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**A critical perspective on different evaluation
methods and the importance of intangible factors:
the Sisal case**

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Introduction

Determining the intrinsic value of a company is often the starting point for the implementation of important changes in the structure, organization and even ownership of the firm. This is why obtaining an accurate estimation is a fundamental pre-requisite for successful operations such as mergers, acquisitions or initial public offerings. Dating back to the early part of the 1900s through the 1950s, different valuation theories and approaches became increasingly important in the wake of the booming US stock market. Over these decades, equity valuation techniques were pioneered in the US, whereby the focus of market operators was directed to dividends capitalization first and to the concepts of growth and intrinsic valuation later. Overtime, emerging valuation approaches have introduced improvements and further applications to these techniques, reflecting the evolving nature of firms operating in the complexities of global markets.

In today's financial environment, valuation methodologies are a key tool to understand the value of public and private companies in a handful of different scenarios, such as M&A transactions, private equity-backed LBOs, equity issuances, restructurings. At the same time, valuation methodologies represent the cornerstone for firm valuation on a standalone basis for investment decision purposes, in order to assess if a security or a public company is overvalued or undervalued relative to its financials and competitive dynamics. To date, the evaluation of companies on the basis of historical data to make a projection of their future trends is still extremely relevant and is practiced from researchers and professionals.

Despite its undiscussed importance, there is no agreement on which method is the most reliable and accurate in order to get the real, intrinsic value of a firm, as they may differ in their application and results. It may even be possible to argue that a truly optimal method does not exist, and that it may be more appropriate to select it depending on the case in analysis. While it is certainly important to take into account the peculiarities of the firm to be evaluated, there are some inherent flaws in each evaluation method, that can lead to an inaccurate valuation due to the exclusion of crucial factors, relevant for the business taken into consideration.

The argument upon which the following analysis is founded relies precisely on this assumption. Each industry has different rules, features and unique factors, which in turn influence firms' behavior and success in their field. Indeed, it would be incorrect to evaluate a specific characteristic or performance of a company as unquestionably positive or negative:

companies do not exist in a vacuum and their success is dependent on their ability to adapt to the circumstances of the broader market environment.

This is why profitable, long-standing companies often develop unique capabilities and assets in order to sustain their competitive advantage and to maintain their leadership on the market. In this respect, it may be relatively simple to point out the physical assets that can advantage a company in a specific environment and make it a market leader: for example, a car manufacturer with a sizeable plant and modern production technologies may acquire over time significant benefits due to the realization of economies of scope and scale, improved efficiency and lower costs, affecting positively the overall performance of the company. Even the ownership of a patent, although not a physical asset, can be relatively simple to assess and incorporate within the performance measurement framework of a firm, through its impact on product differentiation or cost savings, for example.

On the other hand, the impact assessment of intangible factors is a much more complicated analysis to perform, and its quantification is a difficult question. Moreover, establishing and analyzing the relationship between the aforementioned intangible factors and the financial performance of a firm is even harder. When dealing with immaterial, undefined assets (such as the attitude of the workforce, the propension towards innovation or the long-term experience in the market) the first relevant question is how to define them and how they work within the context of the firm. To further isolate their potential impact on the financial performance, it would also be necessary to quantify it, as well as the scale and the scope of its influence. However, this type of analysis is seldom performed in conjunction within the context of a classic valuation, and the contribution of relevant intangible and strategic assets may often be overlooked in the overall financial performance framework. This may have far-reaching consequences, resulting in an inaccurate valuation in the short term and in a potential undervaluation in the long term, a particularly damaging eventuality in the case of an acquisition or an IPO, for example.

Taking into account these elements, the following analysis will be focused on the comparison of three valuation methods and their application to one case study, in order to assess which is the most appropriate to fully register the impact of strategic intangible factors.

In Chapter 1, a theoretical overview and a literature review of the valuation models will be performed, in order to detail with further accuracy the valuation techniques that will be employed. The second chapter will be first focused on the analysis of the selected target company, Sisal, as well as the broader market of the gaming industry, to develop a deeper understanding of the firm's business model and the peculiar circumstances of the industry

environment; the following part of the chapter will be devoted to the examination of the intangible strategic factors to be considered in the analysis. Due to the inherent difficulty in defining and analyzing them, various theoretical frameworks will be employed: this will enable the identification of the most relevant factors in the case at hand and the subsequent analysis of Sisal's performance on each dimension. In Chapter 3, after a brief discussion of the assumptions and the methodology employed, the bulk of the valuation will be performed. In particular, each of the previously described methods will be applied to the company, in order to obtain the target stock price and to estimate the enterprise value. This will be followed by an assessment of the aforementioned analysis. Starting from the results of the valuation, the projected stock price will be examined and compared across the three different methods. Each one of them will then be assessed to check whether it takes into account the strategic intangible factors outlined before or not, and in what measure. According to this criterion, the models will then be ranked according to their sensibility to these factors, and the eventual shortcomings will be discussed. In the final section it will be argued that the lack of consideration towards certain intangible factors causes a substantial undervaluation of the firm at hand, penalizing it from the economic point of view, as well as from the strategic and growth potential.

Chapter 1. Evaluation Methods: an overview

The Dividend Discount Model

The Dividend Discount Model is based on dividend discounting and represents one specific approach of the Discounted Cash Flow (DCF) analysis. The basic understanding of the model lays its foundation on the fact that shareholders are remunerated with cash flows out of two different sources: the value of the share at the time they liquidate their position and the dividends per share paid by the company during the holding period. Therefore, the only recurrent cash flow received during the holding period of one share of a publicly traded company is the dividend.

For this reason, the Dividend Discount Model is considered a relatively simple and intuitive method for the valuation of the equity of a company. According to the model, the value of a security is given by the present value of all the expected dividends on the stock itself. Hence, since the expected price is determined by the sum of dividends coming into the future, the value of a security today corresponds to the present value of the expected dividends (assumed to be paid for an indefinite future period of time) discounted by an appropriate rate. The generic formula of Dividend Discount Model is:

$$\text{Value per share of stock} = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1 + k_e)^t}$$

$E(DPS_t)$ = Expected dividend per share at time t

R_e = Cost of equity.

t = year to which $E(DPS)$ are considered.

The Dividend Discount Model is based on the present value concept: the value of any asset corresponds to the present value of future expected cash flows, discounted at a rate factoring into the model the level of risk of the cash flows subject to discounting. Thus, two fundamental inputs are necessary for the construction of the model: the expected dividends (together with the future growth expected) and the cost of equity. In order to determine the expected dividends, it is necessary to make some assumptions regarding the future growth rate

of the company's earnings and the dividend / earnings ratio (the so-called payout ratio, meaning the percentage of profits distributed to shareholders).

Conversely, the expected rate of return of a security is determined by its degree of risk, estimated through different models. One of the most known coefficients used for this purpose is the market β in the Capital Asset Pricing Model (CAPM). The CAPM model was first introduced in 1964 as a quantitative model based on Markowitz's theory proposing the relationship between a security's yield and its level of risk (expressed in terms of volatility). The foundation of the model relates to the existence of two different sources of risk for an individual investing in a security: the diversifiable risk (mitigated through diversification) and the systemic risk (which cannot be reduced or eliminated by diversification). Another key theoretical prerequisite of the CAPM relies on the concept of risk premium: investing in a diversified market portfolio, the expected return is higher than a risk-free security, and this is directly related to a β coefficient reflecting the exposure of the security to market returns and risk. Building on these premises, it is then possible to define the theoretical construction of CAPM to determine R_e .

$$R_e = R_f + \beta * (R_m - R_f)$$

Where:

R_f = is the rate of return investors expect from risk-free assets (conventionally assumed to be the US Treasury Bonds)

β = is a measure of the sensitivity of the security to the market risk premium

R_m = rate of returns that investors expect from an investment in a portfolio replicating the market composition (where the weight of each asset is represented by such asset's market capitalization).

The concept of cost of equity is therefore derived from the returns of risk-free assets, where the market risk premium, denoted by the term $(R_m - R_f)$, represents the premium for investing in assets whose risk level is higher than the risk-free securities. The final term of the model is the β , for which some specific considerations are needed. The β term reflects the risk-specific, non-diversifiable component attributable to the security in relation to the broader market. Accordingly, in general terms, securities replicating the market have a β of 1, whereas a $\beta < 1$ is associated with securities with lower riskiness than the market and $\beta > 1$ correlates to securities with a higher riskiness than the market. The risk level of a given security is identified as its volatility around the market return, according to the following formulas.

$$\beta_i = \frac{\text{Covariance of asset } i \text{ with market portfolio}}{\text{Variance of the market portfolio}} = \frac{\sigma_{im}}{\sigma_m^2}$$

Interestingly, this term is defined as levered β since the capital structure of the company is factored in (that is, the level of Debt and Equity). Relatively higher levels of financial leverage (D/E ratio) may increase the risk of a given company i . For this reason, an unlevered β (obtained by removing the effects of financial leverage) provides the investor with more clarity on the risk profile composition of the company. Unlevered β is calculated as:

$$\text{Unlevered } \beta = \beta / [1 + (1 - t)(D/E \text{ ratio})]$$

Where:

D = level of debt

E = level of equity

t = corporate tax rate which capture the fiscal benefit related to debt

In summary, the CAPM is based on the assumption that all investors hold a portfolio replicating the market composition. As such, it is an intuitive and useful tool for finance practitioners aiming to assess the risk-return profile of a market security. As it will be seen in next section, the theoretical foundation of CAPM is a core part in other valuation methodologies such as the Discounted Cash Flow (DCF).

Based on the aforementioned characteristics, the Dividend Discount Model is endowed with a fairly good level of flexibility, allowing analysts to incorporate in the formula both fixed and variable discount rates, where the time variation is due to potential changes over time in interest rates and/or associated risk. Since future dividends cannot be estimated indefinitely, some adaptations of the original Dividend Discount Model have been developed reflecting different projections of future growth rates of the company's dividends. In the next part of the paragraph, four versions of the Dividend Discount Model are presented. The first is a simpler model that evaluates the shares of a stable growth company and pays what it can afford in dividends. In the second and third case, the Dividend Discount Model is adapted to the valuation of firms experiencing different phases of high-growth and low or no growth in their dividends. A final version of the model is discussed encompassing the valuation of banks.

The Gordon Growth Model

The Gordon Growth Model is probably one of the most recognized valuation models as it represents a quick and direct approach to equity valuation, despite its limitations of use in the real world as few businesses present a steady growth rate over time. In this respect, two key elements need attention. On the one hand, the assumption of an ever-lasting dividend growth needs an underlying strong assumption that all other company's economic results (i.e. from revenues to earnings) will maintain the same rate, as in the long term dividends can't grow at a higher level than the company's earnings. On the other hand, the choice of a stable and reasonable growth rate involves the selection of a rate that is lower or at most equal to the GDP growth rate (level of growth of economy). The practical implications of this point are related to the consideration that it is not possible to assume that a company will grow in the long terms at a higher rate than the general economy. The firm valuation under the Gordon Growth Model is expressed as:

$$\text{Value of stock} = \frac{\text{Expected dividends next period}}{\text{Cost of equity} - \text{Expected growth rate in perpetuity}}$$

The model is highly sensitive on the assumptions made on its denominator terms: for this reason, a particularly careful approach is necessary when these are drafted, as they pose a bigger threat to the overall valuation. The R_e term, for instance, should reflect the state of a mature company replicating the market trend: therefore, its β terms should be 1. Moreover, the estimate of R_e should be based on longer-term estimate rather than last financial year's actual result.

As a result of the above discussion, it is possible to identify some shortcomings of the Gordon Growth Model, in primis the possibly imprecise estimation of its inputs. Indeed, even minor variances in the calculation of the growth rate may turn into major differences in the company valuation, generating a waterfall effect. In addition, firms with higher payout ratios tend to perform better (according to this model) than companies with lower payout ratios. Given these considerations, this model is best fit for companies with a predictable and steady growth rate (always lower than the GDP rate) and with a stable dividend payout ratio and R_e .

Two-Stage Dividend Discount Model

This Dividend Discount Model version assumes that dividends go through two different stages of growth: a first phase in which growth is not stable and a later phase in which growth rate follows a steady state and it is expected to remain constant over the long term. From practical evidence, in the majority of companies the growth rate of the first stage is greater than the successive stabilized growth rate. Nonetheless, the model can be adjusted to fit different valuation scenarios, including, for example, the case of companies expecting to carry low or negative growth in the initial phase and subsequently reverse the trend by achieving high, steady growth rates (startups often follow this path). As illustrated below, the model is therefore articulated in two separate stages, whereby an extraordinary growth phase goes on for n years and subsequently a stable growth phase is assumed to last indefinitely:

$$P_0 = \sum_{t=1}^{t=n} \frac{DPS_t}{(1+k_{e,hg})^t} + \frac{P_n}{(1+k_{e,hg})^n}$$
$$P_n = \frac{DPS_{n+1}}{k_{e,st} - g_n}$$

Where:

DPS_t = Expected dividends per share in year t

R_e = Cost of equity (where hg stands for high growth period and st stands for stable growth period, as the case may be)

P_n = Price at the end of year n

g = Extraordinary growth rate for the first n years

g_n = Long-term growth rate after year n

Comparing the two-stage model with the Gordon Growth Model, it should be noted that, despite the better adaptation of the former to the real-world companies' life cycle growth patterns, the same limitations found for the growth rate in the Gordon Growth Model apply to the terminal growth rate (g_n). In addition to this, consistency is required between the payout ratio and the estimated growth rate: if the growth rate is expected to decline following the initial stage, the dividend/earnings ratio should be lower during the growth phase and higher in the stable phase (a company that boosts a stable growth has generally a better dividend-paying

capacity than a growing firm). Moreover, the two-stage model requires several assumptions about the length of the extraordinary growth period. In particular, there is the strong and seldom applicable assumption that the growth rate should turn suddenly from high in a given initial period to stable until the end of the valuation period. This may be inaccurate (in reality, it would be more sensible to assume a smoother decline over time) and enhances the risk of undervaluation for companies with lower levels of dividends.

Nevertheless, the larger adaptability of the model allows the valuation of companies featuring two well-defined growth phases, reflecting the competitive case of many industries such as sectors defined by high barriers to entry (i.e. due to concessionary regimes, patents, etc.). In all these cases, after an initial stage of strong success where the dividend growth is protected by contractual or patent arrangements, companies witness a sudden drop in their growth rates, which is well-approximated by a two-stage growth model. In addition, the two-stage model works well for those companies distributing as dividends all excess cash flows after investment and debt repayment.

Three-Stage Model

The three-phase model is the most complete version of the Dividend Discount Model, as it combines the two-stage model with another, intermediate phase of declining growth rate. This adaptation of the model does not impose restrictions on the payout rate and considers three stages of business growth:

1. First phase: High growth
2. Second phase: Transition
3. Third phase: Stable growth

Accordingly, this model considers a first phase of stable and high growth followed by a transitional phase in which the growth rate decreases and then stabilizes at a perpetually stable growth rate. The value of the shares can therefore be described as:

$$P_0 = \underbrace{\sum_{t=1}^{t=n1} \frac{EPS_0 \times (1+g_a)^t \times \Pi_a}{(1+k_{e,hg})^t}}_{\text{High-growth phase}} + \underbrace{\sum_{t=n1+1}^{t=n2} \frac{DPS_t}{(1+k_{e,t})^t}}_{\text{Transition}} + \underbrace{\frac{EPS_{n2}(1+g_n) \times \Pi_n}{(k_{e,st} - g_n)(1+r)^n}}_{\text{Stable growth phase}}$$

Where:

EPS_t = Earnings per Share in year t

DPS_t = Dividends per share in year t

Π_a = payout rate in the high growth phase

Π_n = payout rate in the stable growth phase

K_e = cost of equity for year t in the high growth phase (hg), in the transition phase (tr) and in the stable growth phase (st)

The three members represent the three phases described above. It can also be said that this model is the most adequate for companies with very high growth rates, as it removes some of the key limitations of the other models. On the other side, a higher number of data inputs are required to run the model and for this reason a substantial estimation effort is needed, which may be a hurdle for those companies with an important quota of volatility in their data. Based on these considerations, the three-stage model looks suitable for companies whose growth rate, payout ratio and risk are expected to evolve over the time. In particular, they tend to replicate the standard life-cycle of company development as the majority of firms (i.e. startups) feature sustained growth rates in the initial stage of their life, that after a while tend to decline until stabilization as their competitive advantage wanes and more competitors start to operate in the same market.

Excess Capital

This particular application of the Dividend Discount Model fits well with the peculiarities of the banking sector, which make the Dividend Discount Model suitable for the valuation of banking companies. This because banks tend to be stable businesses with less volatile growth and profitability rates than companies operating in other sectors. Additionally, in general terms, banks maintain payout ratios that are relatively high and stable over time, thus making assumptions and forward-looking estimates simpler. Overall, the Dividend Discount Model is preferred in the Excess Capital variant, as this approach is considered to adapt itself better to the valuation of banks, taking into account the regulation on capital ratios and constraints imposed by the supervisory authorities. Moreover, this variant is independent of the dividend distribution policy announced or historically pursued by the bank, which may show some volatility for different reasons.

The Dividend Discount Model in the Excess Capital version states that the value of the capital

a bank (W_E) is given by the net present value of a determined dividend stream determined on the basis of compliance with the minimum capital requirements established by the supervisory authority. More specifically, based on the Excess Capital Dividend Discount Model, the value of a bank is given by the sum of:

1. Excess capital at the time of valuation (i.e. the amount of capital resources that the bank could theoretically distribute immediately to shareholders, in compliance with the various constraints and capital requirements);
2. The present value of future dividends expected over the chosen time horizon, distributable to shareholders on the basis of a multi-year business plan, maintaining a fixed level of capitalization that is considered satisfactory and adequate for future development and growth;
3. The present value of the terminal value.

$$W_E = \text{Excess Capital}_0 + \sum_{t=1}^n \frac{DPS_t}{(1+K_e)^t} + \frac{\text{Excess Capital}_t}{(1+K_e)^t} \frac{TV}{(1+K_e)^n}$$

Where:

W_E = the value of the equity capital of the bank;

Excess Capital_0 = capital surplus (or deficit) at the time of assessment in accordance with the requirement in terms of CET1. Since capital is already available at the time of valuation, this value component does not need to be discounted;

DPS_t = dividends potentially distributable to shareholders over the chosen time horizon, maintaining a satisfactory level of capitalization;

Excess Capital_t = estimated capital surplus (or deficit) over the explicit forecast period in relation to the expected dynamics of the Risk Weighted Capital;

K_e = discount rate represented by the cost of equity, equal to the rate of return on equity required by shareholders for investments with similar risk characteristics;

TV = Terminal Value, corresponding to the present value of cash flows (dividends) theoretically distributable to shareholders over the long term, beyond the considered forecast period. Terminal Value is calculated as the value of an estimated perpetual annuity on the basis of a normalized distributable dividend, economically sustainable and consistent with the long-term growth rate g ;

n = number of years of the forecast in consideration.

Excess Capital represents a capital resource similar to equity that, theoretically, the bank could decide to distribute to shareholders. Generally, the Excess Capital assumes positive

values, but it could also have a negative value in the event of a capital deficit of the bank. In these circumstances it represents the capital increase that shareholders should carry out to allow the bank to continue operating.

In summary, the Dividend Discount Model approach represents a widely used tool, deployed by analysts in different contexts according to valuations needs. To conclude the description of the Dividend Discount Model, it is possible to say that it certainly is an intuitive model, suitable for companies that distribute dividends in an approximately proportionate way to their profits. However the narrow, exclusive focus on the company's dividends could lead to distorted estimates of value in the case of companies that do not pay everything they could to shareholders. Notwithstanding this consideration, the Dividend Discount Model is exposed to some drawbacks throughout the entire valuation process.

First of all, the Dividend Discount Model's main advantage (its relatively straightforward rationale) is seen by analysts as a possible limitation, since it may end up with an oversimplification of the value estimate. Indeed, the Dividend Discount Model looks fit for valuation tasks related to stable, high-dividend-paying stocks, which occur in a very limited number of cases in practice. To this extent, although the Dividend Discount Model can be used for valuation of non-paying or low-paying dividend stocks (expected to distribute dividends at a later stage when their growth rate is set to decline), by adjusting the dividend payout ratio to reflect changes in the expected growth rate, it requires substantial assumptions about when dividends will be paid. Hence, even though the model can actually estimate the value for a high-growth firm with no dividend paid at the time of the valuation, changes are required to adjust the growth rate of the firm and if these are not properly reflected into the payout ratio, the model will return a result underestimating the value of the firm.

Another potential issue is embedded in the conservative bias of the estimated value. In practice, when comparing results from Dividend Discount Method with other valuation approaches it emerges that the former tends to provide conservative value estimates. This may be due to the fact that the model only considers the value of dividends discounted by time, but there is no incorporation of the value related to other unutilized firm assets. However, there is no strict evidence of how these assets could be valued separately and increase the value resulting from the Dividend Discount Model. In addition, some of these assets (i.e. intangible assets such as the value of the brand), can be included in the model with some modifications to the base case. Finally, the base case of the Dividend Discount Model presents another shortfall: it considers the dividend as the only manner to return cash to stockholders giving no

relevance to stock buybacks, which can be another effective source of shareholders returns. To account for this eventuality, the Dividend Discount Model can be slightly modified to incorporate the value related to stock buybacks.

The Discounted Cash Flow Method

One of the most widespread methodologies adopted across sectors is the Discounted Cash Flow (DCF). Compared to the specification of the Dividend Discount Model, the DCF's approach requires a higher number of inputs. For this reason, it is necessary to dig into the understanding of the model for the purpose of analyzing it and using it as an instrument in its different approaches. DCF is an intrinsic valuation method that relates the value of an asset to its present value, that is to say the discounted value of all the expected cash flows for that asset. The general formula of DCF model is:

$$\text{Value of firm} = \sum_{t=1}^{t=\infty} \frac{FCFF_t}{(1 + WACC)^t}$$

Where:

$FCFF_t$ = Free Cash Flow to Firm in period t

$WACC$ = Discount rate required by the riskiness of expected cash flows

t = year of valuation

The above formula represents the generalized DCF model; going into more into detail, the value of the firm can be estimated via a refined formula defining the main terms of the valuation based on the projection horizon:

$$\text{Value of firm} = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + WACC_{hg})^t} + \frac{[FCFF_{n+1} / (WACC_{st} - g_n)]}{(1 + WACC_{hg})^n}$$

Where:

$FCFF_t$ = Free Cash Flow to Firm in period t

$WACC$ = Discount rate required by the riskiness of expected cash flows (where hg and st refer to the periods of high growth and stable growth respectively, assuming the $WACC$ may vary after the estimation period)

t = year of valuation

g_n = growth rate expected at year n

n = period of estimation

As apparent from the formula, the value of the firms consists of two terms, the first corresponding to the generalized DCF formula up to year n and the second corresponding to the Terminal Value (TV). The ultimate goal of the assessment is to estimate the intrinsic value of an asset based on its fundamentals. The intrinsic value is the so-called real value of a company, that is the value that would be assigned to the company by an hypothetical unbiased analyst able to perfectly estimate the expected cash flows of the company with the information available at that given moment, with the correct discount rate. Estimating the intrinsic value of a company can be a complex task, especially for new companies with substantial uncertainty about the future performance. In this evaluation, there are two possible paths. The first consists of evaluating only the equity component, while the second aims at evaluating the entire business of the company, which includes, in addition to equity, other securities such as bonds or preferred shares (firm value). Both approaches discount expected cash flows, however relevant cash flows and discount rates vary depending on the method chosen. In the following paragraphs the DCF process is discussed in detail.

1. *Study of the target and determination of key performance indicators*: assessment of the target company activities, business model, operating sector and financial profile is an essential step to start the process and develop a sound valuation framework. This task is relatively easier for publicly traded companies because financial reports, market research and other sources are all a good source of compelling data and are typically available to the general public. For private firms lacking these information, direct engagement with management is often sought as a way to have access to basic financial and business data. After having obtained these elements, it is possible to progress with the determination of the target company's Key Performance Indicators (KPIs) and drivers (i.e. growth, profitability, and cash flow generation), all inputs needed for the subsequent phases. This is a critical activity, as it requires a fairly high level of accuracy from the analysts due to the fact that each industrial sector is subject to different macro and microeconomic dynamics and competitive forces. Moreover, within the same sector a single company's business model may vary markedly from its peers, an element reflected in a different level of profitability, growth and investments.
2. *Free Cash Flow estimation*: once key inputs are collected, the analysis can progress towards the projection of Free Cash Flows to Firm (FCFF). FCFF are a measure largely adopted as the representation of the cash flow of the company, generated after operating

expenses (and related taxes), Capital Expenditure (CAPEX) and changes in net working capital, but without the inclusion of interest payments. Hence, it is evident that FCFF is a measure independent from the capital structure of the company and constitutes a direct measure of cash available to the different categories of capital providers. In particular, the FCFF formula is defined as:

$$\begin{aligned} & \text{Earnings Before Interest and Taxes} \\ & - \text{Taxes (Calculated as per the Marginal Tax Rate)} \\ & \mathbf{\text{Earnings Before Interest After Taxes}} \\ & + \text{Depreciation \& Amortization} \\ & - \text{Capital Expenditure} \\ & - \text{Variation in Net Working Capital} \end{aligned}$$

FCFF

Various key inputs are necessary in the calculation of FCFF. First, growth of revenues, Cost of Goods Sold (COGS), EBITDA and EBIT can be assumed based on previous financial years or taken from company's industrial plan, that defines the future financial and operating targets of the company. Generally, this plan reflects the management's assumptions for the target company, detailing projections for the subsequent five years; however, in some sectors where business is defined by concessionary contractual arrangements, the industrial plan may cover up to 10 or 15 years. Accordingly, the forecast length of FCFF is set on the duration of the industrial plan, after which analysts cannot rely on sound assumptions. To support the evaluation, it is necessary to check carefully the key assumptions of the projections in order to test the reliability of the results, and develop alternative cases or sensitivities aimed at addressing the impact of possible changes in the adopted assumptions.

3. *Calculation of Weighted Average Cost of Capital (WACC)*: WACC is the weighted average of the returns all capital providers expect from their investment in the company, as it is determined by both equity and debt. The overall meaning of WACC refers to the opportunity cost for investors to invest in the target company relative to alternative investments with similar risk profile. Generally speaking, WACC applies to the entire company, however for companies showing diversified operations, a separate WACC

and FCFF are determined for each single division in order to obtain a more precise valuation on a standalone basis. Conventional WACC formula is:

$$WACC = R_e * E / (D + E) + (1 - t) * R_d * D / (D + E)$$

Where

R_e = is the estimated cost of equity

R_d = is the estimated cost of debt

t = is the marginal tax rate

D = market value of debt

E = market value of equity

To obtain a final WACC, analysts need to perform an assessment of each different term of the formula. First, it is necessary to determine the target capital structure of the company (namely the $E / (D + E)$ and $D / (D + E)$ components) which can be the one included in management projections, the current or historical financial structure of the company (when deemed appropriate), or alternatively the financial structure of its peers. Second, R_e and R_d have to be calculated. For R_e , as already discussed, it is possible to rely on the CAPM approach; for R_d considerations are quite different as the analysts needs to understand if the company is on its target financial structure (in this case its current cost of debt and credit rating are good proxies) or not (then the cost of debt must be derived from its peers). Finally, the calculated inputs are plugged into the WACC formula to derive to company's weighted average cost of capital.

4. *Calculation of Terminal Value (TV)*: since the FCFF projections can be made up to a certain point in time, the TV is the component capturing the future value of the company after the estimation period, when assumptions on the company's financials cannot be done on an accurate basis. TV can be calculated in two methods. Under the exit multiple approach, a multiple for company value is estimated (i.e. EV/EBITDA) and applied to the EBITDA corresponding to the last year of the estimation period. In this way it is estimated to residual company valuation at that year in future. An alternative approach is the perpetuity growth model, applying a similar formula to what discussed for Gordon Growth Model, but with the inclusion of FCFF instead of dividends and WACC instead of R_e . The TV so calculated reflects the outstanding value component of the company from the end of estimation period to infinity. The choice of one approach over the other embeds multiple consideration such as the soundness of a looking forward

multiple as opposed to a perpetuity model, and the availability of appropriate inputs (i.e. growth rate).

5. *Calculation of present value and determination of company valuation:* finally, by bringing all terms together analysts can complete the company valuation. A first term of the value is represented by the sum of each FCFF estimated during the projection period, discounted at the WACC. The second term of TV is discounted from the end of the estimation period to present. As a rule of thumb, for a reliable valuation the TV should not be the meaningful portion of the overall company value. At this stage, some adjustments may be introduced by the analysts to test for the robustness of the analysis. As discussed, sensitivity analysis are run to understand the variance of the company's value relative to its growth rate, WACC, and FCFF. Given that the DCF based on FCFF provides a company valuation, it is possible to derive a consistent equity valuation from it. Subtracting from the firm value the value of Net Debt, Preferred Stocks and Noncontrolling interest components, the Equity Value is determined.

The case discussed refers to the firm's valuation starting from FCFF. However, DCF allows for Equity valuation starting from FCFE and adopting R_e as discount rate. Although the two approaches use different definitions of cash flow and discount rates, they arrive at consistent estimates as long as there are consistent assumptions underlying the valuation. To sum up, the DCF approach is easily applicable to assets whose cash flows can be estimated with some reliability for future periods. Therefore, it is possible to come across certain scenarios where an assessment through this model runs into difficulties and the approach needs to be adapted. This is the case for companies that own patents or intangible licenses. The latter do not produce any cash flow, nor are they expected to in the near future. In spite of this, these intangible assets may have a high value, which may not be recognized through the assessment of the DCF. This factor would lead to an underestimation of the real value of the enterprise. The problem can be fixed, for example, by evaluating such intangible assets through real options pricing models, and adding the value obtained to the DCF valuation.

To conclude, DCF valuation allows for a more precise company valuation thanks to an analytical process aimed at determining a series of assumptions which incorporate in the process different elements affecting the company value. In addition to this, given the intrinsic nature of the DCF valuation the model is more flexible and able to factor in all those value elements which can be taken from financial data. In the case of an M&A valuation, for instance,

the DCF model can return a valuation for the company both on a standalone basis and on an integrated basis, since it incorporates the value of synergies if these can be estimated.

This consideration brings the discussion to some limitations of the model. In fact, the multiple inputs and assumptions needed to realize the model, if on one hand can help build a more adequate valuation process, on the other hand constitute an obstacle when data are not easily accessible. For instance, in the case of a valuation of a private company, if accurate financial inputs are not provided by the management a DCF valuation presents a difficult challenge. Moreover, even for publicly traded companies the more the number of assumptions used in the valuation process the higher the risk of material changes in the company's valuation in case one or more assumptions are proved to be wrong or no longer valid. For all these factors, as will be discussed for Comparables techniques, a comprehensive valuation exercise cannot be limited to a single-point valuation without a range of values determined with different methodologies to check the reliability of each approach.

The Method of Comparables

Finally, the analysis moves to consider a third approach to company valuation, a relative method that evaluates assets based on current prices on the market for similar assets. This evaluation is actually more difficult than it may appear. Taking for example the evaluation of two apartments that are perfectly equal assets, a large number of variables can define their respective price. On their side, enterprises are hardly comparable with each other, since differences are to some extent always present. Analysts therefore have had to develop alternatives to compare companies taking into account their differences.

The method of comparing multiples (so-called relative valuation) estimates the value of an asset by observing the pricing of potentially comparable assets with a particular attention towards some common variables, such as revenues, cash flow, book value, etc. This approach is often discarded in favor of the aforementioned methods; however, evidence from many sectors shows that the analysis of comparables is a good proxy to estimate the value of different asset classes (i.e. real estate, investment securities, etc.) as these are based on how similar assets are priced in the market. The objective of such an approach is therefore to assess assets based on how similar assets are currently valued on the market. Two fundamental elements characterize this method of evaluation. The first is that prices must be standardized (usually

they are converted into multiples of other variables); the second is to identify potentially comparable companies. The last condition is instrumental to define the criteria that identify a comparable company. A company defines itself as comparable when its cash flows, risks and growth potential are similar to those of the enterprise being evaluated. The ideal comparison would lead to the evaluation of one company by observing another one exactly identical in terms of risk, growth and cash flows. It is important to notice that nowhere in this definition is there a component related to the industry or sector to which a company belongs. Comparables analysis process can be sectioned into five main phases:

1. *Selection of the comparable companies' sample*: the first step of relative valuation is to select an appropriate "universe" of comparable companies based on the assumption that these companies' metrics can work for the company being evaluated. While for some industries the task can be quite straightforward, in other cases trading comparable companies are scarce or may not even be present. To determine a set of comparable companies, it is necessary to perform a thorough analysis of the target company (i.e. through financial reports, equity research reports etc.), in order to understand its structure and competitive dynamics. In general, this sort of analysis is conducted to assess two levels, that is, business profile (sector, product and services, customers and end markets, distribution channels and geography) and financial profile (size, profitability, growth profile, return on investments and credit profile). After this phase, analysts can draw a preliminary set of comparable companies, which will then be refined to a shortlist of trading comparables considered as the most appropriate term of comparison for the target.
2. *Allocation of the necessary financial information*: the second step regards the research of financial data needed to realize the comparison. The most common source of financial data is represented by the publicly issued financial documents released on a periodical basis (i.e. financial reports, quarterly announcements, earning announcements, investor presentations, equity research reports and other selected financial sources). The time horizon may be referred to either historical performance (i.e. last twelve months' performance) or forward looking performance (i.e. strategic plan or consensus from financial analysts). The choice of the source of information and the time perspective relies on the scope of the valuation analysis, with consensus research estimates being more in line with forward-looking trading multiple

calculations, whereas financial reports being the primary sources for historical performance evaluation.

3. *Calculation of the key ratios and trading multiples*: this step is performed to realize a scoreboard displaying all the key financial metrics of the selected companies, to provide a quick and direct term of reference of resulting values. Generally, these metrics are aimed at defining size (i.e. equity value, firm value and market valuation, asset value or backlog/reserves), key financial results and profitability (i.e. EBITDA, EBIT, net income, gross profit or adaptation of these measures consistently with the industry of reference), competitive dynamics (i.e. growth, both historical and future), financial structure and credit profile (i.e. leverage, coverage ratios, credit rating) and returns (i.e. ROI/ROIC, ROA, ROE, dividend yield, etc). A crucial activity in this stage is the inclusion of adjustments for the so-called non-recurring items. This occurs because companies in their going-concern activities may experience unexpected and extraordinary events (i.e. proceeds from M&A activity, income from non-recurring items, costs due to litigations and effects related to changes in accounting standards) reflecting as one-off items in their income statement or balance sheet. Therefore, raw financial data may not fully represent the real story of the company and to this end, adjustments are needed to net the company's results from these items, reflecting the normalized income or cash-generating capacity of the company. Normalized metrics are then used as an input to calculate ratios which will then serve as the basis for comparison.
4. *Benchmarking the comparable companies*: at this point it is possible to perform the benchmarking of the resulting ratios, that is the comparison among the previously identified companies aimed at the determination of the target company's valuation. Generally, the benchmarking task consists of two steps: the first one relates to the ranking of the closest comparable cases to the target company, whereas the second step is the actual comparison of the target company's value with the peers sub-group. This process relies on both quantitative and qualitative inputs, as the sensitivity of the analyst is fundamental for the assessment of the real comparables, meaning that outliers should be ruled out and strategically important events or developments to company activities (i.e. transformative M&A transactions, missed company targets or management changes) need a dedicate consideration on case-by-case basis.

5. *Determine the company valuation:* based on the previous results it is possible to determine the final valuation of the company. Valuation is conducted in a range of values, typically represented by a table facilitating the comparison. In this table are generally displayed maximum and minimum, median and mean. In many cases, different trading comparable ratios are used jointly to reach a valuation range for the target company based on the average values of each ratio, multiplied by the relevant measure of the target company. Such valuation range is generally displayed on a football pitch chart, comparing the different valuation results and defining graphically a valuation range.

In practice, however, analysts define comparable companies as other companies operating in the same business. In addition to this, if there are enough companies in the sector that allow it, this list is further refined using additional criteria, for example emphasizing the size of the company. The underlying assumption is the same, namely that companies in the same sector have similar risk, growth and cash flow profiles. The key question that is faced in drawing up the list of comparable companies becomes how much one wants to narrow down the definition of a comparable company. The more stringent the research, the less likely it is to find numerous comparable companies. If, on the other hand, the analysis is lenient to accept some differences, the list of comparable companies will be broader. The main multiples adopted in financial valuation are categorized in equity-side multiples (P/E and P/B) and firm-side multiples (EV/EBITDA or EV/EBIT and EV/Revenues).

Price / Earnings Multiple (P/E)

One of the most intuitive ways to examine the value of any asset is to analyze it as a multiple of the earnings that that activity generates. When buying a security, it is common to consider the price paid as a multiple of the earnings per share generated by the company (Price/Earning). Earnings per share, in fact, can reflect what the company has earned in previous or future periods. For all these reasons, P/E ratio is one the most widely adopted valuation ratios to determine the relative valuation of the firm's equity, mainly thanks to its direct comparability. Nonetheless, P/E has some downsides, since it is subject to variations according to the accounting procedures of the company; moreover, it is exposed to earnings volatility (not applicable in case of net loss) and to the growth dynamics of the company.

Price to Book Value Multiple (P/B)

While markets provide an estimate of a company's capital value, the accounting side often provides a very different estimate of the same asset (Book Value). The estimation of this value is determined by accounting rules and is directly influenced by the price paid for the assets and any accounting adjustments (such as depreciation) made since then. Hence, Price to Book Value is a comparison between the market value and the carrying value of equity capital. Investors often look at the relationship between the price they pay for a security and the book value of equity as a measure of how overvalued or undervalued a security is. The resulting Price/Book Value ratio can vary widely across industries, depending on the growth potential and quality of investments in each one of them. As a term of reference, P/B ratios higher than 1 are the signal of a market valuation higher than the accounting valuation, whereas P/B ratios lower than 1 correspond to a market valuation trading at a discount compared to book value.

Enterprise Value / EBITDA (Enterprise Value / EBIT)

Differently from the P/E ratio, valuation ratios based on EBITDA are enterprise-level measures of valuation since they consider cash flows going to all investors of the company (debtholders and shareholders), not only to shareholders as in P/E. For the scope of the analysis, Enterprise Value (EV) is determined by the market value of equity + the market value of debt – cash. Multiples based on EBITDA or other operating margin measures are largely adopted for a series of reasons. First, differently from earnings, there are less companies having negative EBITDA or EBIT margin, hence EV/EBITDA (or EV/EBIT) does not suffer from the same restrictions as P/E ratio. Second, EV/EBITDA is not affected by discrepancies in accounting practices, which can cause differences in operating results. Third, EBITDA can be considered a fairly reliable proxy of a company's cash generation capacity, and it is a margin closely scrutinized by analysts. EV/EBITDA however also presents some limitations: it is not adoptable in sectors for which EBITDA margin is not relevant (i.e. banks and insurances) and it is difficult to estimate for cross-holdings firms due to different consolidation approaches of majority and minority interests.

Enterprise Value / Revenues

Both earnings and book value, as discussed, are accounting measures and as such are based on accounting rules and principles. An alternative measure, much less influenced by accounting decisions, is revenue. For equity investors, a significant ratio can sometimes be the

Enterprise Value/Revenues. Consistently with other cases, this ratio varies widely across industries, largely depending on each company's revenue dynamic (i.e. consumer company vs natural resources company). The advantage of using multiples based on revenues, however, is that it becomes much easier to compare businesses in different markets, with different accounting systems, rather than to compare multiples of profits or multiples of book value. Another major advantage relates to the fact that top-line is never negative and therefore the Enterprise Value/Revenues multiple can be a useful tool for startups. Generally, in sectors at their initial stage of lifecycle, companies may be riddled with volatility, often presenting negative operating and bottom-line results.

The Comparables methodology is often deployed in valuation of M&A transactions taking as input the so-called comparable precedent transactions. Founded on the same premises and methodological steps of the Comparables valuation based on trading multiples, previous transactions analysis returns the estimate of a given company based on the value recorded in precedent transactions deemed comparable by the analyst. Due to its nature, comparable transactions valuation is often adopted in M&A valuations to determine a reference value for the target company based on its financials and valuations achieved in similar deals. As a matter of fact, valuation based on precedent transactions tends to return higher values than the valuation based on trailing multiples, as it incorporates the value of synergies, that is the economic benefits achievable through the combination. A potential shortfall of previous transactions comparables relates to the time-lag, which may reflect different market conditions, as well as to the potential lack of real comparable transactions.

In summary, relative valuation approaches are largely adopted due to different reasons. More specifically: 1) an assessment based on the comparison of multiples of similar enterprises can be completed with way less assumptions and much quicker than a traditional valuation; 2) the relative evaluation can be easier to understand and apply both from an analytical point of view and from a reading point of view; and 3) a relative valuation is much more likely to reflect the current market mood, as this is an attempt to measure relative value and not intrinsic value. This last point is of particular relevance to all the professionals whose task is to make judgments about relative value and who are themselves judged on a relative basis, for example, managers of growing mutual funds. Another advantage of relative valuation approaches is correlated to the availability of publicly traded companies' data.

The strengths of the relative assessment also reflect its weaknesses. First, the ease of use of a relative valuation can also lead to inconsistent value estimates as some key variables

already mentioned are ignored (i.e. risk, growth, cash flows). Secondly, reflecting the sentiment of the market also implies that the use of relative valuation to estimate the value of an asset may result in values that are too high when the market overvalues comparable firms or too low when it is underestimating them. Third, valuation based on prevailing market conditions or expectations may present meaningful discrepancies from the valuation derived by a company's projected cash flow generation and from company-specific issues. Finally, although there is a margin of error in any type of assessment, sometimes the lack of transparency regarding the underlying assumptions can make relative assessments more vulnerable.

Chapter 2. The Italian gaming industry and the Sisal case

Market overview: size, concentration, trends, segmentation

The tradition of gambling in Italy dates all the way back to the Roman Empire. Playing cards, dice games or lottery-like games is a long-standing tradition, as well as betting on the outcome of horse races and sport events. The very first casino of the world opened in Venice in 1638, and the word itself is of Italian origin. Today, the Italian gambling market is the biggest in Europe and the fourth in the world in terms of Gross Gaming Revenue (GGR), the main indicator of the industry. Starting from the 1990s, the industry has registered continuous, significant growth, that has stabilized at around 1% per year after the 2000s. In 2016 the revenues from gambling and betting amounted to almost 6% of Italian Gross Domestic Profit (GDP).

Table 4. Italy Revenue from gambling and betting and GDP (million EUR)

Year	Revenue from gambling and betting	GDP	Gambling and betting in GDP	Basic gambling Income Index (2001)	Basic index of gambling revenues in GDP (2001)
2001	14,515	1,298,890	1.12%	1.00	1.00
2002	15,600	1,345,794	1.16%	1.07	1.04
2003	15,492	1,390,710	1.11%	1.07	1.00
2004	24,786	1,448,363	1.71%	1.71	1.53
2005	28,487	1,489,726	1.91%	1.96	1.71
2006	35,243	1,548,473	2.28%	2.43	2.04
2007	42,193	1,609,551	2.62%	2.91	2.35
2008	47,554	1,632,151	2.91%	3.28	2.61
2009	54,410	1,572,878	3.46%	3.75	3.10
2010	61,400	1,604,515	3.83%	4.23	3.42
2011	79,900	1,637,463	4.88%	5.50	4.37
2012	88,600	1,613,265	5.49%	6.10	4.91
2013	84,600	1,604,599	5.27%	5.83	4.72
2014	84,500	1,621,827	5.21%	5.82	4.66
2015	88,200	1,645,439	5.36%	6.08	4.80
2016	95,000	1,672,438	5.68%	6.54	5.08
Average	53,780	1,546,005	3.38%		

Figure 1. Source: Raspor et al, 2019

This prolonged increment can be ascribed to several concurring factors. One of the most important elements when dealing with the gaming industry is governmental regulation: the market has tight normative constraints and it has been subjected to several rules with the aim of protecting gamers and pre-empting criminal organizations from the development of a parallel market. Starting from the Bersani Decree in 2006, a de-regulation trend has opened up the market to several players, allowing new types of games and new ways of playing. This has been particularly relevant for what concerns the introduction of online gaming, another of the key elements of the market and one of the main drivers responsible for its growth. The 2006 Bersani Decree was soon followed by several other pieces of legislation directed towards the liberalization of the market, increasing the players in the market as well as the products available. Particularly relevant in this respect was the introduction of slot machines, such as Amusement with Prize Machines (AWP) and Video-Lottery Terminals (VLT), new gaming devices that could be installed in bars, tobacco shops and other venues. In parallel, the increasing social costs and problematic gambling tendencies have attracted the attention of regulatory authorities, that since 2016 have tried to issue more stringent norms in order to curtail abuse and dependencies.

Nonetheless, the market size has continued to increase; not even the Covid-19 pandemic has reversed the trend. In 2020 the GGR has registered a contraction of -33%, with a total GGR of almost 13 billions (in stark comparison with the 19 billions of 2019). However, in 2021 it has strongly rebounded (although it has not reached its pre-Covid level) and in 2022 it is forecasted to surpass its 2019 all-time high. Behind this strong performance stands an online market with a forecasted Compounded Annual Growth Rate (CAGR) between 2022 and 2024 of around 5% and a staggering +40% CAGR during the Covid-19 pandemic. On the other hand, the retail market is expected to recover, growing at around 11% per year in the same time frame; despite the positive predictions, its size is not expected to expand further than the pre-pandemic levels. During the pandemic, the CAGR of the retail gambling sector has registered a decrease of 18% on average, and after an initial rebound it is forecasted to be stationary.

In Italy, there are around 18,5 millions of people who are considered to be “active players” (i.e. have gambled at least once in the previous 12 months). Gambling is more popular among males (around 57% of players) rather than among females (that represent the remaining 43%). The most active age group in gambling is between 40 and 69 years, with about 41% of gamblers; younger people also tend to play consistently, while as they age players tend to loose interest. In particular, about half of the total players first approach gambling at a younger age (between 18 and 25), typically out of curiosity and due to social influence from their peers.

The first basic segmentation of the market can be made according to the sales channel. In this respect, it is possible to divide the market in retail gambling and online gambling. The retail channel has traditionally been the most important for market operators; however, in recent years a strong push towards online gaming has eroded the share of GGR obtained from this side. In particular, in 2016 the retail market represented 95% of the total GGR and while in 2019 it was already decreasing (at 90%) the real push in this sense was given by the Covid-19 pandemic. The projections for the end of 2022 estimate a percentage of total GGR equal to 82%, and it is expected to decrease further in the following years. The lockdowns to prevent the spread of the virus have had a significant impact on the retail gambling market: the majority of sales point, such as betting shops, casinos or gaming halls was considered to be a non-essential activity, so they remained closed for long periods of time (around 5,5 months during the pandemic). This has contributed to a decrease of around 33% in terms of CAGR between 2020 and 2021.

Retail gambling in Italy is approximately equally distributed throughout the country: the Center region population is the most prone to gamble, with around 43% of the population that has played at least once in the last three years, and is also the region where the average amount of money spent for playing is higher. The North-Western region showed a similar trend, while the North-East, South and Islands scored significantly lower, between 29% and 36%. While for these regions there is no correlation between percentage of gamblers and average retail expenditure, it is interesting to notice that in the South and Islands regions the expenditure remains quite high, but the average GDP per capita is substantially lower. In other words, players of these regions allocate a higher portion of their income to gambling (1,6% in the South and 1,3% in the Islands) compared with their Northern counterparts, who spend about 0,8% of their income on average for the same activities. When analyzing the distribution of retail gamblers according to the place of residence, it is possible to notice that it is skewed towards big cities. In this respect, around 41% of people who live in cities with than 100.000 inhabitants are gamblers, compared with 35% of people who live in cities with less than 100.000 inhabitants.

Shifting the focus towards gamers' profiles, most of them prefers to play on their own rather than in company. For what concerns their choice of retail shop, the majority considers proximity to their residence or workplace as the main determinant, together with the presence of additional services (such as tobacco sales, snacks and drinks or social gatherings). Interestingly enough, this tendency is completely reversed for problematic gamblers, who choose their gambling location according to the distance from their habitual hangouts and prize anonymity over comfort.

For what concerns the online gambling market, it has registered a notable growth even in the pre-Covid years, and the pandemic has accelerated this trend. This can be ascribed to the increase in

free time and decrease of outdoor activities (including retail gambling); in addition to this, the stop to most sport events has pushed gamblers towards virtual betting. Besides from the pandemic, the overall growth of the online market can be explained by the increasing diffusion of internet connections and devices, together with the competencies needed to use them. In particular, the massive use of smartphones is a huge underlying cause of this trend: it is estimated that around 80% of online gamblers play on their mobile devices. Another reason for the switch towards online gaming is the vast availability of new and exciting games, that often do not require a strong financial commitment; moreover, a common practice in the market is to offer a strong incentive to play, particularly on social media, with several marketing techniques that entice potential players (such as giving away a free bonus to start playing). These promotional strategies have pushed gamblers to open several accounts with different operators, in order to profit multiple times from the initial bonus offered. Indeed, the vast majority of online players has between 2 and 10 accounts, although they may not use them all with the same frequency. This is even more relevant considering that most of advertising on the market is banned due to regulatory constraints.

Given all these factors, it comes as no surprise that the age group most prone to online gambling is also the youngest: the number of active accounts for people aged 18-25 and 25-34 is the highest, and the second segment also accounts for the fastest growing group of consumers in the online market. There seems to be limited interest in online gaming after the 50s, and around 80% of all the active accounts belong to players younger than 54. While no precise data is available, the Istituto Superiore di Sanità (ISS) has also estimated that around 700.000 minors engage in gambling every year, the vast majority of whom chooses online playing due to reduced controls on access and easiness of use.

From a geographical point of view, online gaming is much more popular in Southern Italy. The regions with the highest spending in online gaming are Campania and Sicily, followed by Lombardia and Lazio. Despite a strong correlation with population size, the spending in the first two regions is highest even if they are not the most densely populated, and even if the GDP pro capita is lower than the national average. Shifting the focus towards expenditure, it is possible to notice that average expenditure is way lower than in retail gaming, on average between 20 and 35 euros, and it does not vary significantly in correlation with age. Card games have the highest average ticket per game, followed by sports betting and lotteries/bingo. In particular, online poker players are the most prone to betting high sums of money: the average expenditure per player on a single game is around 140 euros, more than double of the average bet on sports.

In addition to the segmentation according to the point of sale, it is also possible to examine the gambling market according to the products offered. In this respect, the market can be divided into

three main segments: betting, gaming and lotteries. All three categories have a retail subsection and an online subsection, although the proportions may vary according to the case. The first category includes all the betting activities on real or simulated/virtual events. In Italy, the biggest part of this segment is represented by soccer games, accounting for the vast majority of the revenues generated, followed by bets on other sports (such as basketball or tennis). A small percentage of players also bets on horse racing. A relative novelty of the sector are virtual races, which represent real events but are a complete virtual simulation; this form of betting increased during the pandemic, especially since most of the real matches and games were suspended due to Covid-19. Online and retail betting are more or less equally popular, with the online GGR slightly higher than the retail segment.

The second category is the gaming sector. This is by far the biggest sector in terms of GGR, and its segmentation is highly dependent on the mode of playing. Retail gaming is practiced in the form of AWP and VLT; AWP are the “classic” slot machines, they can be placed in many different locations (such as bars, hotel lobbies, restaurants...) with a maximum bet of one euro. VLTs typically offer more variety in the games available (such as video poker), they can be located only in specific venues and they allow higher stakes, with a maximum bet of 10 euros. Online gaming is extremely variegated, and since the start of the liberalization trend it has become a very fragmented market. The main type of products offered are card games or casino games, that can be played against a virtual opponent or with real people; among all the games offered the most popular is by far online poker, which also collects the highest tickets. The retail market is by far the most important at the moment, with a GGR that is almost triple than the online market. However, this distribution is forecasted to change in the next years, given the high growth rate of the online market.

The last product category includes lotteries and bingo. In Italy, operators need to obtain a concession from the Agenzia delle Dogane e dei Monopoli (ADM), the regulatory authority in charge of overseeing the customs tariffs, as well as several state monopolies (among the others, alcoholic beverages, tobacco and energy). There are three types of lottery: instant lotteries (such as “*gratta e vinci*”), lotto (with bi-weekly extractions) and Giochi Numerici a Totalizzatore Nazionale (GNTN), like the famous SuperEnalotto. These games are almost exclusively played in a retail setting rather than online; considering that they are often preferred by the older generations, the sector is forecasted to remain strictly tied to physical points of sale.

The following tables summarize the popularity of different games in the online and retail market. While for the retail market it is not possible to segment further the data (since each point of sale may offer more than one game) it is still a good proxy to identify the popularity of each segment, according to the distribution on the territory.

Tabella V.3 - Tipologie di gioco a distanza più utilizzate		
Tipologia di gioco	N. Utenti	Percentuale sul totale
Gioco a base sportiva	2.215.802	27,42%
Giochi di carte organizzata in forma diversa dal torneo e Giochi di sorte a quota fissa	1.718.625	21,27%
<i>Poker Cash</i>	1.087.052	13,45%
Torneo	877.770	10,86%
Scommesse virtuali	586.041	7,25%
Bingo	473.908	5,87%
Lotto	372.499	4,61%
Lotterie	332.837	4,12%
Giochi numerici a totalizzatore	294.358	3,64%
<i>Betting Exchange</i>	76.486	0,95%
Gioco a base ippica	44.540	0,55%
Totale	8.079.918	100,00%

Tabella V.7 - Rete di vendita per tipologia di gioco						
Ufficio dei Monopoli	Bingo (N. sale bingo)	Giochi numerici a totalizzatore (N. punti vendita)	Gioco a base ippica (N. operatori)	Gioco a base sportiva (N. operatori)	Lotterie (N. punti vendita)	Lotto (N. ricevitorie)
Abruzzo	6	776	164	295	1.627	1.057
Calabria	1	1.248	224	419	1.796	1.406
Campania	27	3.646	965	2.010	5.011	3.487
Emilia-Romagna	19	2.296	282	399	4.241	2.357
Friuli-Venezia Giulia	4	663	76	97	1.119	618
Lazio	26	3.639	596	948	5.954	3.458
Liguria	6	735	114	158	1.247	956
Lombardia	26	4.900	883	1.169	8.747	4.960
Marche	3	809	141	212	1.718	1.084
Piemonte e Valle d'Aosta	12	2.223	334	544	3.729	2.433
Puglia, Basilicata e Molise	8	2.510	526	1.085	4.764	2.808
Sardegna	4	1.048	64	147	1.411	1.002
Sicilia	28	2.590	588	1.168	4.297	3.043
Toscana	10	1.969	364	424	3.517	2.057
Trentino-Alto Adige	2	400	50	70	766	447
Umbria	2	564	79	121	1.094	576
Veneto	12	2.158	267	382	4.323	2.522
Totale	106	32.174	5.717	9.648	55.361	34.271

Figure 2-3. Source: Libro Blu 2020, ADM

Sisal market positioning and business model

As previously mentioned, the gambling market is strictly regulated by the Italian government. The most important legislative authority is ADM, the governmental agency in charge of regulating several fiscal sectors, as well as exclusive monopolies like the selling of alcoholic beverages. In addition to ADM, the other government-owned body involved in the market is the Società Generale d'Informatica (SOGEI), in charge of the technical and informatics aspects of the gambling industry. Within the context of the gambling industry, ADM supervises the market as a whole and is in charge of defining the rules, enforcing them and punishing illegal operators. It is also in charge of collecting tax revenues deriving from gambling activities, part of which is destined towards the protection and valorization of the Italian cultural patrimony (administered by the Ministry of Culture). In addition to the function of regulatory oversight, ADM is also the owner of all the concessions available on the market, and is in charge of assigning them. Without a government concession, no company can enter the gambling market. Concessionaries pay for their license and have several responsibilities, such as ensuring the compliance of their activities with governmental regulations, paying the required taxes and reporting any irregularity to ADM.

Due to the strong regulatory oversight, there are significant barriers to entry for new players; moreover, the impact of these barriers is different for each segment examined, be it retail or online, as well as for each product category. As a consequence, the competitive environment looks different accordingly. Starting from the betting sector, there are several different players who operate either in the retail market, in the online market or in both. Among the others, it is possible to cite Snai, Bet365, Goldbet, Sisal and Eurobet. The gaming sector, on the other hand, is much more concentrated: there are 11 operators who control the entire market, due to specific regulatory constrictions. The most important are Snai and Lottomatica. For the product segment of lotteries there are three operators who hold the three concessions for each type of lottery mentioned in the previous paragraph: IGT (for instant lotteries), Lottoitalia (for lotto) and Sisal (for GNTN). Connected to this segment there is the bingo sector, with 196 halls throughout the country managed by three main operators (Cirsia, Codere, HBG).

Shifting the focus towards the online channel, it can be classified as a highly competitive market. This is mostly due to lower requirements on the part of ADM, allowing more operators to compete successfully. Even though there are 78 operators, the biggest 10 own about 70% of the market share. Future projections for the segment show a further concentration trend, mainly pushed by the forecasted reduction of the concessions, the advertising ban and a generalized increase of the

regulatory burden. The following graphs summarize the repartition of the main operators in the online betting and casino games (including poker and card games), since these are the most relevant products sold through digital channels.

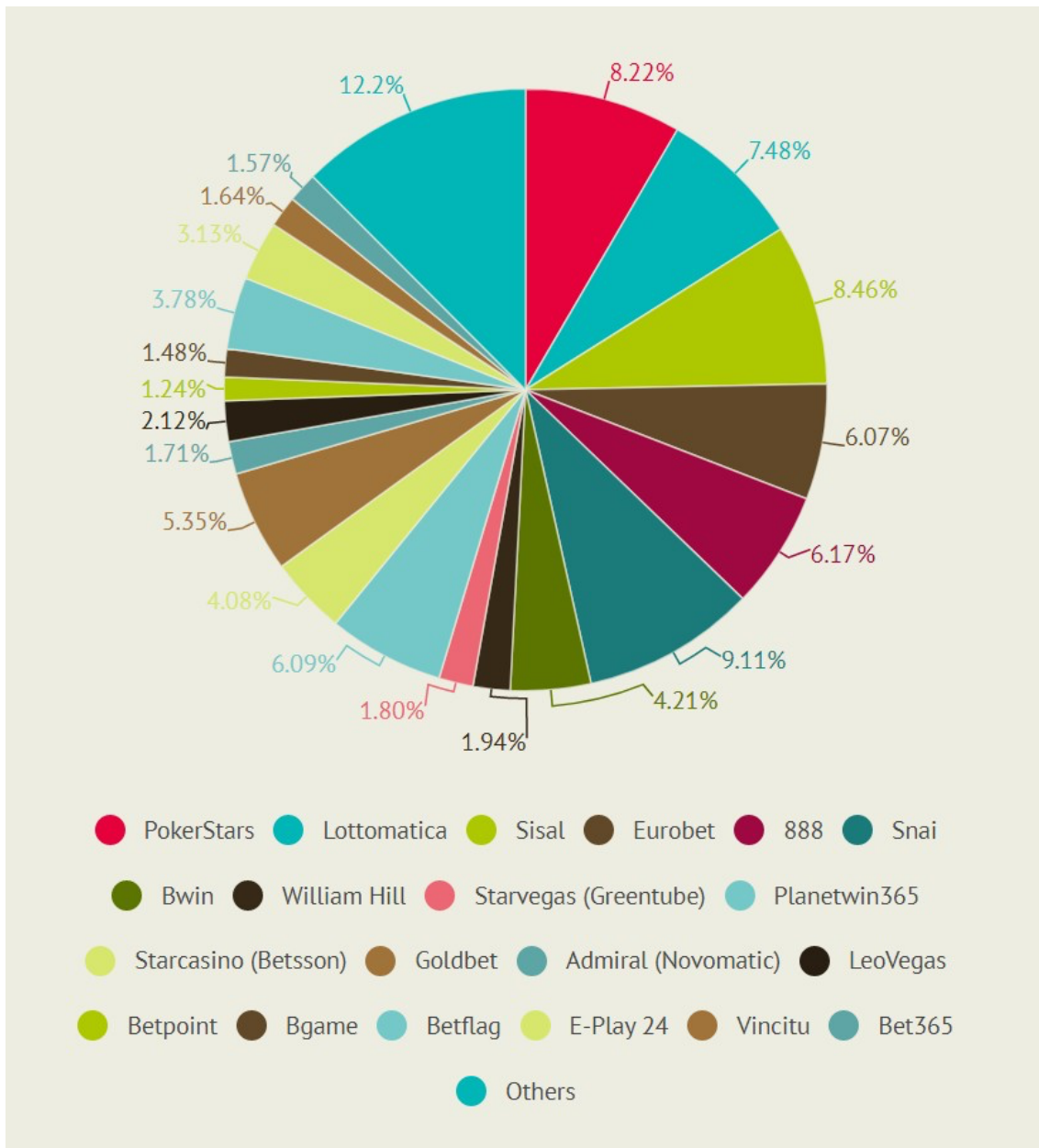


Figure 3: Market share of the 20 biggest operators - Online casino games. Source: Omoigui, 2021

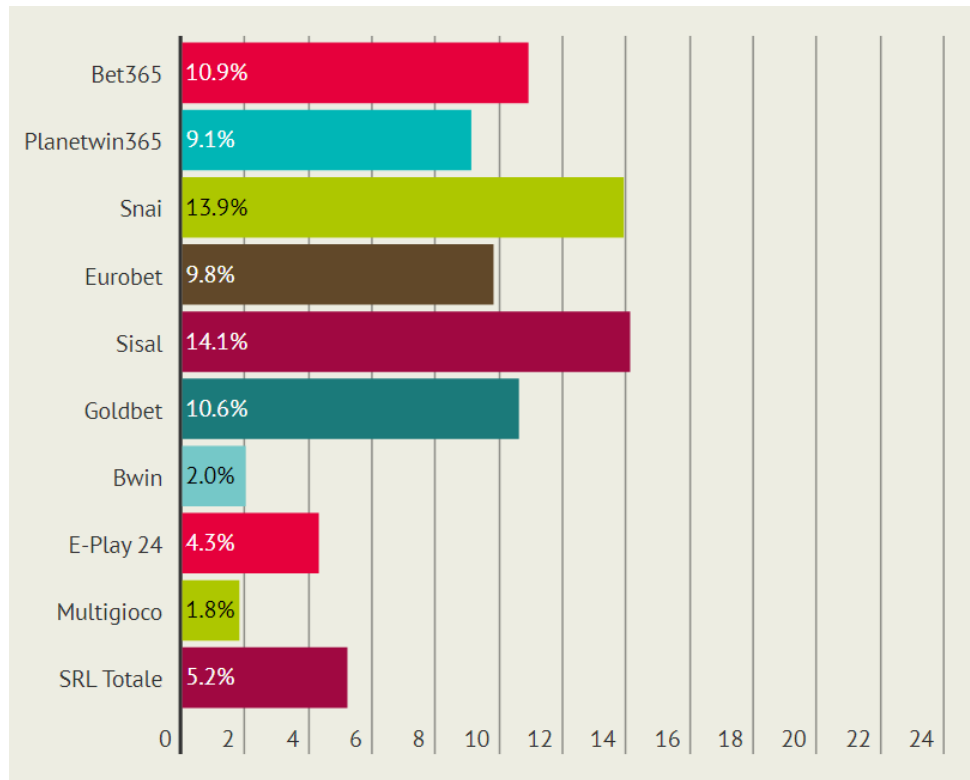


Figure 4: Market share of the 10 biggest operators - Sports betting. Source: Omoigui, 2021

Within the overall Italian gambling market, Sisal is one of the market leaders. Founded in 1945, it was the first Italian business in the gambling industry, and today it is present both in the online and in the retail market, with an extensive product portfolio that spans betting, gaming and lotteries. The company has been able to deliver robust financial results, despite the economic crisis generated by the Covid-19 pandemic; it has been able to leverage the switch of consumers towards online gambling and it has also expanded internationally in Morocco, Turkey and Spain.

Sisal is a private company that has been recently acquired by Flutter Entertainment plc Group; the acquisition prevented the initial public offering of the firm, completed in October 2021. From the administrative point of view, it is organized in three main business units: Online (Italy), Retail (Italy) and International. The international business of the company accounts for about 8% of the statutory revenues; it was created in 2018 following the expansion on the Moroccan market with several different products, both retail (such as lotteries or VLTs) and online. In 2019 it started to operate in Spain and in 2020 it expanded further in Turkey. In the future, the international business is set to be consolidated, with possible new expansions in foreign markets, targeting in particular the flourishing online market environment. For the purpose of the following analysis, the international market segment will not be taken into account, focusing instead on the Italian market due to its relevance both in terms of size and of economic contribution.

Shifting the focus towards the Italian market, the main organizational division concerns the sales channel, since the company is one of the few in this line of business to offer a complete product portfolio in both online and retail settings. The Online Italy business unit was created in 2004 to plan, implement and supervise the online portion of the company's business; according to the company's estimates, during 2021 it has registered around 880.000 active customers, approximately equally distributed between the website (both desktop and mobile) and the application. The online portion of the business accounts for about 24% of 2021 GGR, but it has grown dramatically (in 2019 it was just 9,6%) and it is expected to expand even further. Sisal is a licensed operator allowed to offer its products on the online market, where each license has a timeframe of 9 years; as such, it is required to respect ADM's legislative obligations for its concessionaires. The Online BU is in charge of overseeing all the products offered through digital channels, which mainly comprise the official website and the applications for smartphones. In addition to this, as an online operator it is subject to several regulatory provisions, such as the compliance with a certain payout ratio (meaning that a certain percentage of the players' bets has to be redistributed to them as a win, for example 65% for AWP's and 84% for VLT's) and the respect of a minimum threshold for the winning probability. Moreover, the business unit has to ensure the compliance of clients' personal data processing, the protection of all the digital assets owned by the company and the management of the overall technical infrastructure (including the payment processing services).

The business model behind the Online Italy BU relies first and foremost on providing a great customer experience on its digital channels; this in practice is achieved by employing several strategies to entice new players and keep current clients interested. Customer acquisition is driven by various digital marketing techniques, such as Search Engine Optimization (SEO), special promotions or free initial bets for new customers and social media marketing. Since the average online gambling customer is typically a well-versed digital user, the latter strategy has acquired a high degree of importance, facilitating the reach of an enormous audience at a relatively limited cost. Distinctive points of Sisal's online value proposition are the wide variety of games available (continuously updated), the easiness of use and the strong brand image. Given that Sisal is an historical Italian company, with 75 years of experience in the market, its brand awareness is very high and this is a distinctive factor in a variegated market environment such as online gaming. A trustable brand is an essential element for traditional retail customers to try and switch towards online gaming, and this is an asset that will be leveraged even more in the future, with the progressive push towards an omnichannel strategy.

The Retail Italy business unit is in charge of managing the largest part of the company's business. In 2021 it has registered 324 millions of revenue and despite the impact of the Covid

pandemic it has rebounded quite strongly. The company can count on more than 40.000 Points of Sales (PoS), to be distinguished in branded PoS (such as Sisal Matchpoint and Wincity shops) and affiliated channels (such as bars, tobacconist and newsstands). The latter channel represents the vast majority of the distribution network, with around 95% of the total PoS in Italy; the products offered are very heterogenous, comprising all three segments (betting, gaming and lotteries). From the regulatory point of view, the retail sector is more complicated since the company has to ensure not only compliance with ADM's rules, tax collection and payout ratios, but it also has to manage the technical infrastructure (for example, gaming terminals' connection to SOGEI) in conjunction with the relationship with retailers. Indeed, the vast majority of the distribution network relies on affiliated PoS, who manage daily operations in exchange for a percentage of the revenues; however, Sisal retains its rights as a concessionaire from ADM, so it is responsible on their behalf.

From the organizational point of view, the retail sales channel also presents several peculiarities and attention points. In particular, physical stores require setting up and maintenance, in accordance with business strategy and marketing requisites. The layout has to respond to customers' needs and has to entice foot traffic; moreover, the personnel staffed has to be trained and updated regularly to assist players and to provide information about new games. Additionally, each gambling segment has specific requirements when inscribed in a retail setting: for betting activities the concessionaire has to establish the odds and the payout rates for the whole network; for lotteries the regulatory burden is even heavier, as well as the technical responsibilities to connect the whole distribution channel to SOGEI; for gaming, dealing with physical devices (AWPs and VLTs) entails taking charge of their purchase, delivery, maintenance and substitution, even if they are rented to an affiliated retailer (like a bar). In general, the retail business unit has to deal not only with final customers but also with client retailers/affiliated, ensuring that they receive the assistance they need and their compliance with the normative framework.

Sisal's success factors for its retail sector are strictly correlated to users' behaviors in the gambling market. In particular, two of its key assets are its wide, capillary distribution network and the attention to details for what concerns all the stores management operations. For what concerns the first point, Sisal has been able to expand its network by leveraging independent shops and forming local partnerships: given that the vast majority of customers prefer to gamble as close as possible to their habitual locations, the company has thus ensured that a PoS will often be available at a close distance for big segments of the population. Regarding the second point, an integral part of the marketing for the retail sector is related to the physical disposition of the PoS (for example, the placement of the slot machines in a bar, or the availability of scratch lottery tickets close to bars' counters). Sisal has invested a great deal of attention in the configuration and optimization of its PoS,

often including other amenities (such as snacks and beverages), a move that has paid off over time, especially since the prohibition of the majority of advertising for gambling has pushed operators in the field to look for alternative ways in order to entice new players.

Strategic intangible factors and the gambling market

By performing a financial valuation, it is possible to obtain several quantifiable indicators of the value and health of a firm; in addition to this, it is also possible to approximate and forecast future cash flows and expected returns from specific projects, often on a broad time horizon. Given these elements, it would be expected of a financial analysis to be a pre-requisite or an important component of a company's strategic plan; however, this is not always the case. The adoption of a narrow focus on the maximization of specific financial KPIs or on the achievement of a specific goal in the short run may blind a company's executives, causing losses to the overall value of the firm in the long run. Reconciling financial and strategic considerations is paramount to a firm's success, and an accurate valuation should be the starting point to move forward. Through a classical valuation, performed using one of the methods described in the previous chapter, it is possible to quantify with a reasonable degree of accuracy the value of a company as well as several other ratios able to aid in long-term strategy setting.

However, the aforementioned techniques are often strictly bound to physical, tangible assets and the value they can generate either in the present or in the future for the company. Such value is clearly embedded and identifiable in, for example, a processing plant or a land plot, and it is often easily quantifiable. Moreover, it is possible to account for these assets' change in value overtime pretty easily and resell them or rent them if needed (although it may imply to sell at a discount). In addition to this, their contribution to the company is often straightforward (for example, through a capital budgeting analysis it is possible to assess whether the acquisition of a specific piece of equipment is worth the investment, or in another scenario it is possible to evaluate whether to sell it or not based on the value it can add in the future and on the depreciation it has incurred into). On the other hand, intangible assets are more difficult to define, assess and quantify precisely, both from a financial and from an accounting point of view; moreover, their contribution to the overall value of the firm is often nuanced and hard to define in absolute.

The importance of intangible assets from a strategic point of view derives from the capability differentiation they are able to generate, which in turn represents a powerful driver of competitive advantage sustainable over time. Since the acquisition and maintenance of a strong, unique

competitive advantage is among the most important goals typically pursued by corporate strategy, it is evident how in turn the acquisition and maintenance of specific intangible assets that produce the competitive can be extremely valuable for the long-term profitability of a firm. Quoting Kaplan and Norton: *“Intangible assets are hard for competitors to imitate, which makes them a powerful source of sustainable competitive advantage. If managers could find a way to estimate the value of their intangible assets, they could measure and manage their company’s competitive position much more easily and accurately [...] By understanding the problems associated with valuing intangible assets, we learn that the measurement of the value they create is embedded in the context of the strategy the company is pursuing.”*¹

According to Hall, the first to investigate this topic, intangible assets can be defined as *“[...] those key value drivers whose essence is an idea or knowledge, and whose nature can be defined and recorded in some way”*². Since then, a significant body of research in the strategic management field has been devoted to the definition and classification of these assets, producing several different frameworks of analysis. Nowadays, a widely accepted classification divides intangible assets in three main categories:

- Human capital, that includes all the skills, capabilities and acquired knowledge of the company’s current employees.
- Relational capital, which comprises the strength and the quality of the company’s relationship with its internal and external stakeholders, including clients, public authorities, shareholders etc.
- Organizational capital, the larger and most elusive category, in which it is possible to classify all the elements relative to the company’s organizational culture, such as its propensity to innovation and progress, its resilience and the leadership style of its management.

Another influential framework on the topic is the balanced scorecard. Its classification is approximately similar to the one mentioned above; however, the relational capital category is replaced in this context by information capital, that represents a company’s information technology resources (such as its databases, networks and overall technological/IT infrastructure). In addition to the provision of a reference framework, the balanced scorecard is also a useful tool to measure the contribution of intangible assets to a firm’s overall performance, as well as to the realization of its strategic objectives. Each intangible asset, classified according to the categories mentioned above, can improve a company’s efficiency, productivity and product/service quality, which in turn are fundamental elements to pursue and reach its goals.

¹ Kaplan and Norton, 2004

² Hall, 1992

The individual contribution of intangible assets towards this end is embodied and measured through their strategic readiness, and its estimation differs according to the category under scrutiny. For example, the knowledge and preparation of a firm's employees (put into relation with the skills needed to succeed in its field) are a good proxy for the quantification of the strategic readiness of its human capital factor; the quality of the information technology capital available to the company, as well as the level of expertise in using and managing it, contributes to the good functioning and improvement of the company's business model, and as such it is taken into consideration as its strategic readiness. For what concerns the organizational capital, the measurement of its strategic readiness is more complicated, due to the inherent difficulty in the classification of the underlying assets; however, it is possible to approximate it to the degree of respect and commitment of the company's people towards its fundamental values, culture and mission. An important component of this element is also the propensity of employees for teamworking, a characteristic broadly recognized as conducive to knowledge retention and organizational success.

In order to improve its learning and growth perspective, a company must identify exactly how each category of assets is conducive to success, given the reference industry, the current state of technology, the competitors on the market etc. The strategic readiness of the assets also plays a part and has to be estimated (including how long it can take to create or improve a given asset); in addition to this, the overall strategy has to examine the current performance of the firm in each category, as well as the desired outcome (in other words, which type of workforce, which information technology infrastructure and which type of organizational culture can better support the strategic goals of the company, and how can it bridge the gap with its current situation?). Moreover, it must be taken into account that these assets are often intertwined with each other, and it may be difficult to determine how exactly each one impacts the others and in general the overall corporate framework.

In order to better understand the interdependence between strategic intangible assets and value creation for all the stakeholders involved, it is useful to employ the strategy map developed by Kaplan and Norton. The map links the financial value, the customer value proposition, the internal processes dimension and the learning and growth perspective of the company, four elements that can be conceived as concentric layers starting from the most external and tangible until the most internal and abstract.

The financial value mentioned in this context is conceived as a twofold goal, aiming on one hand at increasing revenues and on the other hand at reducing costs. The performance on this dimension can be measured through some reference indicators, for example ROI or the cost per unit. The customer perspective layer refers to all the activities that create value for the company's clients and that differentiate its products/services from competitors; this may include, for instance, specific

features unavailable elsewhere on the market, an attractively low price, a good relationship with suppliers or a good brand image. The internal processes perspective is an internal dimension, that describes how the company realizes in practice its customer value proposition. It can be sub-segmented in several other dimensions, which depend on the industry and the business under analysis, but in general it may include functions such as the development of new products, the logistics side of the operations or the customer service side. Finally, the learning and growth perspective leads to the company's patrimony of intangible assets, divided in the three categories described above. The performance in these categories and their strategic readiness influences the internal processes, which influence the customer value proposition, which in turn generates (or destroys) financial value.

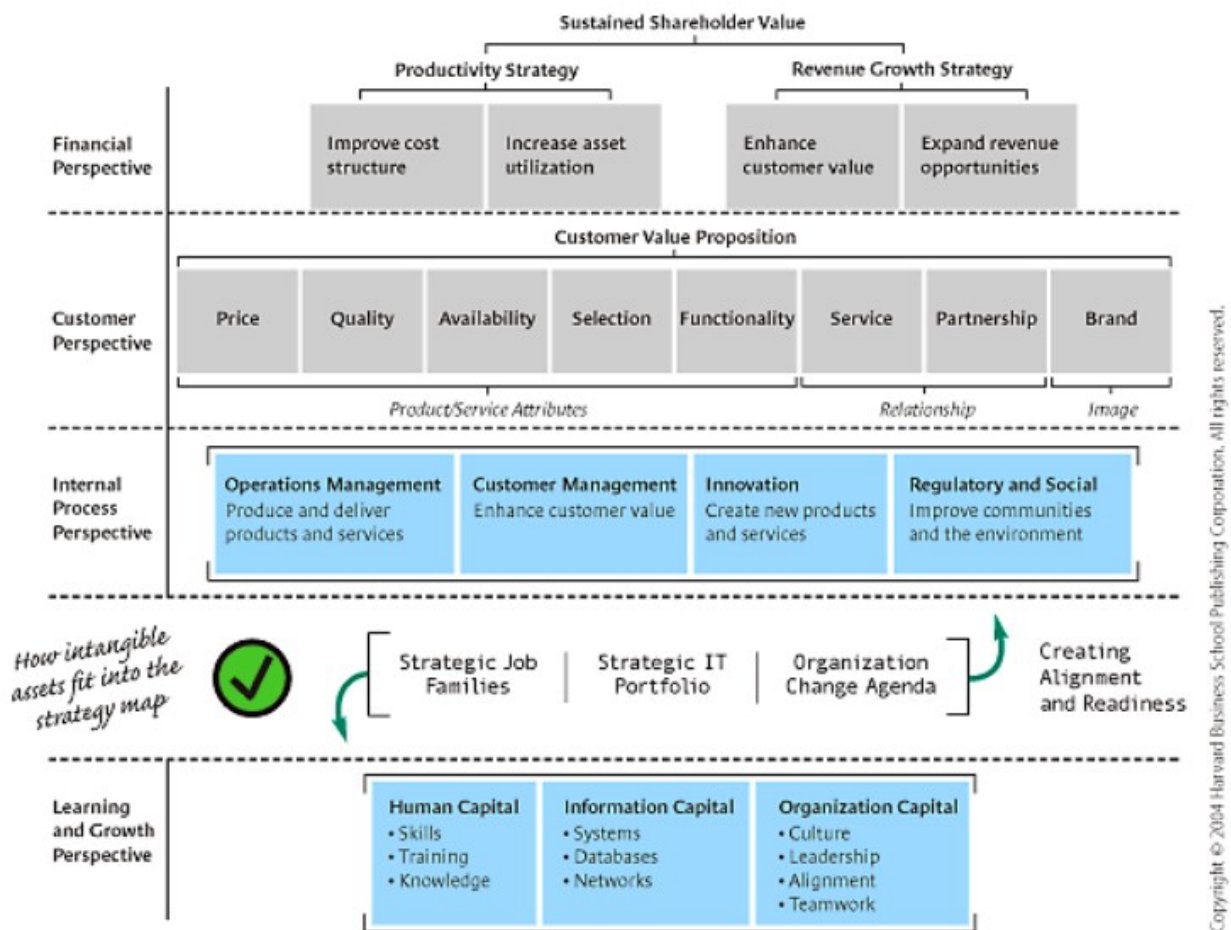


Figure 5. Source: Kaplan and Norton, 2004

Taking into consideration this theoretical framework, it is possible to apply it to the Italian gambling market in order to determine the strategic requirements needed by operators to succeed. As already mentioned in the previous chapter, the gambling industry is a peculiar market and presents very specific requirements to enter and to remain competitive. In particular, it is possible to identify

three main elements that are a unique feature of the gambling industry, and that in turn shape the operators' behavior, the competitive landscape and the probabilities of success or failure of each company.

The first peculiarity of the gambling market is represented by the strong impact of legislation. Governmental authorities are heavily involved in the market framework; as detailed in the previous chapter, the regulatory agency of ADM is the holder of all the concessions and is responsible for their allocation. While the trend in recent years has markedly shift towards liberalization, the involvement of the Italian State in gambling remains a determining feature. The underlying reason behind this framework can be traced back to the potential threat to public order of unruly gambling behaviors, as well as for the danger of addiction (in this sense, similar regulatory configurations can be found in the tobacco or alcohol markets). However, while the risk of dependence and the social costs have remained the same (and it may even be possible to argue that with the shift to online gambling they may have heightened), the government's attitude towards gambling has changed, following several different lines of reasoning.

Gambling represents a fundamental source of tax revenue for the State. Given that the demand has grown considerably and constantly since the 90s, the tax income reaped by the public authorities has soared; considering the longstanding structural shortcomings that have often plagued Italy's finances (signaled by a stalling GDP growth since the 1990s and cyclical economic crises) the ever-growing statutory revenues from gambling have proved to be a safety net for the State. Therefore, it comes as no surprise that the push towards liberalization has overpowered the traditional party divisions: coherently, the only legislative intervention aimed at curbing the social costs of gambling was the Balduzzi decree, in 2012. In addition to establishing compulsive gaming as a pathology whose treatment was covered by the national healthcare system, it contained provisions aimed at decreasing the number of underage players and a more stringent regulation of advertising. In spite of this attempt (and some minor changes in the following years, mostly at the regional and local level), the government maintains a strong hold on the gambling sector, and without a publicly issued concession no company can operate in the market.

Another fundamental reason behind the strict regulatory framework is the easiness with which criminal organizations can infiltrate the industry, using gambling activities as means for money laundering, tax evasion or coverage of illegitimate businesses. The sector is particularly attractive for regional criminal groups, such as mafia and other similar criminal organizations, and its allure has all but heightened in recent years. On one hand, gambling activities can be used as a mean for illegal financial activities, due to the fast circulation of huge sums of money. Mafia-adjacent groups may offer to pay a percentage of their revenues to legitimate gambling shops owners for money laundering

purposes or cover up the income of illegitimate activities as gaming winnings. While criminal groups are still involved in the operation of illegal physical gambling venues (i.e. “backdoor casinos”), nowadays the online gambling world is undoubtedly more attractive: it is possible to open several gambling accounts in a short amount of time and rotate the money easily while leaving a limited trace. On the other hand, criminal groups have also attempted to infiltrate the legal gambling market, proposing themselves as operators and often mingling their activities with legitimate shops. Their effort in this sense have mostly focused on electronic devices such as AWP’s and VLT’s, since these are the most profitable segment. Moreover, they are relatively easier to hack (by, for example, lowering the payout ratio for players, connecting them to other terminals or installing them entirely without a license) and modifications are often untraceable. The trend of deregulation that has swept through the sector in the last twenty years can be in part ascribed to the State’s attempts at fighting illegal practices in the field, as well as criminal groups’ power and finances.

Given these elements, it comes as no surprise that state oversight is one of the pillars of the gambling industry, and good regulatory compliance as well as flexibility are fundamental prerequisites for success in the market. Another peculiarity of the sector is the necessity of hedging social costs. Gambling is often grouped under the category of “unethical industries”, such as alcohol and tobacco; this stems from the high social costs gambling can have, and in primis from the addictive potential of gambling activities.

After the Balduzzi decree’s recognition of gambling addiction as an actual pathology in 2012, several regulatory actions have been performed in order to safeguard and help so-called pathological gamblers, defined as people who lose control over their gambling habits to the point of developing an active dependence (identified by how much time the player devolves to gambling, how much they are willing to spend and what are they willing to do in order to play). It is estimated that in Italy about 1,3 million people suffer from compulsive gambling; according to 2022 Ansa data, not even 10% of them has sought medical treatment for their addiction. On average, each Italian spends 1.780 euros per year on playing games of chance; considering that the vast majority of players spend far less than that (and that many Italians do not play at all), it is evident how problematic gamblers impact on the total, and how expensive their behavior can be.

Worryingly, compulsive gambling has a strong association with various mental illnesses: anxiety, depression and above all suicidal tendencies, whose risk is more than double than a non-pathological gambler. There is also a documented correlation between problematic gambling and abuse of drugs, alcohol, risky behaviors and other forms of dependencies. In addition to the consequences of the dependence on individual compulsive gamblers (that can be extremely heavy as in every active addiction, and span from financial issues to affective, social, familiar and legal

troubles), there is a high cost for the larger society and the State as well. This dependence can lead to anti-social behaviors, increased crime rates and involvement in illegal activities (i.e. predatory money-lending).

It is possible to identify several cost categories that can be ascribed to gambling addiction. In addition to healthcare costs, problematic gamblers also weigh on overall productivity and unemployment rates (since they tend to lose their job at a higher rate and to suffer financially even if they remain employed). Moreover, there is a strong correlation with the insurgence of criminal behaviors, due to the constant need of financing playing activities (mostly theft, fraud and forgery); this also weighs heavily on the State from the judicial and penitentiary point of view. Social costs are more difficult to quantify but are nonetheless important. Consequences of problematic gambling on society can range from increased crime rates to distrust, social isolation, lack of community support and domestic violence. Taking into account the sizeable risk of addiction and the serious consequences it can bring on individuals and on the broader society, any operator in the market has to pay attention to this aspect, ensuring the promotion of safe, responsible gambling and enacting safeguards with respect to pathological gambling.

The last focal point of the gambling market taken into examination is the tendency to rapid shifts in customers' preferences, with a strong push to online gaming and omnichannel selling strategy. While consumers' preferences in the overall entertainment industry are already volatile, this is particularly true for gambling. Moreover, the heavy advertising limitations force companies to differentiate their value proposition and to gain a competitive advantage without the ability to rely heavily on marketing functions.

The most notable developments in product offering have been in primis the sharp push towards Electronic Gaming Machines (EGMs) like AWP and VLTs and, in more recent years, the explosion of online gambling. EGMs have risen to popularity since the 2000s; despite the differences in underlying technology and requirements, for players AWP and VLTs are visually equivalent, and they represent maybe the most appealing products of the whole industry. Characterized by no need of experience or ability to play, a fast pace, a low level of economic commitment (starting from 0.50 euros per spin), high payout ratios and virtually no time constraints for repeated plays, EGMs have become a staple in the gambling industry, generating high profits for operators as well as for States (incidentally, EGMs are also closely associated with compulsive gambling for these very same features). The dizzying array of models, the importance of visual appeal and the almost endless variations in gaming experience involve a strong commitment to develop new, attractive machines to remain competitive.

This is even more relevant for what concerns online gambling. There are virtually no limits on the types of games and lotteries that can be played online, and their ever-growing variety and sophistication has expanded to the point of encompassing elements that were previously unthinkable. In this respect, an interesting development has been represented by the integration of gambling elements in normal videogames and gaming products; as an example, it is possible to cite so-called “loot boxes”, meaning virtual boxes containing random items that can be purchased with real-world money in a videogame. While playing the videogame in which they are inscribed cannot be technically classifiable as gambling, loot boxes still represent a gambling feature, since purchasing one basically means to bet a fixed amount of money on an unpredictable, randomized outcome, in the hopes of obtaining a valuable prize. Similar features are also present in smartphone games and are increasingly available in social media games as well, adding the element of community and sociality on an otherwise single-player game. Although these new developments in the industry have elicited preoccupation from the part of the State (due to their addictive potential, their precursor role in dangerous gambling behaviors and, above all, their strong appeal to the younger generations, coupled with often inadequate safeguards to prevent minors from playing) these features have become very popular, and the market has followed the demand trend in providing an increasing number of captivating virtual games.

Another peculiar trend in the online gambling market has been the growing integration of offline elements, in a push towards an omnichannel strategy. It has become more and more common to include, in the context of online games, a link with the external reality; this has been achieved, for example, by leveraging new technologies like QR code scans, virtual reality visors and geo-localization features. The employment of these newly available means captivates players, providing a new, more interesting gaming experience that engages them thoroughly and allows them to enjoy it in different settings. For a company to achieve and maintain a competitive advantage in this market, it is essential to invest in product innovation and to develop in-house capabilities in order to offer novel, exciting games and features to be proposed to players. Failure to adapt rapidly can cause the rapid shrink of the market share, especially in the light of the advertising restrictions and the previously mentioned liberalization trend, that has effectively opened up the industry to a growing number of competitors (the majority of new entrants are more prone to compete exclusively or mostly in the online market rather than in retail, considering the higher financial and regulatory burdens of a physical distribution network).

To sum up, a successful company in the gambling business must possess the flexibility necessary to adapt to a changing, demanding legal framework; the safeguards and responsibility policies to prevent compulsive gambling in its users in favor of responsible gaming; and the know-

how and capability to renovate continuously its portfolio product, particularly for what concerns the online portion of the business. In the following paragraph, the Sisal case study will be analyzed to determine its positioning in the light of these strategic requirements, before turning in the final chapter to the financial valuation and to the relevant considerations in terms of strategy.

Sisal's immaterial strengths

The ADM is the regulatory authority in charge of the gambling industry; in particular, it operates in the market through the agency of Amministrazione Autonoma dei Monopoli di Stato (AAMS). The concessions usually last for 9 years (although the duration may vary according to the subsegment in question) and are awarded through a public call for tender; moreover, ADM also has to concede another specific authorization both to the operator and to eventual third-party retailers if relevant (for example, the owner of a bar in which an AWP is installed).

In order for an operator to obtain a concession, there are several pre-requisites and obligations it has to respect; the most recent piece of legislation on this matter is the DDL S. 560 of the XVIII Legislation (2018), that has revised several normative provisions in the field of gambling regulation. For what concerns the necessary requisites, to obtain a concession an operator must:

- Be based in Italy or in a European Union legislation
- Have obtained a turnover of at least 2 million euros from gambling activities
- Have a technical infrastructure (based either in Italy or in the EU) certified by an independent body and guaranteed by at least 1,5 million euros of collateral
- Respect of specific financial solvency requirements, as detailed by the Treasury Ministry, as well as guarantees of independence and absence of competing interests on the management part

Once the company obtains the concession, it must ensure its ongoing compliance with the aforementioned requisites, as well as respect other obligations. The latter mainly fall in three distinct categories: financial/firm ownership obligations (i.e., the maintenance of a specific debt threshold or the duty to communicate any variation in the firm's ownership structure or shareholders' composition); logistics/customer care/responsible gambling obligations (i.e., the respect of specific requirements for the distribution network, for the setting of physical PoS and for the limitation of irresponsible gambling behaviors) and data reporting to the Agency obligations (i.e., the transmission of complete records to ADM for what concerns economic, fiscal, technical and management operations, as well as the compliance with eventual inspections on the part of the Agency). Moreover,

concessionaries must possess a clean criminal record and must pay the 0,8% of the money gambled to the Agency.

For what concerns online gambling, the requirements are extremely similar (if somewhat less burdensome on the part of financial guarantees), differing markedly only for what concerns the technical and infrastructural requirements. Additionally, the safeguards in place to prevent minors from playing are enacted differently (by requiring players' registration on the concessionaire's website) and responsible gaming is promoted in alternative ways (for example by auto-setting limitations on the player's account).

Sisal is well-positioned with respect to both the requisites and the obligations imposed by ADM on its concessionaries; this result can be ascribed to some strategic intangible assets in its possession, that improve its internal processes and functioning.

Considering that Sisal is the oldest Italian company to operate in the gambling market, it satisfies both the nationality and the infrastructural requirements. For what concerns the financial obligations part, Sisal is one of the most profitable companies in the industry, and it has been able to resist the economic crisis of the Covid-19 pandemic by focusing on the online portion of the business. With a GGR of 2 billions, revenues equal to 683,8 millions and an Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) of 248 millions, the firm wholly satisfies the Treasury's requirements in terms of solvency and collateral guarantees for the operation of its business. Given the constant growth delivered in the past years (with the exception of the pandemic period) and its great rebound (with a GGR growth of about 36% and a revenue growth of about 31%) the company poses a very low risk of non-compliance with ADM terms.

Sisal has always demonstrated a strong ethical commitment towards excellent operations and customer care; this has been shown, in practice, with the achievement of several internationally recognized certifications like ISO, that range in scope from anticorruption practices to cybersecurity. Regarding the data transmission obligation towards the Agency, the company has always complied strictly with the law's prescribed terms, honoring the restrictions imposed on its executive and management team in terms of associations, conflicts of interest and blank criminal record.

The underlying strategic assets can be examined and classified taking as reference the balanced scorecard framework. Regarding the human capital category, Sisal mandates the execution of training courses for all its employees, focusing on topics of money laundering, cybersecurity, fraud prevention and legal responsibilities in function of their role. This ensures a prepared workforce, able to deal with the regulatory constrictions as well as the specific risks embedded in the gambling industry, in particular when dealing with online operations. Additionally, all the workers are trained

to recognize symptoms of compulsive gambling and to enact the safeguards prescribed by the company's responsible gaming program.

From the information technology point of view, Sisal is endowed with all the infrastructural and technical resources to develop and maintain its proprietary website and smartphone applications, as well as the obligations towards the ADM. The company is leveraging cutting-edge technology for specific business objectives, such as big data analysis to individuate potential problematic gamblers and Artificial Intelligence (AI) to tailor customers' experiences. These information systems are able to extract and analyze the data needed by AAMS and ADM and perform important functions of screening, profiling and examination of clients' profiles and transactions. The very same technologies are used to screen retailers' activities and profiles, in order to safeguard them from fraud (and to ensure they behave in an ethical way). Machine learning tools are also employed to individuate quickly and accurately suspicious bank movements, transactions and players, sometimes collecting data from third-party databases in order to improve their algorithms.

Finally, at the organizational level Sisal is an historical company in Italy, embodying the values of responsibility, transparency and honesty. At the management level, strong emphasis has been placed on the respect of rules and compliance with normative prescriptions. Considering that the major risk for a company in this sector is represented by the loss of the concession to operate, the leadership is well-aware of the importance of the creation of an organizational culture that promotes legality, trust and integrity; the ethical and behavioral code published on the company's website is an example of the practical commitment towards these values.

All of these policies have been developed in order to mitigate maybe the biggest risk of conducting business in the gambling industry, namely the potential loss of the concession from the competent regulatory agency (in this case ADM). While there is never any guarantee on its renewal for any company, it is possible to say that, given its tangible and intangible assets, Sisal is well-positioned for reobtaining the tenders set to expire at the end of 2022, with no evidence of related problems up until now.

For what concerns the commitment towards responsible gambling and the prevention of pathological forms of behavior there is no clear checklist of the requirements that apply to operators, with the exception of some provisions, for example in the Balduzzi decree or in the aforementioned DDL S. 560 (i.e. the interdiction for minors to play, the availability of auto-limitation tools for players and the presence of helpful material for at-risk gamblers in PoS). However, there are several independent bodies that perform functions of certification and oversight, both at the European and international level, and companies' membership signals the rigorous respect of the ethical codes of conduct drafted by these organizations. In this respect it is important to underline that no single

standard exists, not even at the EU level, and this is why operators rely on codes of conduct under the control of neutral third parties. Among the others, it is possible to cite the Global Gambling Guidance Group (G4) and the World Lotteries Association (WLA).

Since 2011 Sisal has consistently earned the highest-grade certification awarded by European Lotteries (EL) and by the WLA since 2012 for its responsible gaming program (“*Gioca il giusto*”), a result only shared by IGT in Italy. The commitment to responsible gaming as one of the cardinal principles of the company is meant to be read in light of the broader framework of corporate social responsibility practices. The topic has acquired a huge importance in recent years across all the industrial sectors, and it comes as no surprise that firms have swiftly moved towards the adoption of a socially responsible approach, with a mission that now more than ever encompasses as subjects not only the company’s shareholders but the broader stakeholders as well, in which can be inscribed the environment, the population, the customers and the employees. Considering the peculiar nature of the gambling industry and the elevated risks its activities can cause on society, the topic of corporate social responsibility is crucial for the establishment of a positive brand image and the successful conduction of business operations. In addition to this, it is also important to underline that problematic gamblers are a liability even for the gambling operators, since due to their contained number with respect to the overall target population they do not compensate economically the reputational losses caused by their behavior.

To maintain compliance with international criteria and distinguish itself from other Italian competitors, Sisal has invested since the 2000s in responsible gaming programs. For what concerns the internal processes dimension, a specific responsible gaming sub-unit has been tasked with the implementation of the necessary safeguards to curb the phenomenon. Actions taken by the unit include the forced limitations that can be enacted on high-risk gamblers’ accounts, the deployment of resources to spread awareness and enhance players’ sensibility of the risks associated with gambling and the continuous efforts to exclude underage players. The unit is meant to be conceived within the larger framework of cross-sectional interventions aimed at containing problematic gambling, and as such it involves both the online and the retail segment; however, the initiatives taken at each level are heterogenous and tailored on the different environments and players’ behavior.

Taking into account the balanced scorecard theoretical framework, from the human capital point of view it is possible to identify as strategic intangible assets the preparation and the courses provided to the workforce, a mandatory step in order to become part of the company’s network. Importantly, the courses concerning responsible gaming must be passed by employees at every level of the hierarchical structure and are extended to retailers and third-party service providers that conduct business with Sisal. The training modules aim at identifying dangerous behaviors on the

players' part and provide employees with the right tools to assist them properly (and eventually to provide them with the resources for gamblers to seek further help from medical professionals). Moreover, a significant degree of attention is also awarded on the preventative actions and the sensibilization campaigns organized by the company, initiatives that for their nature have to be enacted and monitored by trained professionals.

None of the aforementioned initiatives could be enacted without a modern information technology system. The overall technical infrastructure of the company supports the responsible gaming initiatives by providing several key strategic assets that are essential for the functioning of the program. This is a fundamental element in particular for the online BU, since the only resources available for customers are provided in an exclusively digital format. Among the internal capabilities on which sustainable gaming programs rely on, maybe the most important subsegment is represented by monitoring and tracking tools, developed thanks to the application of AI. All the data collected from Sisal's online platforms are routinely scanned and checked for abnormal player behavior; when certain thresholds are exceeded (i.e. in terms of spending or repeated plays) the player is notified and their account is flagged.

Auto-limitation tools are also available on each gaming platform and are proposed more frequently to potentially problematic players, individuated with the help of the techniques mentioned above. In addition to these operative measures, Sisal has also started to invest in innovative platforms and technologies able to preempt gambling problems. As an example, it is possible to cite its involvement with GamGard, a Canadian company that has developed an innovative evaluation tool to assess the potential dangers associated with each game design. Based upon psychology and sociology principles, GamGard reviews game design in the light of specific aspects (both structural and contextual) that have been linked to compulsive gambling, for example the absence of constraints on repeated plays, the size of the jackpot, the illusion of control on the player's part or the probabilities of winning. Sisal applies the GamGard tool in a preventive way, by screening newly created games to ensure that they do not pose a strong risk of addiction to players.

For what concerns the organizational culture aspect, there are no clear indicators to take into account; consequently, the assessment of its impact on responsible gaming practices is complicated as well. While the most efficient way to measure the performance of a company in this field typically consists of surveys and internal data collection (subjective sources), it is also possible to employ objective data to determine whether a commitment towards specific values exists or not on the organization's part. In this respect, it is possible to mention that Sisal's responsible gaming program was first created in 2009 and at the time it was a novelty in the industry. Additionally, in accordance with the reviewed company purpose statement from the leadership team, the sustainability of the

business as a whole has been pointed as one of the main strategic priorities, and as such the protection and safeguard of players as well as the promotion of a legal and balanced gaming model have been classified as an extremely relevant company objective.

As another example of the company’s alignment and commitment towards this goal it is possible to mention its “voluntary” EBITDA losses from potential compulsive players, that amount to about 9 million euros. This means that the company has chosen to forego additional revenues by blocking problematic gamblers’ accounts (both online and retail) in order to respect its social mission. While there may be some strategic foreshadowing at play, the overall alignment of the organization and its organizational culture strongly support the goal of responsible gaming.

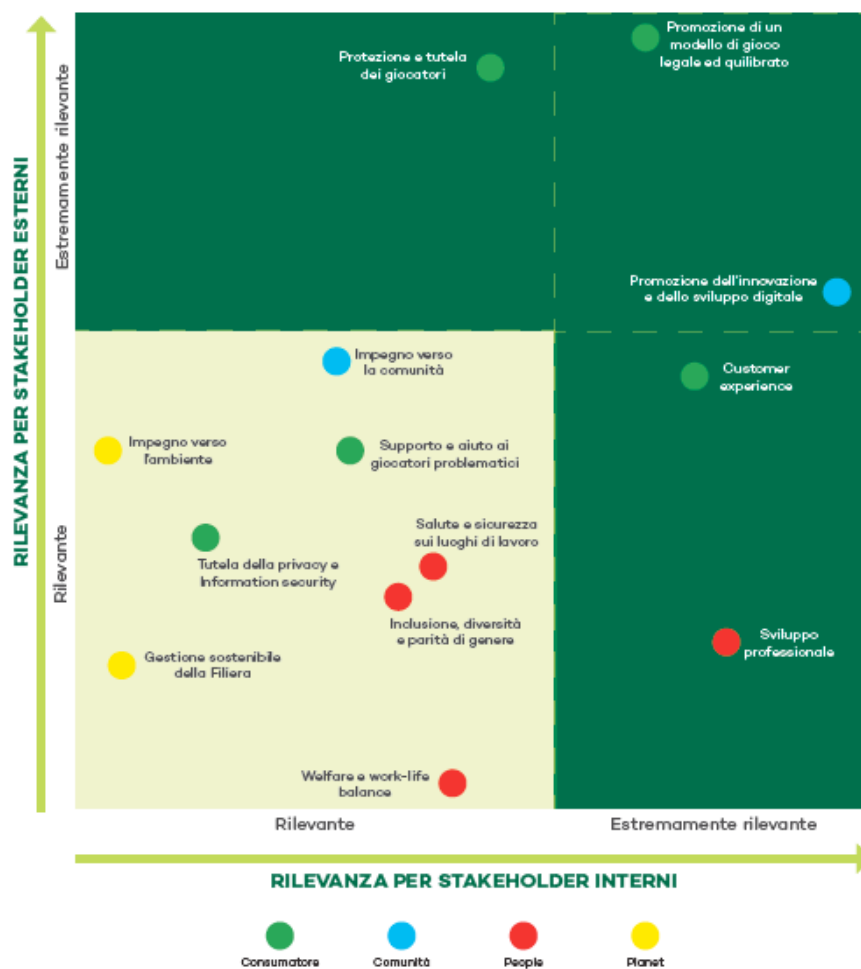


Figure 6. Source: <https://www.sisal.com/sostenibilita/strategia>

The last distinctive element of the gambling industry is the high relevance of innovation and new products’ development. While this is undoubtedly a common feature that many markets share, especially in the light of the huge technological advancements of the recent years, it acquires a different meaning in this context for several different reasons. Firstly, Italy is one of the countries

with the most restrictive laws concerning gambling advertising in the EU. A first advertising limitation was enacted with the Balduzzi decree, followed in 2016 by further restrictions in terms of context, programs and hours in which the advertisements could be aired. The strongest prohibition was approved in 2018: according to the Decree Law D.L. 87/2018, converted in L. 96/2018 (so-called “*decreto dignità*”) it is forbidden for companies to advertise any betting and gambling product that implies a monetary win. This blanket ban includes all forms of communication, like television programs, newspapers and digital means, and it also involves indirect forms of advertising (a common practice in the field used to be the sponsorships by gambling operators of sport events, that is now forbidden for almost every sport since the enactment of the decree in 2019). The ban, coupled with an array of disclaimers that must be present and visible on any product, distributor or website that deals with gambles (i.e., the prohibition of playing for minors, the risk of addiction associated with gambling), has had important consequences on the market environment. The perception of gambling has also considerably worsened, in particular after the uptick in popularity of slot machines, strongly associated with pathological gambling in people’s minds.

Since operators are not able to rely substantially on marketing operations to sell their products, the focus of the industry’s value proposition has shifted towards product mix differentiation and continuous innovation. Players do not choose games according to marketing influences, but instead value other elements that intervene in their customer journey. For example, they often prize the presence of a social element when they play (i.e., betting shops with dedicated resources, newspapers, online communities...), or place a high importance on the security of their accounts and transactions (in particular when gambling online). Among all the characteristics that attract players, it is important to consider that gambling is a branch of the entertainment industry, thus the element of fun and gamification is a fundamental attribute for a successful strategy. Adding to the picture the strong push towards the digital world that has occurred in the last 20 years, it is safe to say that providing products able to satisfy and engage players on various levels, including online, and introducing new games at a fast pace are critical success factors in today’s gambling industry.

Sisal has made innovation and digital gaming one of its strategic pillars, as evidenced by the relevance map presented in the previous page. Since 2017, it has invested more than 75 million euros in R&D and innovation-related projects. The main areas of focus have been the company’s proprietary applications and platforms as well as the continuous in-house development of new games. The firm seems to be conducting a strategy aimed at leveraging today’s trends in the gambling and entertainment industry by pursuing a two-fold objective: on one hand the optimization of its current digital assets, together with the improvement of user experiences throughout the touchpoints of the

digital customer journey; on the other hand, the acquisition and retention of new players by offering a wide portfolio of products, able to entice and surprise them.

In order to support its internal capabilities and processes needed to achieve its strategic goals, Sisal has to rely on different intangible assets. By applying the balanced scorecard classification, it is possible to analyze them more in detail and to link them to the broader corporate strategy. Starting from the human capital category, within this context the most relevant professional figures belong to the IT world (such as software engineers, customer experience design teams and programmers), as well as the marketing and demand planning professionals, that are tasked with mapping and anticipating customers' evolving preferences. Sisal has insourced most of the internal processes that deal with platform management, R&D and customer care; however, a key vulnerability is represented by the high degree of outsourcing of the retail portion of the business. Due to the extensive distribution network of the company, most of the day-to-day operations and in-person contact with clients is in the hands of affiliated retailers. As part of the company's network, they receive the same training as full-time employees and must comply with the company's code of conduct, but they may be less committed to the organization's goals. For what concerns the development of in-house skills, Sisal has taken several actions to become an attractive company and to pursue digital talents, such as the targeted recruiting of professionals from advanced-technology fields, the expansion of online experience design teams and the partnership with universities (like Politecnico di Milano) to spread knowledge and skills among its employees.

The intangible assets that belong in the category of information technology capital are obviously the most relevant for the translation of the firm's strategic innovation goals into actionable plans. The company has heavily focused on product innovation, paying particular attention to the development of proprietary platforms. The underlying reasoning considers both the high fees charged by third-party providers for their games and the enhanced control Sisal can exert on its product portfolio and its game development process according to the trends of the market. For example, one of the subsectors in which Sisal is attempting to gain influence is virtual reality gaming, a novelty that can be expanded and developed only with a great deal of technical capability. A proprietary platform also allows the company to control and enhance the user experience side, enriching the games with loyalty rewards, for-fun challenges and social elements, actions aimed at improving customer retention rate. Correlated to this point, Sisal has developed a social media platform called Tipster, entirely dedicated to the world of sport betting. Users can share their bets and attempt to predict the outcomes of matches, customize their profiles and earn points by guessing correctly. All of these features have been realized and rely on a modern, efficient technological infrastructure, in which the company has invested continuously overtime.

The final part of the analysis concerns the element of organizational design and culture. Sisal is an historical Italian company and as such it is strongly attached to its heritage. The most popular and widespread products have remained the same since the 1990s; as an example, the Superenalotto lottery has been invented in 1997 and it has remained unchanged ever since (although since 2009 it is possible to play it online and since 2013 a smartphone application exists). The company's setting has followed the trends of innovation that have swept through the industry but at a leisurely pace, preferring a strategy of gradual change rather than overhauling completely its organizational structure. In this respect, it is also important to underline that the current company structure has remained fundamentally unchanged, with no sign of the introduction of any distributed leadership or flat-style organizational transformations.

Despite this relatively traditional organizational configuration, the company has proved extensively its alignment and commitment to the values of innovation and digitalization. In this respect, the leadership has promoted several initiatives devoted to the development and enhancement of employees' skills in this strategically significant sector. Continuous learning initiatives have been put in place in order to guarantee a constant improvement to the human and organizational capital. The company is trying to renew itself and to attract new talent by organizing relevant events and hosting a wide range of initiatives. As an example, Sisal has sponsored since 2021 an Innovation Lab in Turin to collaborate with several different actors, such as universities and research labs, and it has expanded its network by leveraging and supporting start-ups and young entrepreneurs' projects. The commitment to innovation and the renewal push has also been reflected in some modifications made to the product portfolio. On one hand, the firm is attempting to retain its traditional customer base by leaving untouched historical games, and on the other hand it is trying to appeal to younger generations and to improve its current products by adding new features and ways of playing.

Chapter 3. Case study: Sisal Valuation

Weighted Average Cost of Capital

In the final part of this thesis, the three valuation methods previously described will be applied to Sisal in order to perform a financial valuation of the company. However, the proper discount factor must first be calculated in order to apply both the DCF and the DDM approach (although the DCF will be discounted at WACC and the DDM will be discounted at the cost of equity). The Weighted Average Cost of Capital (WACC) is regarded as the cost of financing the firm; it includes both internal and external capital (under the form of equity stakes and debt), as well as a tax rate adjustment, and is necessary to discount the free cash flow to both debt holders and equity holders. To start the WACC calculation, Sisal's unlevered cost of capital has to be estimated first; in order to perform this operation, two historical data are needed, namely the risk-free rate (equal to 2,50%, which is the yield on Italian BTPs referred to the period of August 2022) and the market's equity risk premium (retrieved from Prof. Damodaran's website, that for Italy in 2022 stands at 6,42%).

Afterwards, in order to apply the Capital Asset Pricing Model (CAPM) it has been necessary to estimate the beta equity. To perform this activity, the first step has been the research and selection of relevant competitors of a similar size, market and business model as Sisal (the very same companies will be employed in the subsequent paragraph concerning multiples valuation).

Beta estimation						
<i>in millions</i>						
Company	888	ENT	IGT	PTEC	Average	SISAL
Beta Equity	0,4236568	1,3084481	2,6448096	2,0812352	1,6145374	1,6924932
Market Capitalization	542	7074	3576	1335	3131,82	
Total Debt	£30,90	£2.576,10	£5.549,65	£1.164,20	2330,2	467,071
Cash	£255,60	£487,10	£502,35	£540,80	446,46	173,8
Net Debt	-£224,70	£2.089,00	£5.047,30	£623,40	1883,75	293,31
D/V	-70,75%	22,80%	58,53%	31,83%	10,60%	40,21%
E/V	170,75%	77,20%	41,47%	68,17%	89,40%	59,79%
Rating (Moody's)	Ba1	Ba1	Ba2	Ba3	Ba2	
Beta Debt	0,17	0,17	0,17	0,17	0,17	
Beta Asset	0,603121264	1,04890229	1,19627985	1,472848782	1,08	

Conversion rate (Aug 2022)	
£ to €	1,18
\$ to €	1
\$ to £	0,85

Figure 7. Beta estimation

While virtually all companies operating in the gambling market are way bigger than Sisal and belong to bigger conglomerates, it has been possible to find four companies whose similarity to Sisal has permitted a meaningful comparison. The four companies selected (888 Holdings, Entain.plc, International Game Technology (IGT) and Playtech.plc) have then been analyzed in order to obtain their relevant financial data. In this respect, it is important to underline that three of them are British, while IGT is American; for this reason, the analysis has been performed in pounds rather than euros, with IGT's data has been converted from dollars.

The next step to calculate the beta equity has concerned the retrieval of monthly stock prices (and the calculation of monthly returns) of the firms mentioned above, together with the same data from the London Stock Exchange (FTSE 100) and the New York Stock Exchange (NYSE). Then, the monthly returns of the three British companies have been sloped against the FTSE 100 monthly returns, while IGT's have been combined with the NYSE monthly returns instead. Subsequently, the four companies have been researched on rating agencies' websites in order to obtain their risk level; according to Moody's, all four companies fall in the category BB; in particular, 888 and Entain have a rating of Ba1; IGT has a rating of Ba2 and Playtech has a rating of Ba3.

According to the following table, the companies' risk rating corresponds to specific beta debts; therefore, given that all four of them belong to the BB category of risk, their average beta debt combined is of 0,17.

TABLE 12.3		Average Debt Betas by Rating and Maturity*				
By Rating	<i>A and above</i>	<i>BBB</i>	<i>BB</i>	<i>B</i>	<i>CCC</i>	
Avg. Beta	< 0.05	0.10	0.17	0.26	0.31	
By Maturity	<i>(BBB and above)</i>	<i>1–5 Year</i>	<i>5–10 Year</i>	<i>10–15 Year</i>	<i>> 15 Year</i>	
Avg. Beta		0.01	0.06	0.07	0.14	

Source: S. Schaefer and I. Strebulaev, "Risk in Capital Structure Arbitrage," Stanford GSB working paper, 2009.
 *Note that these are average debt betas across industries. We would expect debt betas to be lower (higher) for industries that are less (more) exposed to market risk. One simple way to approximate this difference is to scale the debt betas in Table 12.3 by the relative asset beta for the industry (see Figure 12.4 on page 457).

Figure 8. Source: Berk, J and DeMarzo, P, 2017.

Having obtained the beta debt, the next step concerned the calculation of the beta asset. In order to do this, for all the companies several financial indicators had to be listed, in particular: market capitalization, total debt e cash/cash equivalents. This has allowed the calculation of net debt and

finally of the two key indicators, D/V and E/V, for all four companies. Then, the formula of the beta asset reported below has been applied:

$$\text{Beta asset} = B_e \times \frac{E}{V} + B_d \times \frac{D}{V}$$

The average of the four beta assets (standing at 1,08) has then been employed as the reference value for Sisal. Thus, it has been possible to calculate Sisal's beta equity by applying the inverse formula of the one listed above, with a result of 1,69. The beta equity measures how sensitive is a security in comparison to the reference market. Since here the average of the four securities stands almost exactly at 1, it means that they move almost exactly in accordance with the market; however, Sisal's beta is higher, meaning that the stock would be more volatile if publicly traded

Finally, the analysis has been complete with the calculation of the pre-tax WACC (R_u) and the WACC. In particular, the unlevered cost of capital was calculated according to the following formula:

$$R_u = R_d \times \frac{D}{V} + R_e \times \frac{E}{V}$$

Here, the impact of taxation is disregarded; in order to incorporate its effects, the full WACC has to be calculated. Thus, in the formula of the R_u the tax rate (t) has been added, as shown below:

$$WACC = R_d \times \frac{D}{V} \times (1 - t) + R_e \times \frac{E}{V}$$

The value of the WACC for Sisal is equal to 9,51%. This will be used to discount the company's future cash flows for the DCF model, while the R_e factor will be used in the DDM. As a benchmark, it is possible to notice that the gambling industry's WACC stands at around 7%.

WACC	
Risk free rate	2,50%
Equity risk premium	6,42%
Beta equity	1,69
Rd	5,39%
Re	13,37%
Tax rate	30%
D/V	40,21%
E/V	59,79%
D/E	67,25%
Ru	10,16%
WACC	9,51%

BTP 10 years at 22/08/2022
Retrieved from Damodaran website for Italy 2022

Interest rate estimation	
<i>in thousands</i>	
Total debt	467.071,00 €
Net financial expenses	25.174,00 €
2021 interest rate	5,39%

Industry WACC	7,07%
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Figure 9. WACC estimation

Discounted Cash Flow Valuation

The DCF method is used to discount to the present all the values of the company's expected future cash flows, in order for current investors, equity and debt holders to ascertain the present value of their investment as well as what they will gain by holding it. To conduct the analysis, the future cash flows of the firm must be estimated, and to do that it is necessary to forecast some key financial indicators. In particular, it will be necessary to estimate the company's future income statement and balance sheet.

The first indicator to be estimated is the growth rate of revenues. In this sense, it is possible to start from the company's historical records. However, it is important to underline that the last two years have been quite uncharacteristic, given the huge impact of the Covid-19 pandemic. According to the available records, all the key indicators took a hit in 2020, falling considerably from the previous years' standard. In 2021, on the other hand, these indicators rebounded quite strongly. Although this variability is quite large, the losses of 2020 have been largely compensated by the growth of 2021; the outstanding pace of the last year will be difficult to maintain in the long run, thus it is realistic to assume that the market will remain somewhat stationary, as the online market is set to continue growing but overall this will be partly offset by the slight, continuous decline of the retail market.

A revenue buildup model has been developed starting from the market's reference indicators. In order to obtain the most robust, accurate forecast possible, the time period of historical records taken into consideration is quite long, with a data range from 2015 to 2021; for what concerns the

time horizon of the forecast, a standard 5-years interval has been chosen (2022-2026). All the input data of the market have been retrieved from Statista's 2021 study on Italy's gambling industry, and all the numbers referred to are in million euros.

The main starting data are the turnover (how much money players spend in a year), the payout (how much money is given back as winnings) and the GGR (the difference between turnover and payout), divided between online and retail. Given these data, it has been possible to calculate the payout and the GGR as percentage of turnover, as well as the weight of online and retail market on the total. This was performed to understand the overall trend of the industry in terms of size and composition, in order to make accurate assumptions for the future's growth rate.

From this preliminary analysis emerged that the total size of the market has remained stationary over the years; however, the weight of the online market on the total has been increasing continuously, while the retail sector has been shrinking. To account for the Covid-19 pandemic years' disruption, averages have been calculated both including and excluding 2020 and 2021. The trend has shown a net growth of the market of -4%, with the online market growing 23% and the retail market decreasing by -14%. If Covid-19 never happened, the market would have grown 4%, in which the online would have accounted for 10% growth and the retail for -2%. It is possible to notice that even without the Covid-19 pandemic, the trend has been strongly in favor of the online market, with the retail slowly losing relevance.

On the basis of the past's trends, future growth rates for the Italian market have been estimated, segmented in online and retail. By multiplying them for the last year's GGR data, it has been possible to estimate the future expected size of both the online and the retail market (as well as the total). According to historical data the averages of the growth rates were pretty high, in both the normal and the non-Covid scenario; however, the growth rates for the future have been intentionally selected as substantially lower. This because, notwithstanding the pandemic, it seems more reasonable to estimate that the bulk of the boom of the online market has already happened and that while in the future the balance will shift further in favor of online gambling, it will probably do so at a more measured pace.

<i>in million euros</i>	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Market												
Turnover	88.200 €	96.180 €	101.760 €	106.850 €	110.540 €	88.380 €	n.a.					
Payout	71.200 €	77.070 €	82.760 €	87.880 €	91.060 €	75.360 €	n.a.					
Payout as % of Turnover	80,73%	80,13%	81,33%	82,25%	82,38%	85,27%	n.a.					
GGR as % of turnover	19,27%	19,79%	18,59%	17,68%	17,39%	14,55%	n.a.					
GGR of Italian market	17.000,00 €	19.030,00 €	18.920,00 €	18.890,00 €	19.218,00 €	12.861,00 €	15.334,00 €	15.716,60 €	15.856,94 €	16.007,52 €	16.103,02 €	16.181,47 €
o.w. Online	-	-	1.473,00 €	1.623,00 €	1.847,00 €	2.674,00 €	3.720,00 €	3.980,40 €	4.179,42 €	4.388,39 €	4.541,98 €	4.678,24 €
o.w. Retail	-	-	17.581,00 €	17.271,00 €	17.560,00 €	10.282,00 €	11.620,00 €	11.736,20 €	11.677,52 €	11.619,13 €	11.561,04 €	11.503,23 €
Weight of online (%)	-	-	7,79%	8,59%	9,61%	20,79%	24,26%	25,33%	26,36%	27,41%	28,21%	28,91%
Weight of retail (%)	-	-	92,92%	91,43%	91,37%	79,95%	75,78%	74,67%	73,64%	72,59%	71,79%	71,09%
GGR of Italian market (YoY growth)	-	11,94%	-0,58%	-0,16%	1,74%	-33,08%	19,23%	2,50%	0,89%	0,95%	0,60%	0,49%
o.w. Online (YoY growth)	-	-	-	10,18%	13,80%	44,78%	39,12%	7,00%	5,00%	5,00%	3,50%	3,00%
o.w. Retail (YoY growth)	-	-	-	-1,76%	1,67%	-41,45%	13,01%	1,00%	-0,50%	-0,50%	-0,50%	-0,50%

Figure 10. Market projection 2022-2026

After the forecasts of the market size, a revenue buildup model had been developed to realize analogous estimations for Sisal. The key assumptions to be made in this context are the projected market share of the company and the contributions of each business unit to the company. For what concerns the first point, projected market shares are needed to estimate the company's future revenues, a key input for the forecasted income statement and balance sheet. Sisal's historical records only provide the last two years of market share, which is a short timeframe rely upon if the goal is to obtain accurate predictions; moreover, 2020 and 2021 are peculiar years due to the pandemic.

To achieve a higher level of accuracy, previous years' market shares have been approximated as Sisal's GGR divided by total market GGR. Since in turn not all of Sisal's GGR were reported on its historical financial statements, the GGR of years 2015, 2016 and 2017 had to be estimated, too. To minimize variations, the approximation has been carried out in the following way: the proportion of GGR as percentage of turnover has been calculated for the years in which GGR was available; to simplify the assumptions, GGR has been assumed to remain constant in relation to the company's yearly turnover. The indicator of GGR as percentage of turnover has remained somewhat stable, hovering between 9,22% and 10,36% in the years 2018, 2019 and 2020; given that the missing years were the least recent, the 2018 rate of 9,22% has been assumed to be realistic for the previous time period. Therefore, the GGR for the first three years of the time span has been calculated by multiplying 9,22% for the total company turnover. This KPI has also been instrumental in the determination of the proportion of the company's revenues as a percentage of GGR, an important element for the following analysis.

Having obtained a complete picture of the firm's GGR over the years, an historical analysis of the indicator has been performed and a stable growth trend has emerged: given the Covid-19 pandemic, the market share has been growing at an average of 4,09%, with a CAGR of 3,55%. Without the economic impact of the pandemic, the average growth over the 2015-2019 time period was equal to 5,52%, with a CAGR of 5,43%. The next step in order to obtain the total market share of the company was thus to estimate its future GGR for all the years time span of the forecast, in order to divide each value for the corresponding total market GGR. Given that GGR directly depends on revenues (meaning the company's gross profit after subtracting winnings and applicable gambling taxes), for every future year it has been calculated as the product of the weight of revenues on GGR (assumed to remain constant) multiplied by every year's revenues.

In turn, to forecast revenues another passage has been necessary. Specifically, Sisal's total revenues are given by the sum of its three business units' revenues: Online, Retail and International. For simplicity, the latter category has been considered as comprehensive of another revenue stream, the electronic payments business, dismissed by Sisal in the same time frame of the launch of its

international business (both have had approximately the same impact on overall company's revenues). For the Online Italy business unit, the revenues have been estimated according to the following scheme:

$$\text{Online revenues} = \text{Italy Online GGR} \times \text{Revenues online as \% of GGR} \times \text{Forecasted Online Market Share}$$

The Italian GGR for the online market was available in the historical records; the proportion of revenues to GGR has been calculated on 2021 data and assumed to remain constant in the forecast period (2020 would have been a less representative year and the ratio is somewhat independent on the net Covid-19 impact, given that both revenues and GGR are subject to macroeconomic variations in equal measure). The forecasted market share in the online market has been assumed on the basis of the 2020 and 2021 data (no further estimations were possible, given the unavailability of segmented information for the previous years). In 2020, Sisal had a 10,8% online market share, that has increased by 1 p.p. (11,8%) in 2021; for the following years of the forecast, it has been estimated as stable at 12% between 2022 and 2026. The very same reasoning has been applied to the Retail Italy business unit; here, the 2020 market share was recorded at 9%, that grew at 9,60% in 2021. Accordingly, it has been assumed to grow slightly in the course of the forecasted period, with an overall average growth rate of 1,23%.

On the other hand, the revenues' forecast of the International/Payments segment has been estimated differently, by assuming that this segment's weight on total revenues would remain in line with the average of the 2015-2021 period and then multiplying this weight for the total revenues. This was motivated by the peculiar nature of this category, that aggregates two different sides of the business, thus impeding a meaningful confrontation with the overall market's indicators.

Having obtained the revenues, it has been possible to forecast Sisal's GGR for the future, as the product between revenues and weight of revenues on GGR (taken at around 35%, as per 2021 value). Finally, for each year it has been possible to estimate the company's market shares by dividing its GGR for the Italian market's one.

Sisal	Actual							Forecast				
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Mkt share	8,19%	8,04%	8,72%	9,27%	10,12%	8,60%	10,10%	10,72%	11,23%	11,61%	11,91%	11,93%
o.w. Online	-	-	-	-	-	10,80%	11,80%	12,0%	12,0%	12,0%	12,0%	12,0%
o.w. Retail	-	-	-	-	-	9,00%	9,60%	9,8%	10,0%	10,2%	10,3%	10,2%
Turnover	15.098,00 €	16.584,00 €	17.881,00 €	18.995,00 €	18.769,00 €	15.015,20 €	-	-	-	-	-	-
Payout	12.187,95 €	13.288,93 €	14.542,37 €	15.622,65 €	15.461,42 €	12.803,18 €	-	-	-	-	-	-
Sisal GGR	1.392,52 €	1.529,58 €	1.649,20 €	1.751,95 €	1.945,00 €	1.437,00 €	1.956,00 €	2.106,30 €	2.225,45 €	2.323,18 €	2.397,13 €	2.412,38 €
Revenues as % of GGR	56,52%	51,06%	49,72%	47,94%	44,70%	36,44%	34,96%	34,96%	34,96%	34,96%	34,96%	34,96%
Revenues online as % of GGR	-	-	-	-	-	53,26%	56,45%	56,45%	56,45%	56,45%	56,45%	56,45%
Revenues retail as % of GGR	-	-	-	-	-	35,62%	29,05%	29,05%	29,05%	29,05%	29,05%	29,05%
GGR as % of turnover	9,22%	9,22%	9,22%	9,22%	10,36%	9,57%	-	-	-	-	-	-
Revenues	787,00 €	781,00 €	820,00 €	839,90 €	869,40 €	523,70 €	683,80 €	736,34 €	778,00 €	812,16 €	838,01 €	843,35 €
o.w. Online	48,00 €	58,00 €	72,00 €	82,30 €	97,70 €	153,80 €	247,80 €	269,64 €	283,12 €	297,28 €	307,68 €	316,91 €
o.w. Retail	563,00 €	541,00 €	563,00 €	565,90 €	550,80 €	329,60 €	324,10 €	334,16 €	339,28 €	344,33 €	345,97 €	340,90 €
o.w. International/Payments	179,00 €	182,00 €	185,00 €	192,00 €	221,00 €	40,30 €	111,90 €	132,54 €	155,60 €	170,55 €	184,36 €	185,54 €
Weight of online (%)	6,10%	7,43%	8,78%	9,80%	11,24%	29,37%	36,24%	36,62%	36,39%	36,60%	36,72%	37,58%
Weight of retail (%)	71,54%	69,27%	68,66%	67,38%	63,35%	62,94%	47,40%	45,38%	43,61%	42,40%	41,28%	40,42%
Weight of International/Payments (%)	22,74%	23,30%	22,56%	22,86%	25,42%	7,70%	16,36%	18,00%	20,00%	21,00%	22,00%	22,00%

Figure 11. Sisal's revenues and market forecast

To complete the analysis for the forecasted financial statements, adjusted EBITDA has also been calculated for the forecast period. The starting point has been the historical data on EBITDA margins for each of the three business units, available on Sisal's past financial statements (for the third hybrid category, the years until 2018 refer to the payments business' margin, while 2021 refers to the international unit margin). This has permitted a more accurate forecast of the future expected EBITDA margins (always assumed to remain constant): for the online business unit, the average of the entire historical period has been considered (with a margin value of 57%); for the retail business unit, given the low variability between each year, the median value has been taken as the reference for the future; for the international/payments segment, given the dismissal of the payments' business, the EBITDA margin had to reflect only the International business unit, and as such it has been selected as slightly lower than the 2021 margin (19% vs 20,3%). The underlying reasoning for this choice is related to the fact that Sisal plans to expand even further its operations abroad and as such the EBITDA margin may not rise consistently in the long run or even decline slightly, to account for the necessity of new investments. Finally, each EBITDA has been calculated as the product of the segment's revenues for the aforementioned EBITDA margin.

Sisal	Actual							Forecast				
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
EBITDA	182,30 €	187,30 €	215,10 €	233,40 €	259,60 €	176,30 €	248,00 €	263,75 €	277,12 €	289,31 €	298,28 €	302,48 €
EBITDA margin %	23,2%	24,0%	26,2%	27,8%	29,9%	33,7%	36,3%	35,82%	35,62%	35,62%	35,59%	35,87%
o.w. Online	45,6%	40,3%	43,0%	44,5%	50,0%	58,9%	57,8%	57,0%	57,0%	57,0%	57,0%	57,0%
o.w. Retail	25,4%	25,4%	25,4%	23,5%	28,0%	26,1%	25,4%	25,4%	25,4%	25,4%	25,4%	25,4%
o.w. International/Payments	33,8%	36,3%	37,6%	34,7%	n.a.	n.a.	20,3%	19%	19%	19%	19%	19%
EBITDA online	21,89 €	23,37 €	30,96 €	36,62 €	48,85 €	90,59 €	143,23 €	153,69 €	161,38 €	169,45 €	175,38 €	180,64 €
EBITDA retail	143,00 €	137,41 €	143,00 €	132,99 €	154,22 €	86,03 €	82,32 €	84,88 €	86,18 €	87,46 €	87,88 €	86,59 €
EBITDA international/payments	60,50 €	66,07 €	69,56 €	66,62 €	n.a.	n.a.	22,72 €	25,18 €	29,56 €	32,41 €	35,03 €	35,25 €

Figure 12. Sisal's EBITDA forecast

This concludes the forecast for expected future revenues and EBITDA. On the other hand, to complete the DCF model it is necessary to write down the entire balance sheet and income statement of the company for the future years object of the analysis, and this implies a cost estimation as well. Given that all the aforementioned forecasts have been extended to obtain estimates of future adjusted

EBITDA, there has been no need to segment and forecast operating costs, as they are already excluded from this indicator. It is important to underline in this sense that the EBITDA employed in the analysis derives from the adjusted EBITDA of the company's historical financial statements, and as such it does not reflect the weight of non-recurring items, extraordinary expenses, *una tantum* investments and more in general all those gains or losses that do not have a continuative impact on the firm's profit. As such, its value does differ from the one reported in the non-adjusted financial statements of the firm, since the net impact of these activities is assessed elsewhere in the reports; however, for the purpose of this analysis the adjusted EBITDA will be employed, and as such the forecasted financial statements are referred to as "adjusted" as well.

Taking into account this point, the first forecast realized aimed at writing down the company's income statement for the next five years' time span. Starting from the revenues estimated in the revenue buildup model, the operating costs have been forecasted simply as the difference between revenues and adjusted EBITDA (since it was estimated as well in the very same model). The underlying reasoning is grounded on the fact that given the availability of the EBITDA margin that has allowed to realize the forecast of EBITDA explained above with a high degree of accuracy, reverse-estimation of the operating costs seems a reasonable course of action, as they may also be impacted by a higher degree of variability.

Subsequently, the first two costs to be estimated have been the depreciation/amortization (D&A) cost and the impairment of financial assets cost. The D&A has been estimated to slightly decrease over time (from 18% to 15% of the revenues) while the impairment of financial assets has been estimated to remain constant as around 3% of financial assets' value. By subtracting the resulting yearly cost of each element from the EBITDA, the EBIT has been calculated for the whole forecast interval.

Subsequently, the forecast of the future financial income has been realized by dividing total financial income by total financial assets across 2020 and 2021, averaging the value and multiplying it for every year's total financial assets. An analogous proceeding has been employed for the determination of financial expense, with the only difference of the factor of total financial debt in place of assets. As such, for the future financial income has been assumed to represent 3,67% of total financial assets and financial expenses correspond to 6,73% of total financial debt. From this, every year's financial income and expense has been calculated. By subtracting the net total between financial income and expenses from EBIT, the total profit before income taxes has been obtained (EBT). Finally, each year's income taxes have been calculated on the Italian corporate tax rate (IRES), at 30%. Income taxes have then been subtracted from the profit to obtain the total yearly net profit.

Drivers & Assumptions									
in million euros									
	Driver	Act	Act	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
		2020	2021	2022	2023	2024	2025	2026	2026
Income Statement									
D&A expense	% of revenue	23,58%	20,34%	18,00%	17,00%	16,00%	15,00%	15,00%	15,00%
Impairment of assets	% of assets	5,04%	0,48%	2,76%	2,76%	2,76%	2,76%	2,76%	2,76%
Financial Income	% of financial assets	3,99%	3,35%	3,67%	3,67%	3,67%	3,67%	3,67%	3,67%
Financial expenses	% of financial debt	2,40%	11,06%	6,73%	6,73%	6,73%	6,73%	6,73%	6,73%
Tax rate	% EBT	30,00%	30,00%	30,00%	30,00%	30,00%	30,00%	30,00%	30,00%
Balance Sheet									
Days receivable	on revenue	70,2	17,6	40,0	50,0	50,0	50,0	50,0	50,0
Days payable	on costs	76,4	203,7	190,0	180,0	170,0	160,0	150,0	150,0
Days inventory	on revenue	8,2	3,4	5,0	5,0	5,0	5,0	5,0	5,0
Other assets	% of revenue	9,79%	9,36%	9,58%	9,58%	9,58%	9,58%	9,58%	9,58%
Tax payables repayment	€/y		11,53 €	15,00 €	15,00 €	15,00 €	15,00 €	15,00 €	15,00 €
CAPEX	€/y	122,55 €	103,25 €	120,00 €	110,00 €	110,00 €	110,00 €	110,00 €	110,00 €
PP&E as % of revenues	calculation	47,35%	29,02%	25,19%	20,98%	17,64%	15,22%	13,17%	13,17%
NWC as % of Revenues	calculation	-14,11%	-77,58%	-63,24%	-54,61%	-49,39%	-44,76%	-40,88%	-40,88%
EBITDA Margin	calculation	33,95%	36,35%	35,82%	35,62%	35,62%	35,59%	35,87%	35,87%
Income statement (adjusted)									
in million euros									
	Act	Act	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Revenues		519,32 €	682,30 €	736,34 €	778,00 €	812,16 €	838,01 €	843,35 €	843,35 €
Operating costs	-	343,02 €	434,30 €	472,59 €	500,88 €	522,85 €	539,73 €	540,87 €	540,87 €
EBITDA adj		176,30 €	248,00 €	263,75 €	277,12 €	289,31 €	298,28 €	302,48 €	302,48 €
D&A	-	122,43 €	138,81 €	132,54 €	132,26 €	129,95 €	125,70 €	126,50 €	126,50 €
Impairment of financial assets	-	12,26 €	1,66 €	20,32 €	21,47 €	22,41 €	23,13 €	23,27 €	23,27 €
EBIT		41,60 €	107,54 €	110,89 €	123,39 €	136,96 €	149,46 €	152,71 €	152,71 €
Financial income		9,72 €	11,56 €	12,68 €	12,68 €	12,68 €	12,68 €	12,68 €	12,68 €
Financial expenses	-	28,98 €	36,74 €	22,35 €	22,35 €	22,35 €	22,35 €	22,35 €	22,35 €
EBT		22,34 €	82,36 €	101,22 €	113,72 €	127,29 €	139,79 €	143,04 €	143,04 €
Income taxes	-	6,70 €	24,71 €	30,37 €	34,12 €	38,19 €	41,94 €	42,91 €	42,91 €
Net Income		15,64 €	57,65 €	70,86 €	79,60 €	89,10 €	97,85 €	100,12 €	100,12 €

Figure 13. Assumptions and income statement forecast

Some elements of the balance sheet also have to be forecasted for the future. Specifically, for the purpose of the cash flow calculation it is necessary to forecast the value of assets belonging in the Property, Plant and Equipment (PPE) category; moreover, the same goes for the Net Working Capital (NWC) of the company. For what concerns property, plant and equipment, its value for each year has been calculated by summing previous year's PPE, current year's amortization/depreciation expenses and current year's CAPEX. The latter has been assumed on the basis of the historical CAPEX expenditures.

The NWC is calculated as the difference between working capital assets and working capital liabilities. In the working capital assets category belong the company's yearly amount of trade receivables, inventory and other related assets; in the working capital liabilities on the other hand are classified the company's yearly trade payables, tax payables and eventual other related liabilities. For 2020 and 2021 the amount classified under each category has been retrieved from the official financial

statements and the NWC has thus been calculated. To project it into the future, each of the voices mentioned above (trade receivables, inventory, other WC assets, payables and tax payables) had to be estimated. Trade receivables, inventory and trade payables have been calculated as functions of, respectively, days receivables, days of inventory and days of trade payables. The number of days for each category has been assumed according to the historical performance, then divided by 360 and multiplied by the revenues to measure each category's contribution to the WC assets (liabilities).

For the residual category of working capital assets, its average historical weight on revenues has simply been assumed as constant for the future (at 9,58%); tax payables have been forecasted into the future as the sum of the previous year's tax payables and the yearly amount of tax payables repayment due (assumed at constant 15 millions per year against the 11 millions of 2021).

The rest of the balance sheet has been estimated as follows; the remaining elements are not part of the DCF model.

Balance Sheet (adjusted)								
in million euros	Act	Act	Forecast	Forecast	Forecast	Forecast	Forecast	
PP&E	245,87 €	198,00 €	185,46 €	163,20 €	143,25 €	127,55 €	111,05 €	PP&E
Intangibles	1.340,88 €	655,60 €	655,60 €	655,60 €	655,60 €	655,60 €	655,60 €	Intangibles
Financial assets	243,32 €	345,41 €	345,41 €	345,41 €	345,41 €	345,41 €	345,41 €	Fin Assets
Total fixed assets	1.830,07 €	1.199,01 €	1.186,47 €	1.164,21 €	1.144,26 €	1.128,56 €	1.112,06 €	
WC Assets	163,93 €	103,67 €	155,94 €	182,75 €	187,97 €	191,92 €	192,74 €	
Trade Receivables	101,27 €	33,41 €	81,82 €	108,06 €	112,80 €	116,39 €	117,13 €	Rec
Inventory	11,82 €	6,37 €	10,23 €	10,81 €	11,28 €	11,64 €	11,71 €	Inv
Other	50,84 €	63,89 €	63,89 €	63,89 €	63,89 €	63,89 €	63,89 €	Other_assets
WC Liabilities	-	237,22 €	621,60 €	607,62 €	589,08 €	567,06 €	537,54 €	
Payables	-	72,83 €	249,42 €	250,44 €	246,90 €	239,88 €	225,36 €	Payables
Tax Payables	-	164,39 €	372,18 €	357,18 €	342,18 €	327,18 €	312,18 €	Tax Liab
NWC	-	73,29 €	465,66 €	424,86 €	401,11 €	375,13 €	344,80 €	
Total Assets	1.756,78 €	669,71 €	720,80 €	739,35 €	743,16 €	753,43 €	767,26 €	
Equity (incl. Reserves)	243,93 €	512,31 €	512,31 €	583,17 €	662,77 €	751,87 €	849,72 €	Equity
Net Income			70,86 €	79,60 €	89,10 €	97,85 €	100,12 €	
Total Shareholders' Equity	243,93 €	512,31 €	583,17 €	662,77 €	751,87 €	849,72 €	949,85 €	
Funds	27,20 €	12,98 €	12,98 €	12,98 €	12,98 €	12,98 €	12,98 €	Funds
Total Funds	27,20 €	12,98 €	12,98 €	12,98 €	12,98 €	12,98 €	12,98 €	
Financial Debt	1.209,22 €	332,19 €	332,19 €	332,19 €	332,19 €	332,19 €	332,19 €	Fin_Debt
Cash	-	456,24 €	-	-	-	-	-	Cash
Total PFN	752,98 €	65,69 €	332,19 €	332,19 €	332,19 €	332,19 €	332,19 €	
Total Liabilities	1.024,11 €	459,60 €	928,34 €	1.007,94 €	1.097,04 €	1.194,89 €	1.295,02 €	

Figure 14. Balance sheet forecast

To apply the DCF method, the adjusted EBITDA has been taken as the starting point; then, each year's amortization and depreciation have been added, as well as the yearly charge of impairment of financial assets, to obtain the EBIT. Afterwards, the charge for taxes has been calculated for every year and subtracted from EBIT to produce the Net Operating Profit After Taxes (NOPAT).

At this point, the NWC has been taken into account. In particular, the yearly variation of NWC has been computed (to reflect how much the company each year spends on or saves from investments in its NWC). With the same underlying reasoning, yearly investments (savings) in CAPEX have been calculated according to the following formula:

$$CAPEX = PP\&E_{t+1} - PP\&E_t - D\&A_t$$

Finally, the FCFO has been calculated by adding back non-monetary costs (amortization, depreciation and impairment of financial assets) and subtracting the yearly variations in NWC and CAPEX. However, it is important to notice that this cash flow is not actualized, meaning that to reflect the present value of these future cash flows it is necessary to discount it to the present. In order to do that, a discount rate has to be applied. In this case, the appropriate rate is the WACC, as calculated in the previous paragraph. The sum of discounted cash flows constitutes the present value of FCFO. In order to obtain the total Net Present Value (NPV) of the company, it is also necessary to add the terminal value, meaning that it is necessary to approximate the value of the future activities of the firm beyond the projection interval (assuming that it will continue its operations).

Discounted Cash Flow										
Time	0		1	2	3	4	5	6		
<i>in million</i>	Act	Act	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	2020	2021	2022	2023	2024	2025	2026	2027		
EBITDA adj	176,30 €	248,00 €	263,75 €	277,12 €	289,31 €	298,28 €	302,48 €			
(+) Amortization/Depreciation	122,43 €	138,81 €	132,54 €	132,26 €	129,95 €	125,70 €	126,50 €			
(+) Impairment of Financial Assets	12,26 €	1,66 €	20,32 €	21,47 €	22,41 €	23,13 €	23,27 €			
EBIT	41,60 €	107,54 €	110,89 €	123,39 €	136,96 €	149,46 €	152,71 €			
(-) Taxes	12,48 €	32,26 €	33,27 €	37,02 €	41,09 €	44,84 €	45,81 €			
NOPAT	29,12 €	75,28 €	77,63 €	86,37 €	95,87 €	104,62 €	106,89 €			
(+) Non-monetary costs	134,70 €	140,46 €	152,86 €	153,73 €	152,36 €	148,83 €	149,77 €			
NWC	73,29 €	529,30 €	465,66 €	424,86 €	401,11 €	375,13 €	344,80 €			
(-) Delta NWC	-	- 456,01 €	63,63 €	40,80 €	23,76 €	25,97 €	30,33 €	-	344,80 €	
(-) CAPEX	-	- € 492,25 €	120,00 €	110,00 €	110,00 €	110,00 €	110,00 €			
FCFO	-	1.164,00 €	46,85 €	89,30 €	114,47 €	117,48 €	116,33 €	344,80 €		
NPV of FCFO	559,91 €									
TV	1.068,11 €									
Enterprise value	1.628,02 €									
Weight of TV on NPV	65,61%									
Tax rate	30%									

Figure 15. Discounted Cash Flow application

The formula used to calculate the TV must include on one hand the projected growth rate of the overall gambling industry (taken from the revenue buildup estimation on the basis of the historical Italian GGR growth rate) and on the other hand the WACC to account for the company's future growth.

By summing the terminal value with the present value of the company's future cash flows, the total NPV of the company is 1.628 million euros. An important consideration to be made in this regard is that the weight of the TV on total NPV is predominant (at 65%). This means that the vast majority of the firm's value depends on its future performance and is anchored to the industry's overall estimated growth rate (at 3,25% per year).

Valuation with the method of comparables

As detailed in the first chapter, the method of comparables aims at evaluating a firm by using similar publicly listed firms as a benchmark. For a firm to be classified as comparable, it should have similar key financial indicators and it should be inscribed within the same market environment of the target firm. The first relevant step to apply this method is the selection of similar companies, in order to achieve a good basis of comparison.

The gambling industry has undergone a concentration trend in recent years, motivated by factors such as increased regulatory pressure, need for sizeable investments to develop digital capabilities and the advantages of a big distribution network in light of omnichannel strategies. For this reason, virtually all publicly listed gambling companies in Italy belong to bigger international groups active on several markets, both in the online and in the retail sector. Four comparable companies have been chosen on the basis of similarity, although three of them are bigger groups due to the aforementioned reasons; however, since the comparables method is a relative valuation method, the ratios employed in the analysis should not be affected significantly by the difference in size.

The first comparable company selected is 888 Holdings, a British company active mostly in the online market. It owns several well-renowned websites, popular in Italy in particular for poker and card games. The second comparable is the group Entain.plc, listed on the London Stock Exchange and owner, among the others, of Eurobet and Bwin on the Italian market. Entain is an international operator mostly focused on the sector of sports betting, with particular emphasis on football. The third company is IGT, an American group whose Italian operations were acquired from Lottomatica. IGT is specialized in the lottery sector, in particular in instant and traditional lottery, for which it has a concession expiring in 2028. The last comparable company chosen is Playtech.plc, a British group

present in the Italian market with the brand Snaitech (formerly Snai). It is an omnichannel operator present in the majority of gambling activities with an emphasis on the online market and a great distribution network as well; moreover, it also operates in the software development sector with a focus on gaming products.

All of these companies operate on different segments of gambling and as such they can provide insights from different points of view on the target company. After choosing the relevant companies, the next step for the application of this evaluation method is the research of their financial data in order to perform the multiples analysis. In this respect, all the pertinent data have been retrieved from Yahoo!Finance and all metrics are normalized (when available). It is also important to notice that, concerning methodology, since IGT is an American company its financial data have been converted from dollars to pounds in line with the remaining companies that are listed in London, to obtain homogenous results (although the multiples are independent from the currency). Moreover, for Playtech.plc the only data available for 2021 was in referral to September, while the remaining companies' data have been taken at the closing of the year in December.

Multiples estimation						
Financial Statement Data at 31/12/2021						Average
in millions	888	ENT	IGT	PTEC		
Market capitalization	542	7074	3576	1335	3131,82325	
Net debt	-£ 224,70	£ 2.089,00	£ 5.047,30	£ 623,40	£ 1.883,75	
EV	£ 317,59	£ 9.163,00	£ 8.623,30	£ 1.958,40	£ 5.015,57	
Book value	£ 167,80	£ 3.167,10	£ 1.089,70	£ 1.581,20	£ 1.501,45	
Total Revenues	£ 451,70	£ 2.063,00	£ 892,50	£ 374,00	£ 945,30	
EBIT	£ 25,00	£ 260,50	£ 157,25	£ 42,10	£ 121,21	
Net Profit	£ 18,20	£ 174,80	£ 16,15	£ 129,75	£ 84,73	
Share Price (in £)	£ 128,60	£ 1.246,50	£ 15,93	£ 441,40	£ 458,11	
EPS	11,300	34,400	78,400	18,600	£ 35,68	
Earnings After Tax	£ 20,25	£ 211,01	£ 124,23	£ 34,10	£ 97,40	
Profitability	4,48%	10,23%	13,92%	9,12%	9,44%	

Conversion Rate	
£ to €	1,18
\$ to €	1
\$ to £	0,85 €

Corporate Tax Rate	
UK	19%
US	21%
IT	30%

Figure 16. Comparables' KPIs dashboard

Afterwards, relevant indicators and multiples have been calculated for each company, according to the focus of the analysis. In particular, for the purpose of the analysis four indicators have been taken into account, two equity-side multiples (P/E and P/B) and two firm-side multiples (EV/EBIT and EV/EBIAT). For what concerns the P/E multiples, the share price of the listed companies has been divided for the Earnings Per Share (EPS), and the same goes for the price to book

value ratio. For the two remaining multiples that include the enterprise value, it has been calculated as the sum between market capitalization and net debt. Afterwards, it has been divided by each company's EBIT for the first multiple and by their Earnings Before Interest After Taxes (EBIAT) for the second. This has allowed the realization of a multiples dashboard (reported below), in which the multiples of the four companies have been displayed, together with their averages and the interval of variation between the maximum and minimum values. An important remark to be made in this respect concerns IGT; since its ratios are vastly different with respect to the other companies', they have been excluded from the average.

Multiples Analysis							
Company	888	ENT	IGT	PTEC	Average	Max	Min
P/E	11,381	36,235	0,203	23,731	23,782	52%	-99%
P/B	3,2318	2,2336	3,2816	0,8443	2,103	56%	-60%
EV/EBIT	12,704	35,175	54,838	46,518	31,465	74%	0%
EV/Earnings After tax	15,684	43,426	69,415	57,429	38,846	79%	0%

Sisal Estimation	
Book Value	1.060,63 €
EBIT	57,28 €
Earnings after tax	40,09 €
Profitability	0,01%
Net Income	91,55 €

	Average	Range	
P/E	2.177,35 €	3.317,47 €	18,60 €
P/B	2.632,27 €	1.056,67 €	4.107,11 €
EV/EBIT	2.126,57 €	2.126,57 €	3.706,21 €
EV/Earnings	1.837,78 €	1.837,78 €	3.283,98 €
Enterprise Value	2.193,49 €		

Figure 17. Multiples analysis and EV estimation

Finally, the relevant information for Sisal have been displayed (retrieved from its website and its historical financial documents) in a separate table to be compared with the other companies' multiples. To estimate Sisal's Enterprise Value (EV) from each multiple, the average values of the companies' ratios has been multiplied by the denominator value. For example, to estimate Sisal's

value from the EV/EBIT multiple the average of the comparable companies' ratio has been multiplied by Sisal's EBIT. Moreover, a range of maximum and minimum values has also been calculated according to the values of the companies' range, in order to portray the variability of Sisal's EV. In turn, by averaging the four EV obtained through the estimation above it is possible to obtain the estimated average enterprise value of the firm, equal to 2,2 billions.

Dividend Discount Model Valuation

For the Dividend Discount Model application, the Gordon growth model has been selected as the most appropriate. Thus, it is assumed that dividends will grow during the forecast period at a fixed rate. The underlying rationale of the application of this evaluation method to Sisal is due to the fact that Sisal is an historical company, that according to past trends displays a constant, contained growth rate. While assuming that a company's dividends will continue to grow at a stable pace in the future is often a difficult assumption to make, in this case it is reasonable to predict this according to the estimates made in the revenue buildup model that are grounded in the company's historical records starting from 2015.

To apply the model in practice, the first step has concerned the calculation of the dividend payout ratio. According to Sisal's historical financial statements, the company has paid dividends in the past, at a ratio of 3% in comparison with its profits. It is immediately possible to notice that this payout ratio is not high: looking at the inverse value, it means that the company has retained 97% of its earnings to re-invest in the business (retention ratio).

The second step was the selection of an appropriate growth rate for the dividends. This is a particularly delicate assumption, that could derail the whole valuation if wrong. According to the aforementioned revenues buildup model, the growth rate for the dividends has been selected at 4,31%; this is the average growth rate for the company's revenues, and it has been assumed as a proxy for the overall dividends' growth rate. In 2021, the company has distributed slightly less than 1 million in dividends; the next step of the valuation has concerned the estimation of future dividends' values for the forecast years.

For every year, the amount of money distributed as dividends has been calculated simply as the previous year's dividends multiplied by 1,0431 (that includes the forecasted growth rate). The resulting values have then been discounted. The appropriate discount rate in this case is not the WACC but the R_e term, calculated during the WACC estimation. Afterwards, every year's dividends have been discounted at the cost of equity in order to obtain their present values. The last part of the

model's application has concerned the calculation of an appropriate terminal value. This is motivated by the fact that a company will continue to exist even after the end of the forecast horizon, and as such the value created by its future activities has to be incorporated in the valuation.

The terminal value in this case has been calculated according to the following formula:

$$TV = \frac{Div_{t+1}}{(R_e - g)}$$

The dividend taken into account in this case is the one distributed in the last year of the forecast period, 2026; R_e remains the same and the g factor is the growth rate of the dividends also mentioned above. However, this terminal value also has to be discounted to its present value. This present value has been calculated in the following way:

$$PV \text{ of TV} = \frac{TV}{(R_e)^{t+1}}$$

Where $t+1$ is the last year of the forecast (in this case 5, as 2026 is the fifth year of projection). By summing the present values of the future dividends and the present value of the TV, it is possible to calculate the enterprise value, equal to 10,53 millions.

Dividend Discount Model						
Payout ratio	3%					
Growth rate	4,31%					
Time in millions	0	1	2	3	4	5
	Act	Forecast	Forecast	Forecast	Forecast	Forecast
	2021	2022	2023	2024	2025	2026
Dividends	0,94 €	0,98 €	1,02 €	1,07 €	1,11 €	1,16 €
PV		0,86 €	0,80 €	0,73 €	0,67 €	0,62 €
PV sum	3,69 €					
TV	12,82 €					
PV of TV	6,85 €					
Enterprise value	10,53 €					

Figure 18. Dividend Discount Model application

It is immediately evident that this enterprise value is way lower than expected and not coherent with the enterprise values obtained from the other valuation methods. This can be ascribed first and foremost to the low dividend payout ratio of the company. If compared with more than 32 millions of profit for 2021, a total amount of less than 1 million paid as dividends is indeed a very low percentage. For Sisal, in particular, part of the underlying rationale for this financial choice may be traced back to its international expansion and the correlated impacts it may have brought on the overall business.

This outcome is indicative of the main limitation of the DDM, namely that its main input to estimate the value of a company is the amount it pays as dividends. It is certainly true that a profitable, solid company should be able to reward its shareholders with dividends; however, nobody is under any obligation to do so. Many companies have never paid dividends and have no plans to do so (mostly to retain their profits in order to invest in the company, with the underlying assumption that shareholders will be better rewarded by the eventual increase in share price generated by these investments); others may pay them but in variable proportions, according to the needs of the business. Moreover, during and after the Covid pandemic many companies have drastically reduced the amount of money they used to spend on dividends or have stopped distributing them entirely. This was mainly due to the general climate of economic crisis registered during the pandemic, that has had an impact on the majority of companies and on their profits.

Both the growth rate term and the R_e term are solid assumptions within this evaluation framework, thus the outcome of this method can be pinned only the numerator terms, meaning the value of the dividends. While a company may have several good reasons for limiting its dividend distribution practices as discussed above, the application of this particular method to such a company can produce biased results. As an example, it is possible to cite Alphabet (Google's parent company) or Amazon: both companies are extremely profitable and have registered record-breaking profits during the last 10-15 years; however, neither of them pays dividends, thus according to this method their enterprise value would be zero.

In any case, it is evident that the result is an outlier and as such its impact on the overall valuation activity will be disregarded.

The missing strategic assets and the “real” value of the firm

After the performance of the valuation with each of the three relevant methods, it is possible to assess and compare the results across the board. Given that Sisal has been purchased in October 2021, it is possible to use its purchasing price as a benchmark of the evaluation. Flutter Entertainment,

the Irish group who completed the acquisition, closed the deal at the price of 1,913 billion euros. If compared with the results of the analysis performed in the thesis, the enterprise values estimated from the DCF and the comparables method are coherent with the actual price of the acquisition, if somewhat variable.

For what concerns the original question of the strategic intangible assets, each of the three methods considers them in variable proportions, and it is possible to link them to the valuation's results. Starting from the DCF, the evaluation yielded a lower value in comparison with the actual sale price of the company (1,6 billions versus 1,9 billions) and with the comparables methods (2,2 billions). While a considerable degree of variability has to be taken into account when realizing a valuation of a non-public company, part of the discrepancy between the two evaluation methods can be ascribed to the different treatment of intangible assets. Indeed, as stated in the first chapter of this thesis, one of the key weaknesses of the DCF method is its treatment of intangibles. In particular, by examining the calculations realized to apply the method, it is possible to find several balance sheet elements that are directly correlated to intangible assets; however, they only enter into play when dealing with costs.

This is the case, for example, for a portion of the amortization and depreciation expenses category. Moreover, investments in both NWC and CAPEX do include the intangibles (although it is not specified in the official balance sheet which percentage of the assets is intangible and which percentage is tangible). These elements do belong in the DCF and are subtracted from, respectively, the EBITDA and the NOPAT: this means that when calculating the FCFF the costs of the intangible assets, the investments realized to acquire them and the costs relative to their maintenance are indeed taken into account. On the other hand, there is no direct account of the gains realized thanks to those assets. Their overall contribution to the firm has been measured only insofar as an implicit part of the EBITDA or in general of the revenues side of the analysis, but they do not impact directly the FCFF according to the model.

From a theoretical point of view, this reasoning is correct: as an example, the concessions to operate in the gambling market or the strength of Sisal's distribution network do not generate any cash flow and are not supposed to do so; consequently, they do not belong in the cash flow estimation. However, these assets are instrumental for the business, and they do generate value (even if not in the form of cash). This is even more true when considering the peculiar features of the gambling market, where some of these assets are a fundamental prerequisite for competing successfully. While there are some modified versions of the model that in theory could take into account the overall value stemming from these intangible assets, the model *per se* does not include them on the gains side, and as such it can result somewhat "imbalanced" in favor of costs.

Thus, it comes as no surprise that the enterprise value obtained with this method is lower than the value obtained through the multiples and also lower than the purchase price of the company. As evidence, the following table from Sisal's financial statement classifies the 2021 intangible assets belonging to the company in reflection of the variation with the previous year; it is possible to notice that they are reported without any cash flow contribution.

(in thousands of Euros)	Gaming concessions	Brands and licenses	Software and patents
Balance at 31 December 2021	137,039	83,498	67,042
<i>Of which:</i>			
- historical cost	739,385	150,699	224,516
- provision for amortisation/depreciation	(602,346)	(67,201)	(157,474)

(in thousands of Euros)	Physical and contractual network	Customer Relationships (Online)	Intangible assets in progress	Other Intangible assets	Total
Balance at 31 December 2021	42,826	60,593	1,525	2,102	394,625
<i>Of which:</i>					
- historical cost	60,258	99,500	1,525	52,551	1,328,434
- provision for amortisation/depreciation	(17,432)	(38,907)	-	(50,449)	(933,809)

Table 19. Sisal's intangible assets on the balance sheet

For what concerns the comparables method, the average enterprise value is higher than the actual sale price by around 300 million euros. First and foremost, part of this variability can be ascribed to the choice of comparable companies. In particular, since the trend in the market has verted towards consolidation and conglomerates tend to have a competitive advantage in this industry, the companies chosen to perform this analysis are bigger in terms of size and financial results with respect to Sisal. While it is true that the ratios are in absolute terms, it is also true that since larger companies tend to enjoy some advantages with respect to others (in terms of economies of scale and scope, as well as in terms of marginal costs, distribution network, reliability etc.) they may perform inherently better than their smaller counterparts.

Another factor that may have added to the slight overvaluation is the fact that none of the four comparable companies are listed on Italian stock exchanges, nor do they conduct business exclusively

in Italy. While it is true that Sisal also has an international portion of its business, it has a non-determining impact on its overall performances; on the other hand, all four of the companies taken into account for the multiples evaluation do possess a sizeable portfolio of foreign activities on various markets and are listed on foreign stock exchanges (London's FTSE 100 and New York's NYSE). This may have added a layer of uncertainty to the outcome of the analysis, and although all four companies have been selected due to the fact that they do conduct at least part of their operations in Italy through their market brands it is also important to underline that they are not exclusively Italian companies.

Despite the impact of these factors on the outcome of the evaluation, they may not be the only reason behind the discrepancy with both the purchase price of the company and the result of the DCF evaluation. By looking in more detail at the four multiples, it is noticeable that the highest enterprise value derives from the P/B ratio (2,6 billions); this is in line with the considerations made above. Since the book value of a company depends on the accounting practices and on the value they afford to the company's assets, it would make sense for it to be higher, given the difference in size of the competitors. Moreover, three out of the four comparable companies' P/B are between 2,3 and 3,3; this signals that, according to this ratio, they may be slightly overvalued (a company makes a good investment with a ratio of about 1). The P/B ratio may thus be more subject to the aforementioned biases. Conversely, the lowest enterprise value is the one calculated starting from the ratio EV/EBIAT, at around 1,8 billions. Interestingly enough, this value is also the closest to the actual sale price of the company. On the other hand, the remaining two multiples (P/E and EV/EBIT) have yielded very similar results of around 2,1 billions.

Aside from the variability embedded in the application of this method, the estimated enterprise values are coherent with each other and with the sale price as a whole; although the comparables method can lead to some inaccuracies due to the absence of some key inputs (like risk prospect or future cash flows), it is able to encompass the value of companies as a whole while relying on relatively few assumptions. Moreover, it reflects the market's outlook towards the industry and the companies, and as such it is a reliable proxy to estimate the value that the market would afford to a private company.

Regarding the intangible assets' valuation, the comparables method does not account for them directly, and it is not possible to ascertain which portion of the value of the company would be directly ascribable to them. However, by taking as inputs on one hand the market price of companies' stocks (and thus the value that the market places on how these companies conduct their business) and on the other hand their KPIs, this method of evaluation is able to account for the impact of intangible assets, although indirectly. Indeed, it is possible to say that a high stock price signals the market's trust with

respect to the company's future and growth potential; part of this potential can be traced back to the intangible assets in its possession, even if it may be difficult to pinpoint exactly where they intervene. Additionally, all the KPIs taken into account are inclusive of the effects of these assets, and in fact the closest value to the "real" enterprise value did derive from the ratio of EV/EBIAT, that encompasses both the costs and the gains associated with the ownership and maintenance of all the firm's assets, tangible or intangible.

Moving to the third valuation method, the DDM has produced a spurious result; however, it is still possible to examine how intangible assets enter into play within this framework. Of the three valuation methods, this would be the least responsive to their impact. On an indirect level, since intangible assets affect a company's performance and the latter in turn affects dividend distribution practices it could be recognized that dividends do depend on these assets' value and upkeep. Nonetheless, the correlation between dividends and strategic intangible assets is at best weak, and this valuation method may be unable to fully capture their value for the company.

For what concerns this particular case, it would be also possible to point out that Sisal's economic performance is strongly dependent on a number of factors (i.e., its gaming licenses and concessions, its historical presence on the market, its proprietary gambling platforms...) that stem from the strategic intangible assets described in detail within the second chapter of this thesis. As such, this valuation method is unable to capture its value both because of the small share paid as dividends and at least in part because much of the company's value is dependent on factors that transcend the scope of the valuation.

In order to account for the impact of these factors, a possible solution could be to add back their value after the realization of the DDM analysis; however, this would further complicate the valuation and it would increase even more the number of assumptions necessary. Another feasible alternative could be the adoption of one of the variations of the DDM: by segmenting further the phases of dividend growth, it could be possible in theory to capture more accurately the value of the company in each stage according to its dividends' growth rate. However, even in this case it would be difficult to establish a direct link between phases of high (low) growth and positive (negative) intangible assets' performance.

To sum up, each of the three methods has its strength and weaknesses, and it is not possible to say which one is the best in absolute terms. In this case, both the method of comparables and the DCF yielded pretty close results, with each of them presenting about 300 millions of variability from the actual sale price. On the other hand, the DDM proved to be unreliable applied to this particular company. By using the ratio of EV/EBIAT in particular it has been possible to estimate almost the

exact price of sale of the company. While it is important to take into account some limitations that impact this valuation, the results are coherent with the benchmark of the sale price.

Concerning the strategic intangible assets, none of the three methods employed are specifically targeted to account for their measurement: the DDM does not include them at all, the DCF accounts only for part of the costs they generate and the method of comparables does not use them as explicit inputs, but rather evaluates them indirectly within the general framework of the valuation. Despite these considerations, these assets are instrumental for the business to stay afloat; although it may be difficult to quantify them from a financial point of view, it is often easier to see their impact on the value of the firm as a whole. Given that traditional financial valuation theories are not fully equipped to recognize their value, several different alternative approaches have been developed overtime, but vary considerably according to the type of asset considered. As an example, it is possible to use a market approach, which benchmarks assets according to the sale price of similar ones on the market (it may be appropriate for something like a gambling concession, that is sold and paid for, plus the eventual addition of a premium to capture its obligatory character).

Another possible way of looking to intangible assets implies the analysis of the income perspective. Single cash flows generated by each asset category could be estimated and then added back within the general DCF method, provided that they generate a tangible gain and a cash flow to measure (for Sisal, the technical infrastructure could be measured this way, at least for the Online business unit, since it could be argued that, for example, the revenues generated by the mobile application are strongly dependent on its maintenance, update and functioning). Similarly, having an extensive and well-functioning distribution network has a strong impact on the retail gambling business, and again, a portion of the revenues of the Retail Italy business unit could be ascribed to its presence.

Alternatively, it may be possible to examine the assets' opportunity cost or the cost for their replacement. While this approach may not be able to capture fully the economic benefits that are (or will be) generated as a direct consequence of the ownership of these assets, using the cost of substituting existing assets as a proxy for valuing how much the latter are worth right now could be a reasonable approximation. In the case of Sisal, this method could be used to determine the contribution of the workforce to the value of the company: by measuring, for example, how much it would cost to hire and train new employees to carry out the necessary functions for optimal business conduction.

These are just some examples of the different ways in which intangible assets can be valued to account for their strategic value. Although from a financial point of view it may be difficult to include them within a traditional valuation, by repurposing traditional valuation methods or

integrating specific models for their assessment it would be possible to paint a more complete picture of the firm. On the other hand, it may be necessary to account for the drawbacks of adopting such an extensive perspective; it could render the analysis too burdensome and time consuming, and in the end the results may lack in accuracy due to the increased number of assumptions necessary to perform the evaluation.

To conclude, the performance of an accurate, comprehensive evaluation should consider intangible assets and their contribution to the overall value of the firm, but without burdening the analysis with an excessive amount of details and calculations. As such, a balance has to be stricken to both include all the real value pertaining to a company and to produce clear, understandable results.

Conclusion

Intangible assets are instrumental for most companies to profitably conduct their business. While on an intuitive level it is possible to spot them with relative ease, a precise definition is a much more complicated task and their precise quantification is even less clear-cut. Against this background, the scope of the present study is aimed at understanding the inherent dynamics of valuation in light of these assets. This thesis has provided an overview of the necessary frameworks to analyze raw financial data in order to make estimations on the present and future value of a company, taking Sisal as a case study both for its solid, historical presence on the Italian gambling market and for its belonging to a peculiar industry environment, that requires a specific set of capabilities for business activities and, most importantly, for success.

The first chapter has been devoted to the theoretical exploration of three valuation frameworks, namely the Dividend Discount Model, the Discounted Cash Flow and the Comparables method. The second chapter has delved into the analysis of the Italian gambling market, at first in general terms and then in the light of the strategic intangible assets instrumental to succeed in it. The balanced scorecard theoretical framework has been used in this respect to define, categorize and identify these assets; afterwards, the case study has been examined in the light of this framework, to determine which assets were involved in the structuring of its business model and customer value proposition. Finally, in the third chapter the valuations methodologies discussed in Chapter 1 were applied to Sisal to reflect the aforementioned theoretical considerations on a practical level and to estimate the enterprise value on the firm.

Valuing a company is a difficult task. Even when dealing with physical assets, it is possible to incur into difficulties when trying to establish their contribution to the overall business, the gains

they generate and the costs associated with their acquisition and maintenance. This is even more true for intangible assets; moreover, isolating their contribution and assessing their role for future operations of the company is another relevant complication. Each of the three methods used in the valuation captures the value of these assets in different proportions and through different proxies, thus reflecting them differently in the final outcome.

Highlighting this type of assets in financial valuations should become a strategic priority for every company, particularly when dealing with a market environment riddled with complexities and specific requirements such as the gambling industry. This reasoning could also be applied in different contexts where it is necessary to take into account different exigencies when dealing with strategic planning. In particular, considering the speeding pace of several trends that have had an impact across the majority of markets (i.e., globalization, digitalization, attention to sustainability...) it is possible to say that the weight of strategic intangible assets is set to increase over the next years. Given that the development of key capabilities in these fields is often difficult to be measured and typically belongs to the intangibles category, it is safe to say that an accurate assessment of these assets will become more and more a strategic priority in the future.

The development and maintenance of a competitive advantage is a key strategic priority for any firm and at the heart of the businesses' success in the long run; as such, executives and managers should take actions in order to safeguard and maximize it. This in practice may translate into an array of different interventions, such as financial investments, acquisitions/demergers, new training programs and so on. However, it is fundamental to remember that, whatever action is taken in this respect, a detailed analysis of the company and its assets is a fundamental prerequisite. This analysis should be realized neither from an exclusive financial point of view, nor from an exclusive strategical perspective; instead, with the adoption of a blended perspective it is possible to obtain a holistic view of the company. This framework is an essential element in order to make coherent, informed decisions for the firm and its future, and as such its implementation should be a priority for executives in charge of any company.

Executive Summary

Even though the financial analysis field has advanced in its accuracy, valuation activity is still based on a variety of theories and as a result outcomes are frequently susceptible to individual judgment. The valuation procedures covered in this thesis serve as the foundation for valuation efforts while also examining some shortcomings of traditional methodologies in the light of specific assets

that cannot be assessed with ease. In general terms, the valuation process is not limited to the mere application of available methodologies to a series of financial inputs, but instead constitutes a starting point for the deployment of qualitative and judgmental considerations compelling the results of the financial models.

Starting from the existing theoretical foundations in the field, the objective of the thesis is threefold. First, an in-depth review is conducted on main theoretical frameworks based on which the valuation models have been developed. Second, an overview of the practical implications affecting the valuation process is provided by means of an empirical case study. Third, the analysis is complemented with the consideration of non-quantitative strategic factors related to the intangible value of the firm, contributing to the determination of the real value of the firm.

The first evaluation method examined is the Dividend Discount Model. The Dividend Discount Model (DDM) is based on the Discounted Cash Flow (DCF) methodology and uses a specific strategy known as dividend discounting. The fundamental idea behind the model is that shareholders are compensated with cash flows coming from two separate sources: the share value at the time they liquidate their position and the dividends per share paid by the firm over the holding term. As a result, the dividend is the only ongoing cash flow a shareholder of a publicly listed firm receives while owning that share.

Because of this, the Dividend Discount Model is regarded as a relatively straightforward technique for valuing a company's stock. The present value of each anticipated dividend on the shares itself, in accordance with the model, determines a security's worth. The value of a security today is therefore equal to the present value of the expected dividends (assumed to be paid for an indeterminate future) discounted by an appropriate rate since the projected price is decided by the sum of dividends flowing into the future. The Dividend Discount Model's general formula is:

$$\text{Value per share of stock} = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t}$$

Since future dividends cannot be predicted indefinitely, multiple variations of the original Dividend Discount Model have been created to consider various predictions of the company's dividend growth rates in the future. The Gordon Growth Model is the less complex and assesses the stock of a stable growth company that distributes dividends equally over time. The Dividend Discount Model can be altered in three different ways to reflect different situations, like businesses that are going through periods of significant dividend growth and others of low or no dividend growth, as well as the excess capital variation, that is specific for banks.

The Dividend Discount Model functions effectively for companies that distribute dividends in a proportional manner to their revenue. However, the narrow, exclusive focus on the company's dividends could lead to inaccurate judgments with enterprises that do not pay their shareholders as much as they should. Moreover, the model suits best a valuation case with stable stocks that pay high dividends, which is relatively uncommon in the real business world.

If the payout ratio does not adequately account for the necessary change in the firm's growth rate, the model will come to an incorrect conclusion about the firm's value. Moreover, when results from the Dividend Discount Method are contrasted with those from other valuation techniques, it becomes clear that the former has a tendency to produce cautious value estimations. Finally, the Dividend Discount Model's basic case regards the dividend as the only way to return capital to stockholders, thus overlooking stock buybacks.

The second valuation method employed in the analysis is the Discounted Cash Flow. DCF is used in a majority of industries, but it necessitates more inputs than the Dividend Discount Model's formulation. The model is based on the fact that an asset's worth is related to its present value, or the discounted value of all its anticipated future cash flows, using an intrinsic valuation approach. The DCF model's general formula is:

$$\text{Value of firm} = \sum_{t=1}^{t=\infty} \frac{\text{FCFF}_t}{(1 + \text{WACC})^t}$$

The intrinsic value of a firm is what is referred to as its true value; it is the value that would be ascribed to it by a hypothetical, unbiased analyst able to accurately forecast the company's prospective cash flows using the currently available financial data and the appropriate discount rate. It can be challenging to determine a company's intrinsic value, particularly for startups whose future success is highly unknown.

There are two potential directions for this evaluation. The first involves simply analyzing the equity portion, whereas the second aims at evaluating the company in its entirety, by including other securities such as bonds or preferred shares in addition to stock. Although relevant cash flows and discount rates differ depending on the method chosen, both approaches discount predicted cash flows.

To apply the model, it is crucial to evaluate the target company's operations, business model, industry, and financial profile to create a solid valuation framework. After obtaining these components, it is possible to identify the KPIs and drivers for the target company (i.e. growth,

profitability, and cash flow generation). Subsequently, it will be possible to predict the Free Cash Flows for the Firm (FCFF). Specifically, the FCFF formula is described as follows:

$$\begin{aligned} & \text{Earnings Before Interest and Taxes} \\ & - \text{Taxes (Calculated as per the Marginal Tax Rate)} \end{aligned}$$

Earnings Before Interest After Taxes

$$\begin{aligned} & + \text{Depreciation \& Amortization} \\ & - \text{Capital Expenditure} \\ & - \text{Variation in Net Working Capital} \end{aligned}$$

FCFF

Afterwards, the FCFF is discounted at the Weighted Average Cost of Capital (WACC) rate. WACC, based on both stock and debt, is the weighted average of the returns that all capital providers anticipate from their investments in the company. It represents the opportunity cost for investors to invest in the target company in comparison to alternative investments with a similar risk profile. Moreover, the Terminal Value (TV) has to be added. The TV is the component that captures the future value of the company after the estimation period, when assumptions on the company's financials cannot be done on an accurate basis (FCFF forecasts may be produced only up to a particular point in time). TV can be calculated either under the exit multiple approach or with the perpetuity growth model.

The DCF presents some limitations as well. While the numerous inputs and hypotheses required to actualize the model, on the one hand, might aid in the development of a more adequate valuation process, on the other hand they operate as a barrier when data are difficult to find. For instance, a DCF valuation of a private company is a challenging task if precise financial inputs are not provided by the management. Additionally, the more assumptions are utilized in the valuation process, the greater the danger of a misleading output of the company's valuation if one or more of those assumptions turn out to be false or no longer hold true.

The last valuation method examined is the multiple comparison approach (a relative valuation method). The model calculates an asset's value by examining the selling prices of possibly comparable assets, paying close attention to some common criteria like revenues, cash flow, book value, etc. This strategy is frequently abandoned in favor of the approaches discussed above, although data from numerous industries demonstrates that the examination of comparables is a useful proxy to determine the worth of various asset types.

Assuming that the metrics of these companies can apply to the firm being evaluated, the first stage in relative valuation is to choose a suitable "universe" of comparable companies. In the second

phase the financial information required for the comparison is gathered, usually from the publicly issued financial statements of the companies. Then, to offer a quick and easy frame of reference for the obtained values, a scoreboard displaying all the important financial metrics of the chosen organizations is created. The addition of adjustments for the so-called non-recurring items is a vital task at this stage, because businesses may encounter unforeseen and extraordinary events that manifest as one-off items during their going-concern activities. Then it is possible to benchmark the resulting ratios, by comparing the target company's valuation to that of the previously selected companies. Outliers should be disregarded since this process depends on both quantitative and qualitative inputs.

It is feasible to estimate the company's final valuation using its previous financial results. A table is often used to display a range of values used in valuation to make comparisons easier. The average values of several trading similar ratios are frequently combined with the pertinent target business' measures to arrive at a valuation range for the target firm. Equity-side multiples (P/E and P/B) and firm-side multiples (EV/EBITDA or EV/EBIT and EV/Revenues) are an example of two basic multiples used in financial valuation.

Due to its nature, comparable transactions valuation is frequently used in M&A appraisals to establish a benchmark value for the target company based on its financials and on similar evaluation processes realized in similar transactions. In fact, valuation based on prior deals typically yields higher values than valuation based on trailing multiples since it takes into account the value of synergies, or the potential economic gains from the combination. The temporal gap, which may represent changed market conditions, as well as the potential lack of actual comparable transactions, are related to a potential shortage of prior transactions that can be used as comparisons.

After this review of the relevant theoretical framework, the market environment has been examined. According to Gross Gaming Revenue (GGR), the primary industry statistic, the Italian gambling market is currently the largest in Europe and ranks fourth globally. The industry has experienced steady, significant growth since the 1990s, which stabilized at about 1% per year after the 2000s. A deregulation trend that began with the Bersani Decree in 2006 has allowed for new game types and playing strategies, opening up the market to a number of participants. This has been especially important in relation to the emergence of online gaming, another important component of the market and one of the fundamental factors influencing its expansion.

The sales channel (online or retail) can be used to create the market's initial basic segmentation. For market operators, the retail channel has historically been the most significant. However, in recent years, a major push toward online gaming has reduced the share of GGR collected from this side, and it is anticipated that this percentage would further decline throughout the ensuing

years. The prevalence of retail gambling in Italy is roughly distributed evenly across the nation; however, the Center region's residents are the most likely to gamble. This region also has the highest average gambling expenditure per capita. The majority of gamblers choose playing alone as opposed to with others and they prize closeness to their home or job and the availability of additional services when choosing a retail store.

The market for online gaming has seen significant expansion even prior to the Covid outbreak, and the pandemic has just intensified this pattern. In addition to the epidemic, the spread of internet connections and devices, together with the skills required to operate them, can explain the overall rise of the online market. The vast array of new, exciting games that are frequently available online and do not require a significant financial commitment is another factor in the shift to online gaming. The age group most likely to engage in online gambling is the youngest (18-34), also displaying the fastest rate of consumer growth.

Another possible segmentation concerns the products offered. The market can be broken down into three primary categories: betting, gaming, and lotteries. Although the proportions may change depending on the situation, each of the three categories has a retail and an online component. Bets placed on actual events as well as simulated or virtual ones fall under the first category. The gaming industry is the second category (including, for example, slot machines). Lotteries and bingo constitute the final category. There are three different kinds of lotteries: lotto, instant lotteries and Giochi Numerici a Totalizzatore Nazionale (GNTN), like Superenalotto.

No business can enter the gambling sector without a government concession. Concessionaires must pay for their license and fulfill several obligations, including making sure their operations comply with applicable laws, paying the necessary taxes, and reporting any irregularities to the Agenzia delle Dogane e dei Monopoli (ADM). Strong regulatory scrutiny creates considerable entry hurdles for new companies; the effects of these barriers vary depending on the retail or online segment and product category under study.

The competitive environment consequently appears different as a result. Starting with the betting industry, there are several competitors on the retail, internet, or omnichannel markets (i.e., Snai, Bet365, Goldbet, Sisal, and Eurobet). Contrarily, the gaming industry is far more consolidated, with just 11 operators controlling the whole market because of particular legal limitations (i.e., Snai and Lottomatica). For lotteries, three operators hold the concessions for each lottery type: IGT (for instant lotteries), Lottitalia (for lotto), and Sisal (for GNTN).

The online market, in turn, is very competitive. This is mainly because ADM's requirements have been lowered, allowing more operators to enter successfully. Despite there being 78 operators, the top 10 control around 70% of the market. Future predictions for the market include a continued

trend towards concentration, primarily driven by the anticipated reduction in concessions, an anticipated ban on advertising in 2023, and an overall increase in the regulatory burden.

Turning the focus towards Sisal, the company is an historical presence in the Italian market; it was purchased in 2021 by Flutter Entertainment and it is divided into three business units: Online Italy, Retail Italy and International (although for this portion of the analysis only the first two will be taken into account).

The Online Italy business unit was established in 2004 to oversee the company's online business. It manages all digital sales channels, primarily the official website and mobile applications. It is governed by a number of regulatory requirements, including adherence to a specific payout ratio and observance of a minimal winning probability level. Its business strategy is based primarily on delivering a great customer experience; this is accomplished by utilizing a number of tactics to draw in new players and maintain the interest of current customers. Given that Sisal is a long-standing Italian business with 75 years of market experience, its brand awareness is quite high, which makes it stand out in a competitive market setting like the online gaming industry.

The major portion of the business is managed by the Retail Italy business unit. Despite the effects of the Covid pandemic, it has since recovered pretty well. Sisal maintains its rights as a concessionaire from ADM, thus it is accountable on their behalf. The vast bulk of the distribution network depends on affiliated Points of Sale (PoS), who oversee daily operations in exchange of a fixed percentage. Physical stores need to be set up and maintained from an organizational perspective in compliance with business strategy and marketing requirements. The retail business unit deals with third parties as well as end clients, providing support and overseeing the respect of the normative framework. The extensive, local distribution network and the dedication to detail for all store management operations are two of its core assets.

Turning to the focal point of this thesis, the success of a company depends on balancing financial and strategic factors. The financial value of a company and other KPIs that can help in long-term strategy setting can be quantified through a traditional valuation using one of the techniques discussed in the previous chapter. These strategies, however, are frequently restricted to only material, tangible assets and the value they can produce for the organization today or in the future. From a strategic perspective, intangible assets are significant because of the product differentiation they can generate, which in turn is a significant factor in sustained competitive advantage. Quoting Kaplan and Norton: *“Intangible assets are hard for competitors to imitate, which makes them a powerful source of sustainable competitive advantage.”*

Intangible assets can be divided into three major groups: human capital (all of the current employees' abilities, expertise, and skill sets); information capital (digital or technological assets, like

databases, networks, and general IT infrastructure) and organizational capital (all of the aspects of organizational culture, including its propensity for innovation, its resiliency, and its leadership style).

The financial value, the customer value proposition, the internal processes dimension, and the learning and growth perspective of the company are all connected by Kaplan and Norton's strategy map. These four elements can be thought of as concentric layers, ranging from the most external and concrete to the most internal and abstract. This conceptual foundation can be used to analyze the Italian gaming market to identify the strategic demands that operators must meet to be successful. Three key components that are exclusive to the gambling sector may be identified, that influence the behavior of operators, the competitive environment and the chances of success or failure.

The first characteristic of the gambling industry is the significant influence of the law. The market framework is significantly affected by governmental entities, due to the dangers of addiction as well as the possible threat that disorderly gambling conduct poses to public order. The ease with which criminal groups can infiltrate the industry and use gambling-related operations for money laundering and tax evasion is another significant factor for this strong regulatory structure. Criminal organizations have often attempted to enter the legal gambling market by acting as operators and frequently blending their operations with those of genuine businesses. This has been motivated both for coverage of their illicit businesses and as a distinct source of "clean" revenues.

The need to offset social costs is another aspect of the industry. Gambling is potentially addictive and can present substantial risks to the public. Several regulatory actions have been carried out to protect and assist compulsive gamblers, defined as people who develop an active dependence from gambling. For example, the Balduzzi decree recognized gambling addiction as a pathology in 2012. Any market participant must focus on this aspect by promoting safe, responsible gambling and put restrictions in place for compulsive gamblers. This is due to the significant risk of addiction and its dire consequences on both individuals and society at large. Anxiety, depression and suicide risks are all strongly associated with compulsive gambling; moreover, this addiction may result in antisocial conduct, an uptick in crime and participation in criminal activities.

The final peculiarity of the gambling market is the propensity for quick changes in consumer preferences, with a focus on online gaming and omnichannel retailing. Consumer tastes in the entertainment sector are already unstable, and gambling is one area where this is particularly true. Moreover, due to the strict advertising restrictions businesses are forced to differentiate their products and value propositions to achieve a competitive edge. This is especially true when it comes to internet gambling.

For the first point, there are several requirements that an operator must meet in order to be granted a concession. Afterwards, the corporation must maintain compliance with these requirements

as well as other responsibilities. The latter are largely divided into three groups: financial and company ownership duties, logistical and customer service obligations, and obligations related to responsible gambling and data reporting to the agency.

Due to several strategic intangibles that enhance its internal procedures and operations, Sisal is well-positioned regarding the obligations placed by ADM on its concessionaries. For the human capital area, Sisal requires all of its employees to complete training programs. This guarantees that the workforce is ready to deal with regulatory constraints as well as the unique hazards present in the gaming sector, particularly when handling online operations.

From the perspective of information technology, Sisal has all the necessary technical resources to manage its own website and mobile applications while respecting its commitments to the ADM. Last but not least, Sisal is an historical Italian corporation that represents the virtues of accountability, openness, and honesty. The leadership is cognizant of the need of developing an organizational culture that values honesty, decency, and integrity, thus maintaining the commitment to these values at the organizational level.

Regarding the dedication to responsible gambling and the suppression of unhealthy behavior, for its ethical gaming program Sisal has continuously received the highest accreditation grade from European Lotteries (EL) since 2011 and from the World Lottery Association (WLA) since 2012. The training and courses on ethical gaming can be classified as strategic intangible assets from the perspective of human capital; the training modules' goal is to spot gamers who are engaging in risky behaviors and give staff members the resources they need to effectively help them.

The company's overall technical architecture supports responsible gaming activities by offering a number of crucial strategic assets, like monitoring and tracking capabilities thanks to the use of artificial intelligence. Every piece of information gathered through Sisal's web platforms is routinely analyzed and examined for suspect player activity. The sustainable development of the firm has been identified as one of the top priority areas for corporate culture, and as a result, player protection and safety as well as the development of a fair and lawful gaming environment have been deemed to be vitally important company goals.

The significant importance of innovation and the creation of new products is the final distinguishing feature of the gaming sector. Operators can no longer rely on marketing activities to sell their goods due to the 2019 advertising ban; therefore, the industry's business strategy has switched to favour continual product improvements. For the human capital category, the IT industry in this context has the most relevant professional figures. Sisal has taken a few steps to strengthen its internal capabilities to stand out and attract digital talent, such as the targeted hiring of experts in high-tech disciplines. The business has placed a strong emphasis on product innovation for

information technology capital, paying special attention to the creation of unique platforms. Using a proprietary platform, the firm can manage and improve the user experience by adding social features, challenges for fun and loyalty benefits. This helps to increase customer retention. Despite a somewhat traditional organizational structure, the corporation has a long history of demonstrating its dedication to the goals of innovation and digitization. Initiatives for ongoing learning have been supported to ensure that organizational capital is always improved; the firm is attempting to reinvent itself and attract fresh talent (i.e., an Innovation Lab).

Moving on to the third chapter, the three valuation techniques previously discussed are used for the financial valuation of Sisal. Firstly, the company's WACC has to be calculated with the following formula:

$$WACC = R_e * E / (D + E) + (1 - t) * R_d * D / (D + E)$$

R_e (cost of equity) is calculated from the risk-free rate (from Italian BTP yield) plus the market's equity risk premium (6,42% for Italy in 2022) multiplied by the beta equity. In turn, the beta equity has been estimated by using the Capital Asset Pricing Model (CAPM), that estimates the risk level of a given security according to the following formula

$$\beta_i = \frac{\text{Covariance of asset i with market portfolio}}{\text{Variance of the market portfolio}} = \frac{\sigma_{im}}{\sigma_m^2}$$

This has been performed for four companies that operate in the sector and are similar to Sisal. The R_d term (cost of debt) equals the interest rate that the firm currently pays on his debts; thus, it is calculated by dividing its net financial expenses for its total debt. The ratios of $E/(D+E)$ and $D/(D+E)$ reflect, respectively, the weight of equity and debt on the total company's value; the debt portion equals the sum of current and non-current financial liabilities, while the total equity is taken directly from the company's balance sheet. The t in the formula above is the Italian tax rate (30%); thus, Sisal's WACC has been calculated, standing at 9,51%.

To apply the DCF methodology, it is necessary to forecast some important financial indicators. The growth rate of the market is the first parameter; to produce a reliable prediction, the data set considers records from 2015 to 2021. The key initial data include turnover (total spent by players annually), payout (money paid out as winnings), and GGR (the difference between turnover and payout), broken down by online and retail. Future growth rates for the Italian market, divided into the internet and retail sectors, have been predicted based on historical trends. Following the market size forecasts, a revenue buildup model was constructed to provide estimations for Sisal's expected market share and the contributions of each business unit to the corporation.

The market share has been calculated as Sisal's GGR divided by the total market's. The company's future GGR has been approximated as the product of the ratio between revenues and GGR (assumed to remain constant) multiplied by the year's revenues. In turn, each year's revenues are the sum of each business unit's revenues (Online, Retail and International/Payments, lumped together since the dismissal of payments' non-core business has coincided with the entrance on international markets). For the Online BU the formula reported below has been used to obtain yearly revenues; the same procedure has been applied to Retail Italy.

$$\text{Online revenues} = \text{Italy Online GGR} \times \text{Revenues online as \% of GGR} \times \text{Forecasted Online Market Share}$$

The historical data for the Italian online GGR was available on Statista; the ratio of revenues to GGR was computed using 2021 data and was expected to be constant during the projected period. Based on statistics from 2020 and 2021, the projected market share in the internet market has been the core assumption of the model. For the International/Payments part the revenues have been calculated by multiplying this segment's contribution for total sales with the assumption that its weight will remain constant with the average for the 2015–2021 timeframe. Then, Sisal's GGR was predicted as the product of the revenues and their weight on GGR (estimated at about 35%, based on the figures for 2021). Finally, by dividing the company's GGR for the Italian market's it has been possible to determine yearly market shares.

From past records on EBITDA margins for every business unit, adjusted EBITDA has also been produced for the projection period to finish the analysis for the forecasted financial statements. EBITDA margins have been assumed to remain constant and consistent with past data. For the online business unit, the arithmetic mean of the historical period was considered; for the retail business unit, given the low variability between each year, the median value was taken as the reference for the future; and for the international/payments segment, given the termination of the payments' business, the EBITDA margin for the future had to reflect only the international business unit, so it was selected as slightly lower than the 2021 margin (19% vs 20%).

Writing down the company's balance sheet and income statement for the prediction years was then required to finish the DCF model, and an estimation of costs had to be included. The methodology used was based on calculating each income statement's relevant categories as a percentage of the relevant array of assets for 2020 and 2021 (i.e., financial income as a percentage of total financial assets); this percentage was then averaged and assumed as constant in each subsequent year to forecast future values. The costs object of the forecast are the depreciation/amortization cost (subtracted from the EBITDA to obtain the EBIT); financial income and financial expenses

(subtracted from the EBIT to obtain the EBT) and income taxes (subtracted from the EBT to obtain the net profit).

Forecasting is also required for the balance sheet, specifically for the category of Property, Plant, and Equipment (PPE) as well as for the Net Working Capital (NWC). Starting from assumed CAPEX expenditures (net of D&A) future PPE has been estimated. The NWC is determined as the difference between working capital assets (inventory, trade receivables, and other associated assets) and liabilities (trade payables, tax payables and eventual other related liabilities) and it has been projected to the future by dividing revenues for future relevant inputs (i.e. days on average in each category).

The application of the model started from the adjusted EBITDA; each year's amortization and depreciation have then been added, together with the impairment of financial assets, to obtain the EBIT. Afterwards, taxes have been computed for every year at a 30% tax rate and subtracted from EBIT to calculate the NOPAT. For the NWC, the yearly variation has been computed (to account for expenditures/savings in this category). Analogously, yearly investments in CAPEX have been calculated with the following formula:

$$CAPEX = PP\&E_{t+1} - PP\&E_t - D\&A_t$$

FCFO has then been calculated by adding back amortization, depreciation and impairment of financial assets, as well as subtracting the variations calculated above in NWC and CAPEX. The discounted cash flows can be determined by discounting each year's cash flow by the applicable discount rate (WACC); their sum represents the present value of FCFO. The terminal value (which incorporates the predicted growth rate of the entire gaming industry) discounted at the WACC must also be added to calculate the complete Net Present Value (NPV) of the business, that amounts to around 1,6 billions. It is possible to notice that the weight of the TV on total NPV is predominant (at around 65%).

The method of comparables evaluates a firm by utilizing similar publicly traded firms as a benchmark. To be considered comparable, a company should have similar main financial metrics to the target company and operate in the same market context. The choice of relevant firms is the initial step in applying this methodology, to achieve a solid foundation for comparison. Four comparable organizations have been picked based on similarity: 888 Holdings, International Game Technology (IGT), Entain.plc and Playtech.plc. While the last three are bigger than Sisal, since the comparables approach is a relative valuation method the ratios used in the study are not considerably impacted by the difference in size.

The research of their financial information in order to carry out the multiples analysis is the next step in the implementation of this evaluation method. All data used in the analysis have been retrieved from Yahoo!Finance. Then, important multiples and indicators have been computed for each organization. Specifically, two equity-side multiples (P/E and P/B) and two firm-side multiples (EV/EBIT and EV/EBIAT) have been used for the valuation purpose. Finally, the pertinent data for Sisal (taken from its website and its historical financial records) have been reported in a separate table to be compared with the multiples of the other companies. The average ratio values of the companies have been multiplied by the denominator value to estimate Sisal's enterprise value from each multiple. The table below presents the outcomes. It is then possible to determine the estimated average enterprise value of the company, which is equal to around 2,2 billions, by averaging the four Enterprise Values (EV) obtained by the estimates above.

Multiples Analysis

Company	888	ENT	IGT	PTEC	Average	Max	Min
P/E	11,381	36,235	0,203	23,731	23,782	52%	-99%
P/B	3,2318	2,2336	3,2816	0,8443	2,103	56%	-60%
EV/EBIT	12,704	35,175	54,838	46,518	31,465	74%	0%
EV/EBIAT	15,684	43,426	69,415	57,429	38,846	79%	0%

Sisal Estimation

Book Value	1.060,63 €
EBIT	57,28 €
Earnings after tax	40,09 €
Profitability	0,01%
Net Income	91,55 €

Average Range

P/E **2.177,35 €** **3.317,47 €** **18,60 €**

P/B **2.632,27 €** **1.056,67 €** **4.107,11 €**

EV/EBIT **2.126,57 €** **2.126,57 €** **3.706,21 €**

EV/EBIAT **1.837,78 €** **1.837,78 €** **3.283,98 €**

Enterprise Value **2.193,49 €**

The DDM's application has started from the analysis of Sisal's past dividends; this has yielded a payout ratio of 3%. The Gordon growth model has been selected as the most appropriate for this valuation, since Sisal is a mature company that has consistently scored a constant average growth. To estimate future dividends, therefore, a growth rate of 4,31% has been selected from the revenues buildup model (as it corresponds to the average growth of the company's revenues during the forecast years). Afterwards, for every year the dividends have been discounted at the R_e rate (elevated to the year of the forecast from one to five, as the time interval spans five years into the future).

To complete the model's application, an appropriate terminal value has to be computed too. The formula used for this operation is listed below.

$$TV = \frac{Div_{t+1}}{(R_e - g)}$$

Subsequently, this terminal value had to be discounted in order to obtain its present value. The appropriate discount rate is again R_e , elevated to the power of the last year of the forecast (5). Finally, the present value of future dividends and the present value of the TV have been added in order to obtain the company's enterprise value. Since it amounts only to 10,53 millions, it is evident that this enterprise value is an outlier and it is vastly underestimated.

This is due to the low payout ratio of 3%, and it signals the most important inherent flaw of the DDM: although paying dividends is by no means an obligation, any company that does not do so (or that pays a limited sum as dividends) will be grossly undervalued with this method. For this reason, the resulting value has been classified as an outlier and is not considered in the results' assessment.

To circle back to the original theme of this thesis, the contributions of strategic intangible assets to the overall valuation have been considered in the last part. The DCF's evaluation result is lower, standing at 1,6 billions (compared with 2,2 billions of the comparable method and 1,9 billions of the actual sale price of the company at the time of its acquisition last year).

The DCF's handling of intangibles is one of its main flaws. Various balance sheet variables are directly associated to intangible assets, and it is possible to establish this quite easily by looking at the model's calculations; nevertheless, they only come into play when dealing with expenses. There is no direct record within this method of the profits made as a result of those assets. Their total influence on the company has only been quantified insofar as it is implied in the EBITDA or generally in the revenue side of the study, but the model does not explicitly link them to the FCFF.

This may be a probable reasoning for the slight undervaluation in comparison to both the method of comparables and the actual sale price. While from a theoretical point of view the absence

of intangibles from the DCF is fully justified on the revenues' side (since they do not directly produce a cash flow as output), it can cause the enterprise value to reflect only the costs associated with these assets (i.e., amortization/depreciation), thus resulting in a lower valuation. This inherent bias may be even more relevant in the case of a company that must rely upon its intangible assets for its business to remain afloat, such as Sisal, due to the specific characteristics of its environment.

Considering the method of comparables, the final result is higher than the purchase price of Sisal by 300 millions; the selection of comparable companies can be held responsible for some of this delta. The chosen firms are slightly larger in size and may have better financial performance compared to Sisal, specifically since the market trend has changed to consolidation and conglomerates tend to have a competitive edge in this area. Although it is true that the ratios are expressed in absolute terms, it is also true that larger organizations frequently have advantages over their smaller counterparts.

Despite the inherent heterogeneity in the application of this method, the projected enterprise values are consistent with one another and with the overall sale price. The comparables method is able to account for the worth of firms as a whole while making just a small number of assumptions. It is impossible to determine what percentage of the company's worth would be directly attributable to intangible assets because the comparables technique does not measure them individually. Nonetheless, the market's confidence in a company's growth potential can be indicated by a high stock price, which can be linked in part to the company's intangible assets, even if in an indirect way. This may explain the higher result obtained in this case. Additionally, all KPIs considered include the impact of these assets. In fact, the ratio of EV/EBIAT yielded the closest value to the "real" enterprise value because it includes both the losses and gains related to the ownership and upkeep of all the company's assets, whether tangible or not, net of the tax effect.

Finally, the DDM applied to Sisal did yield inconsistent results with the other two methods and with the price of the acquisition. Moreover, this would be the least impact-responsive to intangibles of the three valuation approaches. On a more indirect level, it could be said that dividends are influenced by the value and maintenance of intangible assets because they have an impact on a company's performance, which in turn has an impact on how dividends are distributed. However, there is at best a poor correlation between dividends and strategic intangible assets, and this valuation approach might not be able to adequately account for their value to the company. The latter reasoning may also partly explain why the results of the DDM model valuation provides a gross underestimation of the company's value.

To conclude, strategic intangible assets are a fundamental element within a company's business model; however, none of the three techniques used is expressly intended to consider their measurement. Despite this factor, these assets are essential for the company to function; even if it

may be challenging to quantify them financially, it is frequently simpler to understand their impact on the firm's overall value. Some parallel techniques have been developed overtime to assess just how much they contribute to the business (i.e., by looking at the market price of similar assets, at the cash flows they generate or at their opportunity costs), but they imply the risk of overcomplicating the analysis and rendering it less clear.

Whatever steps are made in this regard, it is crucial to keep in mind that a thorough study of the organization and its strategic intangible assets is a necessary prerequisite to fully capture the real value of the firm.

Glossary

AAMS: Amministrazione Autonoma dei Monopoli di Stato
ADM: Agenzia delle Dogane e dei Monopoli
AI: Artificial Intelligence
AWP: Amusement With Prize machine, an electronic slot machine game device.
BU: Business Unit
CAGR: Compounded Annual Growth Rate
CAPEX: Capital Expenditure
CAPM: Capital Asset Pricing Model
COGS: Cost of Goods Sold
DCF: Discounted Cash Flow
EBIAT: Earnings Before Interest After Taxes
EBIT: Earnings Before Interest and Taxes
EGM: Electronic Gaming Machine, commonly known as slot machine
EPS: Earnings Per Share
EV: Enterprise Value
FCFF: Free Cash Flow to Firm
GDP: Gross Domestic Product
GGR: Gross Gaming Revenue
GNTN: Giochi Numerici a Totalizzatore Nazionale, i.e. Superenalotto
IGT: International Game Technology
ISS: Istituto Superiore di Sanità
KPI(s): Key Performance Indicator(s)
NOPAT: Net Operating Profit After Taxes
NPV: Net Present Value
NWC: Net Working Capital
PoS: Point(s) of Sale
PPE: Property, Plant and Equipment
SEO: Search Engine Optimization
SOGEI: Società Generale d'Informatica
TV: Terminal Value
VLT: Video Lottery Terminal, a computerized video lottery machine
WACC: Weighted Average Cost of Capital

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