 920	493 980	519 144
Finance Assets	**503 650**	**965 379**	**756 828**	**1 146 522**
Cash and Deposit	36 632	341 952	122 176	229 209
Fair value through profit or loss	386 625	495 952	496 616	677 902
Fair value through other comprehensive income	-	-	-	-
Current investments in equity instruments	-	-	16 175	67 375
Tangible Assets	5 850	11 782	15 037	14 878
Intangible Assets	36 034	33 228	70 561	80 379
Right-of-use Assets	3 533	11 200	3 093	2 256
Invested asset for postemployment benefit	-	-	289	1 212
Insurance Contracts Assets	-	-	108	199
Other Finance Assets	29 164	30 498	15 590	71 055
Other Assets	5 812	40 767	17 181	2 057
Total Assets	**11 953 970**	**22 779 559**	**22 963 652**	**25 179 969**

(Unit: KRW Million)

Accounts (...)	2020	2021	2022	2023
LIABILITIES	-			
Current Liabilities	**2 929 590**	**5 630 274**	**5 210 219**	**6 766 753**
Account Payable and Other Payable	835 983	1 230 985	1 373 954	1 799 199
Short-term Borrowings	188 420	1 258 828	1 096 884	1 629 452
Withholdings	302 038	384 150	442 303	521 689
Other Non-current Financial Assets	33 859	653 737	38 623	1 556 291
Income Tax Payable	112 124	188 902	157 670	144 441
Provisions	5 858	11 243	20 574	20 652
Derivatives Instruments Liabilities	16 919	11 912	34 075	8 196
Current Finance Lease Obligations	78 896	169 531	244 391	284 615
Other Current Liabilities	1 355 496	1 720 987	1 801 743	802 219
Non-Current Liabilities	**1 166 098**	**2 885 094**	**3 797 874**	**3 737 184**
Non-Current Account Payable and Other Payable	40 882	63 708	110 592	67 666
Long-term Borrowings	409 801	553 054	1 176 181	845 628
Non-Current Provisions	19 594	51 934	70 152	80 962
Non-Current Finance Lease Obligations	273 311	1 318 155	1 643 416	1 730 858
Defined Benefit Liabilities	10 313	-	18 514	22 455
Other Long-term Employee Benefits Liabilities	53 832	67 927	73 168	69 997
Non-Current Derivatives Instruments Liabilities	20 887	-	3 540	-
Deferred Income Tax Liabilities	248 960	756 812	606 586	719 232
Other Non-Current Financial Liabilities	58 188	43 010	25 620	161 925
Other Non-Current Liabilities	30 330	30 494	70 105	38 460
Financial Liabilities	**430 553**	**674 218**	**439 876**	**817 434**
Deposit due to customers	377 849	598 311	394 287	714 931
Deferred Income Tax Liabilities	-	-	-	-
Defined Benefit Liabilities	192	338	-	-
Other Employee Benefits	264	1 020	2 342	4 485
Provisions	229	1 151	1 124	845
Insurance Contract Liabilities	-	-	190	2 763
Finance Lease Obligations	3 304	10 266	2 327	1 711
Other Financial Liabilities	41 400	49 080	33 213	88 019
Other Liabilities	7 313	14 052	6 392	4 679
Total Liabilities	**4 526 241**	**9 189 586**	**9 447 969**	**11 321 370**
EQUITY	-			
Paid-in Capital	44 301	44 641	44 592	44 535
Capital Surplus	5 833 100	7 781 245	8 116 372	8 839 891
Othter Accumulated Earnings	18 617	77 070	41 031	7 571
Accumulated Other Comprehensive Income	86 577	371 825	-1 249 666	-1 050 415
Retained Earnings	316 325	1 709 599	3 031 365	1 926 245
Minority Interest	1 128 809	3 605 593	3 531 989	4 094 880
Total Equity	**7 427 729**	**13 589 972**	**13 515 683**	**13 862 707**
Total Liabilities & Equity	**11 953 970**	**22 779 559**	**22 963 652**	**25 184 077**

Source: Kakao Corp's Annual Reports from 2020 to 2023.

Annex B: Historical Income Statement

(Unit: KRW Million)	2020	2021	2022	2023
Total Revenue	**4 156 816**	**6 136 669**	**6 799 048**	**7 557 002**
Platform	**2 247 924**	**3 240 778**	**3 462 565**	**3 554 442**
Talk Biz	1 148 979	1 643 922	1 901 657	1 982 204
Portal Biz	477 951	492 503	424 099	344 334
Platform-Others	620 994	1 104 353	1 136 808	1 227 904
Content	**1 908 892**	**2 895 891**	**3 336 483**	**4 002 560**
Music	705 324	772 516	894 096	1 723 949
Story	527 987	791 702	920 917	922 070
Game	495 458	998 759	1 109 512	1 009 529
Media	180 124	332 915	411 958	347 012
Operating Expenses	**3 700 961**	**5 541 752**	**6 229 692**	**7 096 144**
Labor Cost	920 205	1 416 910	1 700 974	1 860 187
Cost of Revenue	1 746 443	2 477 275	2 654 367	2 986 373
Outsourcing / Infrastructure	457 680	740 981	684 427	834 863
Marketing Expenses	232 274	435 233	417 195	405 846
Depreciation and Amortization Cost	265 289	366 800	580 359	750 923
Operating expense, Finance	5 839	9 134	12 041	29 737
Miscellaneous	73 230	95 419	180 329	228 215
Operating Profit = EBIT	**455 856**	**594 917**	**569 356**	**460 858**
Operating Profit Margin	10,97%	9,69%	8,37%	6,10%
Other Non-Operating Income	**352 353**	**1 733 429**	**2 013 527**	**192 325**
Other Non-Operating Expenses	**546 064**	**407 247**	**1 111 461**	**2 314 424**
Financial Income	**216 106**	**177 819**	**342 770**	**317 437**
Financial Expenses	**72 670**	**315 317**	**487 663**	**308 396**
Equity-method Income	**8 692**	**510 093**	**-57 629**	**3 960**
Profits of associates and joint ventures		596 401	100 294	122 169
Losses of associates and joint ventures		86 308	157 923	118 209
Income Tax Expense	58,15%	28,23%	15,91%	10,22%
Profit before Income Tax	**414 271**	**2 293 694**	**1 268 900**	**-1 648 240**
Income Tax	**240 912**	**647 540**	**201 906**	**168 429**
Net Profit from Continued Operations	**173 360**	**1 646 153**	**1 066 994**	**-1 816 669**
Net Profit	**173 360**	**1 646 153**	**1 066 994**	**-1 816 669**
Controlling Interests	155 624	1 392 152	1 357 996	-1 012 551
Non-controlling Interests	17 736	254 001	-291 002	-804 118
EBITDA	**718 202**	**958 160**	**1 138 920**	**1 210 741**
Adjusted EBITDA		**1 106 180**	**1 297 484**	**1 294 805**

Source: Kakao Corp's Annual Reports from 2020 to 2023.

Annex C: Historical Revenues per Segment

(in million KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Talk Biz	1 148 979	1 643 922	1 901 657	1 982 204
Growth	-	43%	16%	4%
Portal Biz	477 951	492 503	424 099	344 334
Growth	-	3%	-14%	-19%
Platform- others	620 994	1 104 353	1 136 808	1 227 904
Growth	-	78%	3%	8%
Platfform	**2 247 924**	**3 240 778**	**3 462 565**	**3 554 442**
Growth	**57%**	**44%**	**7%**	**3%**
Music	705 324	772 516	894 096	1 723 949
Growth		10%	16%	93%
Story	527 987	791 702	920 917	922 070
Growth		50%	16%	0%
Game	495 458	998 759	1 109 512	1 009 529
Growth		102%	11%	-9%
Media	180 124	332 915	411 958	347 012
Growth		85%	24%	-16%
Content	**1 908 892**	**2 895 892**	**3 336 483**	**4 002 560**
Growth	**17%**	**52%**	**15%**	**20%**
Total Revenues	**4 156 816**	**6 136 670**	**6 799 048**	**7 557 002**

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.

Annex D: Historical EBITDA/Revenues

(million of KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Revenues	4 156 816	6 136 670	6 799 048	7 557 002
EBITDA Margin	*17%*	*16%*	*17%*	*16%*
EBITDA	718 202	958 160	1 138 920	1 210 741

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.

Annex E: Historical D&A/Revenues

(million of KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Revenues	4 156 816	6 136 670	6 799 048	7 557 002
D&A	265 289	366 800	580 359	750 923
D&A/Revenues	6,38%	5,98%	8,54%	9,94%

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.

Annex F: Historical CAPEX/Revenues

(million of KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Revenues	4 156 816	6 136 670	6 799 048	7 557 002
CAPEX	- 270 029	- 370 704	- 642 876	- 722 230
CAPEX/Revenues	6,50%	6,04%	9,46%	9,56%

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.

Annex G: Historical Tax Rate/Revenues

(million of KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Income before taxes	414 271	2 293 694	1 268 900	-1 648 240
Income tax expense	240 912	647 540	201 906	168 429
Tax rate	58%	28%	16%	10%

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.

Annex H: Historical CAPEX/Revenues

(in million of KRW)	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Account Receivable	247 374	398 117	440 899	622 027
Other Current Financial Assets	225 055	319 120	361 873	575 469
Receivables On Income Tax Assets	-	-	-	4 275
Inventory Assets	45 814	91 808	160 328	138 644
Other Current Assets	232 535	182 674	236 180	468 099
Op. Current Assets	**750 778**	**991 719**	**1 199 281**	**1 808 513**
Account Payable and Other Payable	835 983	1 230 985	1 373 954	1 799 199
Other Current Liabilities	1 355 496	1 720 987	1 801 743	802 219
Op. Current Liabilities	**2 191 478**	**2 951 972**	**3 175 697**	**2 601 418**
OWC	- 1 440 700	- 1 960 253	-1 976 416	- 792 905
Revenues	4 156 816	6 136 670	6 799 048	7 557 002
WC/Revenues	-34,66%	-31,94%	-29,07%	-10,49%

Source: Kakao Corp's Annual Reports from 2020 to 2023; own calculations.