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**What is the value of the company? The valuation case of Magazine Luiza**

**¿Cuál es el valor de la empresa? El caso de valoración de la empresa Magazine Luiza**

**Qual é o valor da empresa? O caso de valuation da empresa Magazine Luiza**

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(Accounting teaching case published in SemeAd 2019 - Fast-Track)

### Abstract

**Objective:** Magazine Luiza, founded in November 1957, a national retail icon, started in 2011 at B3, with exponential growth in the valuation of its shares. This case provides the following pedagogical objectives: a) to promote the problem analysis, to propose and inquire decisions regarding valuation; b) stimulate reflection between the theory that supports the evaluation purposes and the way it should be developed and applied; c) expand the ability to relate the valuation theoretical assumptions of valuation and their adequacy to reality.

**Methodology:** The Financial Statements were extracted from the MGL company website, on Economática® and on B3 website. Professor Damodaran's database was also used. We highlight the data are real, however, on the other hand, the existence of Alpha Varejo and its proposed acquisition of Magazine Luiza is considered as a hypothetical situation.

**Results:** From a behavioral point of view, it allows students and professors to have fair and discussions so that there is mutual respect for divergent opinions and ideas, allowing the exposure of their points of view. Estimating the company's value using the Discounted Cash Flow and Relative Valuation methods is a complex task and can be considered as an important decision-making process, especially for the company's shareholder. In the use of methods, there is the need to choose appropriate premises that best reflect the reality of the company.

**Study Contributions:** The performance of the proposed activity, with undergraduate or graduate students in the business area in disciplines aimed to analyze the financial viability of companies and valuation, contributes to the training of these students with critical analysis development and stimulating discussion in finance area.

**Keywords:** Valuation; Magazine Luiza; Discounted Cash Flow; Relative Evaluation.

### Resumen

**Objetivo:** La empresa Magazine Luiza, fundada en noviembre de 1957, es un ícono minorista nacional, se hizo pública en 2011 en B3, con un crecimiento exponencial en la valoración de sus

acciones. Este caso proporciona los siguientes objetivos pedagógicos: a) promover el análisis de problemas, proponer e investigar decisiones en relación con la valoración; b) estimular la reflexión entre la teoría que respalda los propósitos de la evaluación y la forma en que debe desarrollarse y aplicarse; c) ampliar la capacidad de relacionar los supuestos teóricos de la valoración y su adecuación a la realidad.

**Metodología:** Las demostraciones financieras se extrajeron del sitio web de la empresa, de Economática® y del sitio web de B3. También se utilizó la base de datos del profesor Damodaran. Cabe señalar que los datos son reales, sin embargo, por otro lado, la existencia de la empresa Alpha Varejo y su propuesta de adquisición de la empresa Magazine Luiza se consideran una situación hipotética.

**Resultados:** Desde un punto de vista conductual, permite a los estudiantes y profesores mantener diálogos y debates saludables para que exista un respeto mutuo por las opiniones e ideas divergentes, lo que permite exponer sus puntos de vista. Estimar el valor de la empresa utilizando los métodos de Flujo de Caja Descontado y Valoración Relativa es una tarea compleja y puede considerarse como un importante proceso de toma de decisiones, especialmente para el accionista de la empresa. En el uso de métodos, existe la necesidad de elegir las premisas apropiadas que mejor reflejen la realidad de la empresa.

**Contribuciones del Estudio:** El desempeño de la actividad propuesta, con estudiantes de pregrado o posgrado en el área de negocios en disciplinas destinadas a analizar la viabilidad financiera de las empresas y la valoración, contribuye a la capacitación de estos estudiantes con el desarrollo de análisis críticos y una discusión estimulante en el área de finanzas.

**Palabras clave:** Valoración; Magazine Luiza; Flujo de Caja Descontado; Evaluación Relativa.

### Resumo

**Objetivo:** A empresa Magazine Luiza, fundada em novembro/1957, ícone do varejo nacional, abriu seu capital em 2011 na B3, com crescimento exponencial na valorização de suas ações. Este caso proporciona os seguintes objetivos pedagógicos: a) promover a análise de problemas, propor e indagar decisões em relação à *valuation*; b) estimular a reflexão entre a teoria que sustenta os propósitos de avaliação e a forma como ela deve ser desenvolvida e aplicada; c) ampliar a capacidade de relacionar os pressupostos teóricos de *valuation* e a sua adequação à realidade.

**Metodologia:** As Demonstrações Contábeis foram extraídas do site da empresa MGL, na Economática® e no site da B3. Também foi utilizada a base de dados do professor Damodaran. Destaca-se que os dados são reais, porém, em contrapartida, considera-se como situação hipotética a existência da empresa Alpha Varejo e sua proposta de aquisição da empresa Magazine Luiza.

**Resultados:** Sob o ponto de vista comportamental, permite que estudantes e docente tenham diálogos e discussões saudáveis de modo que haja respeito mútuo às opiniões e ideias divergentes, permitindo a exposição de seus pontos de vista. Estimar o valor da empresa pelos

métodos do Fluxo de Caixa Descontado e Avaliação Relativa é uma tarefa complexa, e pode ser considerada como um processo importante para tomada de decisão, principalmente para o acionista da empresa. No uso dos métodos, reside a necessidade de escolhas de premissas adequadas que melhor refletem a realidade da empresa.

**Contribuições do Estudo:** A realização da atividade proposta, com estudantes de graduação ou pós-graduação na área de negócios em disciplinas voltadas para análise de viabilidade financeira de empresas e *valuation*, contribui para a formação destes estudantes com desenvolvimento de análise crítica e estímulo à discussão na área de finanças.

**Palavras-chave:** *Valuation*; Magazine Luiza; Fluxo de Caixa Descontado; Avaliação Relativa.

## 1 Case Magazine Luiza

### 1.1 Introduction

Estimating a company's value is a complex task and can be considered as an important decision-making process, especially for the company's shareholder. There are several methods for carrying out valuation and determining the value that best approximates the intrinsic value of the stock, proposed by different researchers.

The Discounted Cash Flow method is considered one of the most appropriate ones of economic evaluation of companies, the one with the best evidence of success, because it considers investments and their debts. Another suggested method for the case is the Multiples Valuation, or also calling Relative Valuation, which aims a comparison with companies considered similar. For both methods lies the need to choose appropriate premises that best reflect the reality of the company.

For this case, we chose a retail company operating in the Brazilian market for 60 years, in 16 states: Magazine Luiza. Assuming that the company has been expanding its investment in recent years and is part of a minority of publicly traded companies in this industry, it is expected to obtain the company's value using the Discounted Cash Flow and Relative Valuation methods (Multiples).

### 1.2 Developing the Study

It all started in November 1957 when the couple Luiza Trajano Donato and Pelegrino José Donato bought a small department store called “A Cristaleira”. In the same year, after a cultural contest on local radio, the customers themselves chose their new name: Magazine Luiza. At that time it was difficult to imagine that a store with only 500 m<sup>2</sup>, in the country of São Paulo, Franca, would become an icon of national retail.

In 1966, in addition to the implementation of the first administrative headquarters, two members joined the company's team of partners: Wagner Garcia and Maria Trajano Garcia, Luiza's brother-in-law and sister. The expansion of the store to just over 5,000 m<sup>2</sup> was reopened in 1974 and the addition of new partners in 1976: Wagner Garcia Júnior, Onofre de Paula Trajano

and Luiza Helena Trajano, the later, a niece of the entrepreneurial couple. In the same year, the company acquired Lojas Mercantil in Barretos, Igarapava and Franca.

The company began to be enthusiastic about market trends in the 1980s, being one of the pioneers in the implementation of a computer system in stores and an automated system already at the inauguration of its first Distribution Center in Ribeirão Preto. In the same decade, it went beyond the borders of São Paulo state and began to operate in Minas Gerais state.

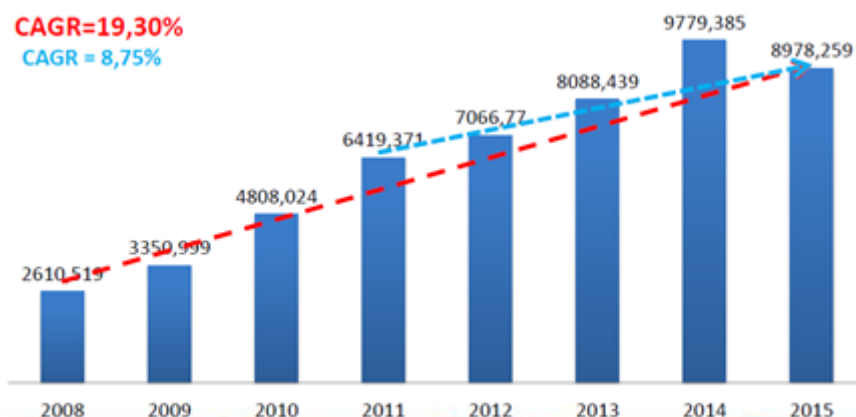
The creation of Holding LTD in 1991 represented a major step towards the expansion and development of its network. In the same year, Luiza Helena Trajano, after spending her entire working career with her uncles, takes over the presidency. Later on, other acquisitions marked the company's history. In 2003, for example, the holding company acquired Lojas Líder in Campinas, Rede Wanel in Sorocaba and created 60 integrated outlets, acquired Lojas Arno, Lojas Base, Kilar and Madol in Rio Grande do Sul, in addition to creating stores in Santa Catarina and Paraná. In the Northeast region of the country, the holding company bought Lojas Maia, Lojas do Baú da Felicidade and Campos Floridos (Época Cosméticos).

Technology and Innovation have always been allied to the company. In 1992, Magazine Luiza added the Virtual Stores method, where salespeople present products to customers without having to expose products in stock. In 1999, he created his own website and opened a technological store that displays his products interactively at Shopping Iguatemi in Ribeirão Preto, in 2013. In 2014, LuizaLabs was created aiming a better shopping experience for its customers and, in 2015, a new application, Mobile Vendas, was launched in 180 stores.

Magazine Luiza's trajectory is also made by valuable partnerships in its business. In 2001, it was associated with Itaú / Unibanco, creating Financeira Luíza Cred. In 2005, LuizaSeg was created, a hospital, dental, residential and life insurance company in partnership with Cardif. In 2006, it entered into a partnership with Google by creating an exclusive channel on Youtube to demonstrate its products. Luiza Helena Trajano was elected president (2009-2010) of the Institute for Retail Development. In 2012, it partnered with Claro to offer promotions and free access to social networks with Luiza Chip.

As a result of this expressive growth and having consolidated large investments along its journey, in April 2011, the Brazilian retail company had a total of 22,248,933 (twenty-two million, two hundred forty-eight thousand, nine hundred thirty-three) shares. It was decided by the Board the company would meet a capital structure target with 40% of own capital and 60% third party capital.

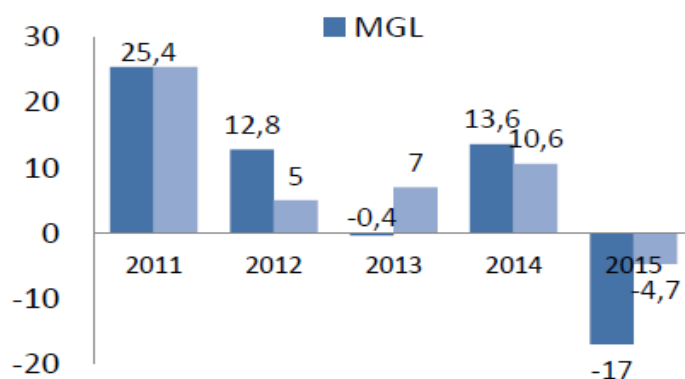
Of these shares, 28% are in circulation for approximately R \$ 34.00 on the Brazilian stock exchange, B3 (Brasil, Bolsa, Balcão). The company closed 2015 with 786 stores spread across the national territory, 9 Distribution Centers, 114 virtual stores and 1 own sales website.



**Figure 1** Growth in Net Revenue

Source: Magazine Luiza (2016).

The company's compound annual growth rate (CAGR) is 19.30%, since 2008. If the period after the IPO is considered, the annual growth reaches 8.75%. Magazine Luiza (MGL) is a national company with all its transactions carried out on the domestic market. It can be seen that MGL shows growth slightly above the sector, in the year of its opening and in its subsequent period, as can be seen in Figure 2, followed by two moments with considerable declines in its proportion of sales. This fact can be explained by the Brazilian economic context, which had a significant contraction in the economy, affecting the entire national scenario, including the retail sector.



**Figure 2** MGL and Sales Growth (in%).

Source: Economática®.

At the end of 2015, a relevant fact called the attention of the large multinational retailer Alpha Varejo: the renewal of the strategic alliance agreement with BNP Paribas Cardif and LuizaSeg for 10 years. This renewal represented the receipt of an amount of R\$ 330,000,000.00 intended, in most of its part, to meet the goals of expansion and creation of new products.

Despite having a large amount of debts, MGL got the interest of Alpha Varejo, which made an offer to purchase the company by R\$ 4,000,000,000 (four billion reais), at the beginning of the year 2016.

Luiza, the company's president, was thoughtful and decided to call a consulting firm, specialized in Valuation, to help her in the arguments for or against the company sale, so that she could then take a proposal to the deliberative Board.

You are the owner of the consulting company! Did Alpha Varejo make a good proposal?

## 2 Teaching Notes

### 2.1 Teaching Objectives

The case in question has two educational objectives. The first of them, from a cognitive point of view, has as its proposal: a) to promote the problem analysis, to propose and inquire decisions regarding the evaluation of companies; b) stimulate reflection between the theory that supports the purposes of company valuation and the way it should be developed and applied within organizations; c) expand the student's ability to relate theoretical valuation assumptions and their adequacy to reality.

The second element, deals with the behavioral point of view, as it allows students and professors to use this instrument to propose healthy dialogues and discussions so that there is mutual respect for divergent opinions and ideas, allowing each participant to expose their points of view without retaliation.

### 2.2 Source of Data Collection

The data presented was obtained from data made available by the investor relations page of MGL and B3 website, in March 2016. These data comprise the financial information, relevant facts and explanatory notes, therefore real data. On the other hand, the existence of Alpha Varejo and its proposed acquisition of Magazine Luiza, for educational purposes, is considered as a hypothetical situation.

### 2.3 Use of the Teaching Case

It is suggested that the case is applied to undergraduate or graduate students in Administration or Accounting Sciences, or even in other business areas, in disciplines aimed at analyzing the financial viability of companies and *valuation*.

### 2.4 Suggestion for the Teaching Plan

This case allows the professor to explore two focuses of study. A possible focus can be used when the professor wants to consolidate theoretical concepts and assumptions for conducting a company evaluation. In this case, the objective should be the discussion of isolated concepts and their practical application. The professor should choose this proposal when it is relevant to make clear: the weighted cost of capital (WACC) calculations; the calculation of the company's free cash flow (FCL); the calculation of the Beta ( $\beta$ ) of the company and its leverage. Therefore, the professor can use the case concomitantly with the didactics of the content,

alternating between theory and practice. The activity can be done individually or in small groups (up to three students).

The second focus of study is the assessment of companies themselves. Thus, it is essential that the professor has already given the content of the discipline and then the study will serve as a consolidation of the previously established knowledge. It is suggested that the class divides into student groups of up to five members. The focus of this study should be on valuation practice, emphasizing theoretical concepts, seeking to promote students the content learning, motivating the ability to understand the proposal study.

As there are different possibilities for answers, it is important the professor teaches in a class to conclude the study, problematizing the discussions and comparing the results and obtained conclusions, showing the differences of each approached method.

## 2.5 Questions for Discussion

- A) Considering a reinvestment rate of 8% of EBIT, calculate the company's free cash flow at the end of 2015.
- B) Determine the company's estimated growth period, based on well-founded assumptions.
- C) Calculate the Beta index ( $\beta$ ) of the company under analysis. Tip: The company's historical quotation data or prof. Damodaran, available at: [www.stern.nyu.edu/~adamodar/pc/datasets/betaemerg.xls](http://www.stern.nyu.edu/~adamodar/pc/datasets/betaemerg.xls)
- D) From the data provided:
  - 1) Determine the company's cost of equity ( $K_e$ ). Remember that you will need the country risk rate, risk-free rate and the market risk premium. Tips:
    - A. For the risk-free rate, you can use the information available at: <http://www.bloomberg.com/markets/rates-bonds/government-bonds/us>
    - B. For country risk rates and premium risk, you can consult the information available at: [www.stern.nyu.edu/~adamodar/pc/datasets/ctryprem.xls](http://www.stern.nyu.edu/~adamodar/pc/datasets/ctryprem.xls)
    - C. For inflation difference, you can use the information available at: <http://www.tradingeconomics.com/united-states/inflation-cpi/forecast>
  - 2) Determine the cost of capital for third parties ( $K_d$ ).
  - 3) Calculate the weighted average cost of capital (WACC)
- E) Determine the company's value using the Discounted Cash Flow method. Based on this information, should President Luiza accept the proposal of the company Alpha Varejo or not?
- F) Considering that the company accepted Alpha Varejo's offer, did President Luiza make a good decision?
- G) Search for information from comparable companies and determine the company's value using the Multiples Valuation method. Does the share value found corroborate the traded value on the stock exchange in 2016 and now?



## 2.6 Brief Literature Review

Due to the context of globalized markets, organizations face increasingly fierce competition on a daily basis. In the search for attracting capital, they seek to generate value for the company, in order to compensate the risks assumed by investors.

According to Copeland, Koller and Murrin (2006), value creation occurs when there is a return on invested capital that exceeds the opportunity cost of this capital. For Silva, Morgan, Machado and Montebelo (2019) when an investor buys shares in a company, his main expectation is to get back a larger amount than was invested, so he expects his wealth to have increased. Lopes, De Luca, Góis and Vasconcelos (2017, p. 369) believe that “the act of creating value is intrinsically related to the economic value of the company's profit”. The creation of value provides benefits not only for the organization and its investors, but also for the whole society. In order to identify whether the company is creating value, it is necessary to appropriate some measures of value that are influenced by financial and non-financial value drivers. One of the most widespread measures of value identification is Discounted Cash Flow (Copeland, Koller, & Murrin, 2006).

Using the Discounted Cash Flow (DCF) approach, the company's value is determined from the projected discounted cash flows at a rate that reflects both the opportunity cost of that investment and the risks associated with them (Soutes, Schvirck, Martins, & Machado, 2008). Therefore, future cash flows are brought to present value.

The valuation of companies by the DCF method can be done in two ways: by the shareholder's participation in the business (*equity valuation*) or by the company in general (*firm valuation*). There are two differences between them: the calculation of Free Cash Flow and the discount rate used (Pasin, 2004). Copeland, Koller and Murrin (2006) define the cash flow structure as:

- (=) EBIT (Earnings before interest and taxes)
- (-) Income tax on operating income
- (=) NOPAT (Net Operating Profit after taxes)
- (+) Depreciation
- (=) Operating cash flow
- (+/-) Variation in Investments in Fixed Assets
- (+/-) Working Capital Variation
- (=) Free Cash Flow of the Company**
- (-) Interest Payment
- (+) Income Tax (tax benefit)
- (-) Loan Amortization
- (+) New borrowings
- (+) Free Cash Flow for Shareholders**

For purposes of calculating the present value of cash flows, when using the company's operating cash flow or Free Cash Flow (FCF), the weighted average cost of capital should be used as a discount rate. But, if you use free cash flow for the shareholder, you must use the cost of equity (Pasin, 2004).

To calculate the present value of the company's cash flows, the formula is used:

$$\text{Company Value} = \sum_{t=0}^{t=n} \frac{\text{FCL}_{(t)}}{(1+\text{WACC})^t} \quad (1)$$

where:  $[\text{"FCF"}]_{(t)}$  is the company's Free Cash Flow projected in period  $t$  and "WACC" is the weighted average cost of capital.

Copeland, Koller and Murrin (2006) describe the steps to evaluate a company using the FCF method. First, the appraiser must analyze the company's historical performance, then project the future performance that corresponds to the generation of future cash flows; after the weighted average cost of capital must be estimated; finally, one must estimate the perpetuity value and then calculate and interpret the results.

The generation of future cash flows is divided into two stages. The first refers to an explicit period of firm growth, given by a rate  $g$ . According to Assaf Neto (2003, p. 594), the growth period can be "verified in the first years of investment. This period is generally estimated based on the possible performance of predicting the market and the economy, and on the company's participation potential".

The second moment is given by the perpetuity period. According to Martins (2001), it is one of the important elements in the company's evaluation, and is given by the formula:

$$\text{Perpetuity} = \frac{\text{FCF}(t) \times (1+g)}{\text{WACC}-g} \quad (2)$$

For Cunha (2011), there are two conditions for using the FCF model. The first is that, in perpetuity, the growth rate ( $g$ ) must be less than or equal to the growth rate of the economy where the company operates. The second condition is that the assumptions of the growth period must be well established, consistent with the characteristics of the company itself.

The definition of the discount rate is very important when evaluating the company using FCF method. The weighted average cost of capital model (Weighted Adjusted Cost Capital - WACC) is given by the formula:

$$\text{WACC} = [(K_d) \times X_d] + (K_e \times X_e) \quad (3)$$

where:  $K_d$  is the cost of capital for third parties;  $X_d$  is the relative share of third party capital in the company's total financing;  $K_e$  is the cost of equity and  $X_e$  is the relative share of equity in the company's total financing.

For the calculation of  $K_e$ , the most used model is the CAPM, developed by Markowitz (1952, 1959) and adjusted by Sharpe (1964); Lintner (1965) and Mossin (1966). The basic premises of this model involve market efficiency, where there are no transaction costs and investors do not have access to private information. In CAPM model, all market risk is captured in the calculation of Beta ( $\beta$ ), which is the measure of the asset's risk, in relation to a standard portfolio. Therefore, the cost of equity is given by:

$$K_e = R_f + \beta (R_m - R_f) \quad (4)$$

where:  $R_f$  is the return on the risk-free asset;  $R_m$  is the expected return for the market portfolio; the difference  $(R_m - R_f)$  is the risk premium for the medium risk asset.

The Cost of Capital of Third Parties  $K_d$  can be determined by weighting the costs of all the company's onerous debts. According to Assaf Neto (2009),  $K_d$  is defined by the onerous liabilities identified in loans and financing in force in the company, thus representing an explicit cost. So, the calculation of  $K_d$  can be given by the ratio between the financial expenses net of the tax benefit of the debt  $[DFx(1-t)]$  and the interest-bearing liability (IL).

Another model of company valuation widely used in academy and in the market is the relative valuation by Multiples. According to Santos, Schmidt and Fernandes (2006), this method is considered the simplest for evaluating a company, since only two data are needed to make the evaluation: (1) the value of a company or sample of similar companies; (2) a reference value (Multiple), which can be sales, net income, EBITDA, equity, among others.

For Damodaran (2007), many analysts prefer the Multiples assessment because it requires less time and resources when compared to the FCF method, therefore, easier to understand and with better results, in addition to considering important factors in the market.

Its applicability can be detailed by following a few steps: (1) identification of comparable assets that are priced by the market; (2) scaling of market prices in relation to a common variable; (3) adjustment of differences between assets.

According to Fernandez (2001), the most used multiples are: the Price / Profit ratio (P / E); the company value / EBITDA ratio and the company value ratio and EBITDA growth. The P / E ratio can be used to compare different countries, when you want to identify under or overvalued markets; when you want to compare time periods; or for the comparison of companies (Santos, Schmidt, & Fernandes, 2006).

In the comparison among companies, the authors say the indexes do not carry meaning when the company has losses per share, although the use of normalized or average earnings minimizes the problem. In addition, volatility in earnings can cause the index to change significantly from one period to the next.

Damodaran (2007) points out the use of multiples can be given through data from the sector, but care must be taken when choosing companies that are even comparable, so that the subjectivity of the analysis is reduced.

### 3 Discussion

This study was developed to assist the professor in the learning process on *Valuation*, since it allows the practical application of the concepts, with regard to the evaluation of the company by the methods of FCF and by Relative Evaluation (Multiples).

Therefore, the guiding questions were constructed as a step by step to solve the explicit problem of the study, presented in the introductory part: *You are the owner of the consulting company! Did Alpha Varejo make a good proposal?*

As a starting point, the initial question encourages students to calculate the company's FCF. It should be clear to students the concept of cash flow and the formula that allows its calculation, which can be researched in Damodaran (2007), as seen in the previous session. Then, students should understand the reinvestment rate is given by:

$$\frac{(\text{investments in depreciation assets} + \text{investments in working capital})}{NOPAT} \quad (5)$$

Thus, the data provided for the year (reinvestment rate of 8% of EBIT) must be used to calculate the cash flow, which, in this case, will be given by NOPAT (net operating profit after taxes) - reinvestment rate. For the calculation of NOPAT, the data in the annex must be used.

With the FCFL for the end of the period (2015) calculated, students must determine the company's growth period. At this point, it is important the professor discusses what assumptions are used to project  $g$  rate.

According to Brigham, Gapenski and Ehrhardt (2001) different approaches can be used to estimate the growth rate, such as historical growth rates, the time period, the compound growth rate, the least squares regression and the model of growth through retention.

In the case under analysis, the text gives some evidence of the company's sustained growth, as shown by the value of the CAGR (Figure 1). An important information that students should be aware of is the renewal of MGL contracts for the next 10 years: *“A relevant fact, which occurred in late 2015, drew the attention of the large retail multinational Alpha Varejo: the renewal of the strategic alliance agreement with BNP Paribas Cardif and LuizaSeg for 10 years”*. This information supports the projection of the explicit period of growth.

For projection in the perpetuity period, the text gives indications of how the company Magazine Luiza behaves on the national scene. *“It can be seen that MGL shows growth slightly above the sector in the year of opening and in its subsequent period, as can be seen in Figure 2, followed by two moments with considerable declines in its sale proportion. This fact can be explained by the Brazilian economic context, which had a significant contraction in the economy, affecting the entire national scenario, including the retail sector.”*

These data are important to support growth assumptions in the long run. Students may indicate growth compatible with the Brazilian economy.

To calculate the company's Beta ( $\beta$ ), students have some possibilities. One of them is to use external sources, with B3 website, or to use IBOVESPA Index as a stock portfolio for the calculation of the conventional approach, which is given by the ratio between covariance (return on assets and return on portfolio) and variance portfolio return. The professor should discuss these choices.

Although the traditional approach is used by most analysts, beta estimation in relation to the market portfolio must take into account the estimate period, the return interval and the market index. Therefore, note that *“As a result of this expressive growth and having consolidated large investments along its journey, in 2011 the Brazilian retail company went public”*. In other words, the period for estimating the beta of the company MGL is short (5 years).

Therefore, another option may be more appropriate. Identifying the sector's beta and developing by the company's operational leverage can be a good option. For this, the formula given by:

$$\beta_L = \beta_U \times [1 + (1 - \text{Rate}) \times (D/PL)] \quad (6)$$

where:  $\beta_U$  is the beta identified by the sector; (1-Rate) is the income tax rate; D is the interest-bearing liability and PL is the equity.

The interest-bearing liability is given by the sum of short and long-term loans and financing available in the company's balance sheet, which is attached to the case. Equity can also be identified in the attachment.

For discussions on different methods of estimating the cost of equity, reference can be made to Martins, Galdi, Lima, Neczyk and Abe (2006). The authors aimed to investigate the existence of differences between the estimated values of  $K_e$ , based on 4 models: Gordon, CAPM, APM and Ohlson-Juettner.

It is important to discuss the application of these models to emerging markets. Cunha (2011) highlights the problem related to market integration. According to the author, the assumptions of the models underlying the CAPM are unrealistic for markets such as Brazil, since the market is not efficient, in general, they are small markets, property is concentrated and information is scarce, volatile and unreliable.

So, it is suggested the use of the Damodaran (2007) model whose formula is:

$$K_e = R_{fUS} + R_{C_{BR}} + \beta_{LL} (R_{mUS} - R_{fUS}) \quad (7)$$

where:  $R_{fUS}$  is the American risk-free rate,  $R_{C_{BR}}$  is the premium for country risk in Brazil,  $\beta_{LL}$  is the beta leveraged by the company's capital structure and  $R_{mUS}$  is the return of the American market.

It is worth remembering that, if the rates are given in US\$ (dollars), it is necessary to discount the American inflation rate and add the Brazilian inflation rate, so that the data are in the national currency (R\$).

Regarding the capital cost calculation of third parties, Assaf Neto (2009) defends the use of the formula:

$$K_d = [DF \times (1 - \text{Rate})/PO] \quad (8)$$

It may be interesting that, in the development of the exercise, the situation of companies in the Brazilian market is discussed, since equation 8 suffers limitations in the national context and in most companies financial expenses from onerous liabilities are not separated from other financing expenses (Cunha, 2011).

Thus, an alternative capital cost calculation of third parties would be given by a function in which the debt cost is a function of default risk and the business itself. So, Damodaran (2007) suggests the following alternative formula for emerging markets:

$$K_d = R_{EUA} + S_{DP} + S_{DE} \quad (9)$$

where:  $R_{EUA}$  is the risk-free rate of the American market,  $S_{DP}$  is the country's default risk and  $S_{DE}$  is the assessed company's default risk.

After determining the costs of equity and third parties, students should calculate the weighted average cost of capital. In the description of the case, it is clear that the organization seeks a target capital structure: "It was decided by the Board the company would meet a capital structure target with 40% equity and 60% third party capital". This information is relevant to apply Modigliani and Miller (1963) model, given by the formula:

$$WACC = \left[ Ke \left( \frac{PL}{P} + PL \right) \right] + \left[ Ki \left( \frac{P}{P} + PL \right) (1 - rates) \right] \quad (10)$$

where:  $Ke$  is the cost of equity,  $PL$  is equity,  $P$  is liabilities and  $Ki$  is the cost of capital for third parties. The professor will be able to incite the discussion about capital structure in Brazilian companies. In order to accomplish it, the article by Brito, Corrar and Batistella (2007) can be a good reference.

With the following data defined: (1) the amount of cash flow at the end of 2015; (2) the company's growth rate in the explicit period and in perpetuity; (3) the company's growth period; (4) the discount rate; the student will be able to calculate the company's value using the FLD method, using the equation:

$$Company\ Value = \sum_{n=1}^t \frac{CF_n}{(1 + K)^n} + \frac{VR}{(1 + k)^t} \quad (11)$$

Once the company's value has been found, the student will be able to assess whether the Alpha Varejo company's proposal is reasonable or not. It is important to note that since the calculations can follow different models and premises, it is possible and likely that different groups of students will find different results. This situation is favorable for the debate on the possible models for calculating the company's value.

Finally, students must use another methodology to find the company's value: Relative Evaluation (Multiples). To do so, they must choose a multiple that best expresses the relationship with the company and identify a company (or a group of comparable companies).

Students will be able to search beyond the case, using sources such as Economática®, B3 website (Brazil, Bolsa, Balcão), specialized websites such as prof. Damodaran, among others. Then, they will be able to calculate the company's value based on comparable ones, thus being able to evaluate Alpha Varejo's proposal.

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APPENDIX 1. Income Statement - Magazine Luiza (MGL) - In Millions of R\$

<b>DRE MGL (in R\$ Millions)</b>	2015	2014	2013	2012	2011	2010	2009	2008
<b>Receita Bruta</b>	10.498,3	11.504,7	9.692,4	8.456,1	7.601,3	5.692,0	4.129,7	3.413,3
Impostos e Cancelamentos	(1.520,1)	(1.725,3)	(1.604,0)	(1.389,3)	(1.182,0)	(884,0)	(778,7)	(802,8)
<b>Receita Líquida</b>	8.978,3	9.779,4	8.088,4	7.066,8	6.419,4	4.808,0	3.351,0	2.610,5
Custo Total	(6.399,6)	(7.086,9)	(5.825,4)	(5.057,8)	(4.275,1)	(3.166,3)	(2.140,2)	(1.603,1)
<b>Lucro Bruto</b>	2.578,6	2.692,5	2.263,0	2.009,0	2.144,3	1.641,8	1.210,8	1.007,4
Despesas com vendas	(1.720,8)	(1.746,3)	(1.513,8)	(1.404,1)	(1.271,0)	(960,2)	(805,8)	(698,5)
Despesas gerais e administrativas	(458,5)	(442,6)	(403,7)	(372,2)	(354,6)	(248,9)	(163,5)	(130,4)
Perda em liquidação duvidosa	(30,5)	(22,5)	(21,2)	(23,5)	(244,9)	(175,3)	(190,4)	(157,2)
Equivalência patrimonial	75,6	99,6	54,5	18,0	-	-	-	-
Outras receitas operacionais, líquidas	20,2	24,5	98,2	31,7	26,8	62,5	13,6	11,8
Total de Despesas Operacionais	(2.113,9)	(2.087,2)	(1.786,1)	(1.750,0)	(1.843,7)	(1.321,8)	(1.146,2)	(974,3)
<b>EBITDA</b>	464,7	605,3	476,9	258,9	300,6	319,9	64,6	33,1
Depreciação e amortização	(125,8)	(114,3)	(102,0)	(92,4)	(86,9)	(68,5)	(60,6)	(49,8)
<b>EBIT</b>	338,9	490,9	375,0	166,5	213,7	251,4	4,0	(16,7)
Despesa Financeira Total	616,4	457,2	313,4	251,6	217,4	178,0		
Resultado Financeiro	(486,1)	(360,7)	(244,0)	(203,8)	(165,7)	(141,5)	(140,6)	(104,1)
<b>Lucro Operacional</b>	(147,1)	130,2	131,0	(37,3)	47,9	110,0	(136,7)	(120,8)
IR / CS	81,5	(1,6)	(17,2)	30,6	(36,3)	(41,1)	43,9	44,1
<b>Lucro Líquido</b>	(65,6)	128,6	113,8	(6,7)	11,7	68,8	(92,7)	(76,7)

Source: Magazine Luiza (2016)

## APPENDIX 2. Balance Sheet - In R\$ Millions

<b>ATIVOS</b>	2015	2014	2013	2012	2011	2010	2009	2008
<b>ATIVOS CIRCULANTES</b>								
Caixa e equivalentes de caixa	617,5	412,2	280,3	418,9	173,1	328,9	192,4	35,5
Títulos e valores mobiliários	497,6	451,0	491,3	126,4	75,0	46,7	39,2	50,8
Contas a receber	435,2	618,3	530,6	486,5	1.927,8	1.524,7	1.188,6	996,7
Estoques	1.353,1	1.472,7	1.251,4	1.068,8	1.264,7	849,8	518,6	380,8
Partes relacionadas	86,2	93,2	108,9	73,6	42,6	36,0	18,6	20,5
Impostos a recuperar	334,3	295,6	218,6	208,5	24,6	46,5	29,6	19,4
Outros ativos	36,6	52,9	41,0	38,0	59,4	63,0	24,2	16,7
<b>Total dos ativos circulantes</b>	<b>3.360,5</b>	<b>3.395,9</b>	<b>2.922,0</b>	<b>2.420,6</b>	<b>3.567,1</b>	<b>2.895,6</b>	<b>2.011,2</b>	<b>1.520,4</b>
<b>ATIVOS NÃO CIRCULANTES</b>								
Títulos e valores mobiliários	46,7	-	-	-	43,3	32,0	24,0	-
Contas a receber	2,6	5,0	4,7	0,4	9,4	18,7	24,8	34,4
Imposto de renda e contribuição social diferidos	229,3	146,4	139,4	148,3	178,9	168,2	162,5	121,0
Impostos a recuperar	177,3	106,5	158,8	137,4	31,0	10,2	-	-
Depósitos judiciais	248,5	209,6	170,1	129,3	89,0	-	-	-
Outros ativos	54,3	52,0	45,4	39,6	19,8	69,6	27,1	19,7
Investimento em controladas	384,0	319,6	251,7	222,9	-	-	-	-
Imobilizado	578,6	566,2	540,4	574,0	489,9	358,8	298	310,7
Intangível	506,7	488,8	481,4	435,3	448,9	374,6	87	90,3
<b>Total dos ativos não circulantes</b>	<b>2.228,0</b>	<b>1.894,1</b>	<b>1.791,9</b>	<b>1.687,2</b>	<b>1.310,2</b>	<b>1.032,2</b>	<b>622,8</b>	<b>576,1</b>
<b>TOTAL DO ATIVO</b>	<b>5.588,5</b>	<b>5.290,0</b>	<b>4.713,9</b>	<b>4.107,7</b>	<b>4.877,4</b>	<b>3.927,8</b>	<b>2.634,0</b>	<b>2.096,5</b>
<b>PASSIVOS</b>								
<b>PASSIVOS CIRCULANTES</b>								
Fornecedores	1.894,2	1.789,9	1.651,5	1.326,3	1.267,8	1.132,3	696,0	428,1
Empréstimos e financiamentos	568,4	591,4	425,2	317,2	129,7	108,8	168,1	381,0
Depósitos interfinanceiros	-	-	-	-	981,5	852,7	569,0	439,2
Operações com cartões de crédito	-	-	-	-	436,1	220,2	120,5	57,5

(Continua)

(Continuação)

Salários, férias e encargos sociais	153,9	167,4	166,6	138,3	121,6	116,5	69,1	56,9
Impostos a recolher	30,6	44,6	41,7	47,8	49,3	39,4	28,8	38,6
Partes relacionadas	68,4	80,3	73,6	51,1	25,5	21,7	13,9	9,5
Impostos parcelados	-	6,5	8,3	9,1	2,9	43,0	39,1	0,4
Receita diferida	41,4	37,7	36,7	37,1	24,1	26,0	55,0	13,9
Dividendos a pagar	-	18,3	16,2	-	1,7	-	-	-
Provisões técnicas de seguros	-	-	-	-	32,5	22,9	23,1	22,6
Outras contas a pagar	118,0	95,2	107,7	80,9	94,6	102,4	54,7	32,2
<b>Total dos passivos circulantes</b>	<b>2.874,8</b>	<b>2.831,4</b>	<b>2.527,6</b>	<b>2.007,9</b>	<b>3.167,1</b>	<b>2.685,9</b>	<b>1.837,3</b>	<b>1.479,9</b>
<b>PASSIVOS NÃO CIRCULANTES</b>								
Empréstimos e financiamentos	1.255,0	1.120,2	895,1	918,8	581,7	666,1	527,7	439,9
Depósitos interfinanceiros	-	-	-	-	-	4,0	4,3	10,2
Impostos parcelados	-	-	-	1,8	4,4	6,3	12,9	1,5
Provisão para riscos tributários, cíveis e trabalhistas	243,4	265,7	245,9	187,6	173,4	182,0	26,3	51,6
Provisões técnicas de seguros	-	-	-	-	17,9	20,8	12,2	9,0
Receita diferida	550,9	315,9	349,2	375,2	294,3	296,1	217,9	17,7
Imposto de renda e contribuição social diferidos	-	-	-	-	10,8	13,7	-	-
Outras contas a pagar	2,3	2,4	1,5	0,6	6,9	5,4	1,4	-
<b>Total dos passivos não circulantes</b>	<b>2.051,5</b>	<b>1.704,1</b>	<b>1.491,7</b>	<b>1.483,9</b>	<b>1.089,3</b>	<b>1.194,4</b>	<b>802,7</b>	<b>529,9</b>
<b>PATRIMÔNIO LÍQUIDO</b>								
Capital social	606,5	606,5	606,5	606,5	606,5	43,0	220,0	220,0
Reserva de capital	14,6	10,1	5,6	2,8	-	-	-	-
Ações em Tesouraria	(9,6)	(20,2)	(20,1)	-	-	-	-	-
Reserva legal	16,1	16,1	9,7	4,0	4,0	3,4	0,0	6,8
Reserva de retenção de lucros	36,2	143,2	94,5	2,6	10,4	1,0	0,7	-
Outros resultados abrangentes	(1,6)	(1,3)	(1,6)	0,1	-	-	-	-
Lucro/Prejuízos acumulados	-	-	-	-	-	-	(226,7)	(140,2)
Total do patrimônio líquido	662,2	754,5	694,6	616,0	620,9	47,4	(6,1)	86,6
<b>TOTAL</b>	<b>5.588,5</b>	<b>5.290,0</b>	<b>4.713,9</b>	<b>4.107,7</b>	<b>4.877,4</b>	<b>3.927,8</b>	<b>2.634,0</b>	<b>2.096,5</b>

Source: Magazine Luiza (2016).