CFA Institute Research Challenge

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Team 2

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Vivara, is it time to engage? Initiating coverage with BUY

Investment Highlights

We are initiating coverage on Vivara (VIVA3) with a BUY recommendation and a Target Price of BRL 32.8/share for 23E, representing a 28.2% upside from current levels. Our rating is based on three pillars: (I) The Brazilian jewelry sector is resilient and is going through a consolidation; (II) Vivara's business model ensures brand awareness, scale, and vertical integration; and (III) A promising expansion exploring Vivara and Life potentials.

A fragmented and resilient industry

The Brazilian jewelry sector is resilient, with a market size CAGR of 4.6% from 2007 to 2019. Even though it is a discretionary service, it is not harshly impacted by crisis. Furthermore, historically this sector has been performing steadfastly despite being sensitive to the volatility of raw material prices and exchange rates, underscoring its resilience. Looking at the present, this vision is confirmed, given that the recovery in 2022 has been stronger than expected.

From the competitive perspective, the market is fragmented and largely informal, resulting in only 22.3% of the share coming from the top 4 players. Nonetheless, Vivara appears to be on the right track for consolidation, as its market share has been growing at a fast pace, jumping from 11.4% in 2019 to 16% in 2022, significantly increasing the gap to HStern, which is the second most prominent player, which is stagnated at 2.5% share. During the pandemic, many smaller players were forced to close stores, boosting this consolidation trend since Vivara already had enough scale to serve its final customers through eCommerce.

A brilliant business model seizing a precious consolidation opportunity

Even though there is a favorable scenario for consolidation, Vivara is the most prepared player because it has a solid business that ensures vertical integration, scale, and brand awareness.

(I) Vertical integration: Vivara enjoys tax benefits due to the location of its industries and distribution centers. Also, the factory allows the company to create new lines of products rapidly, optimize product composition for different macroeconomic scenarios, and adapt its mix for other clusters, mitigating markdown risk.

(II) Scale: Scale allows Vivara to dilute costs and gain bargain power on negotiations with malls. Moreover, the creation of an all-silver line such as Life, only makes sense when one already has enough points of sale and scale, since a vertically integrated silver pieces production requires a lot of sales volume to justify the investment. Lastly, no competitor can match the company's expenditure structure regarding marketing, which is key to growing in the sector.

(III) Brand: Vivara's solid brand awareness and product quality, combined with exposure to higher income groups, has created a substantial pricing power. Another benefit from strong awareness is the credibility to launch trends, new collections and even new brands, such as Life, that seizes Vivara's strong name.

The true gold mine is actually in selling silver…

The essential piece that supports Vivara's market share rise is its organic growth. The company's strategy consists in occupying the best available malls with Vivara and replicating the primary store footprint to Life standalone. For the Vivara brand, the focus is currently on smaller cities, as the best malls are already penetrated. For the Life brand, the focus is on densification, so the main targets are malls where the company already operates with the original line, thus minimizing risks and enjoying bargain power. Life stores' returns on invested capital are even more attractive than Vivara stores. Life stores present a higher gross margin due to the bigger exposure to silver products. Therefore, we believe that the company will deliver a margin expansion due to the maturity of this brand. Since the IPO, VIVA3 has sat in a comfortable net cash position to support its upcoming CapEx cycle. Along with that, we see a company with high diligence about its leverage, despite this huge expansion plan, a low leverage added to solid operating trends should drive healthy growth.

Investment Risks - What can rust our thesis?

We believe that the main risks to our thesis and BUY recommendation involve three main spheres: (I) Market Risks, which deal with risks mainly linked to the competitive landscape, changes in consumer preferences and the entry of well-capitalized competitors; (II) Macroeconomic, although Vivara has solid pricing power due to its brand awareness, aspirational positioning and exposure to higher-income groups, all of which limit correlation with the overall macroeconomic scenario, a more extended period of poor economic activity could still negatively impact demand. This would be further intensified as Vivara enters less affluent markets and; (III) Business and Operation, which regards risks related to expansion, such as cannibalization, misleading acquisitions and loss of tax incentives. In 2021, more than half of Vivara's net income was composed by tax benefits. Notwithstanding that, considering that Amazonas state has been granting the tax benefit since 1967 to a lot of other companies and to Vivara specifically since 1992, there is a high probability that such benefits will keep being renewed. However, we acknowledge that a modification in Brazilian tax legislation represents a risk to the current company's positioning.

Equity Research | Nov. 07th 2022

CFA INSTITUTE RESEARCH CHALLENGE

Team 2 | Student Report

Rating	**BUY**
12M Price Target	BRL 32.83
Price *(as of nov. 7th 2022)*	BRL 25.60
Ticker	**VIVA3**

Stock Data

Market Cap (mn)	BRL 6,139
LTM Performance	-6.06%
Lowest Price (LTM)	BRL 20.16
Highest Price (LTM)	BRL 29.90
% Free Float	42.8%
Avg Daily Volume (000' shares)	1,242
Stock Exchange	B3 | Novo Mercado
Industry	Jewelry Retail

Last Update: 11/07/2022

Exhibit 1: VIVA3 vs. IBOV

VIVA3 vs. IBOV (oct 19 = 100)

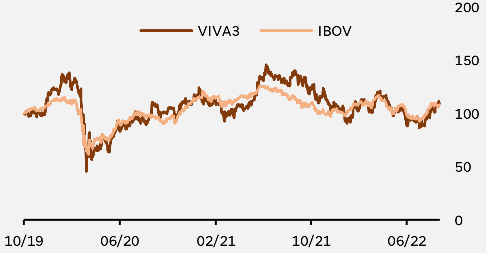
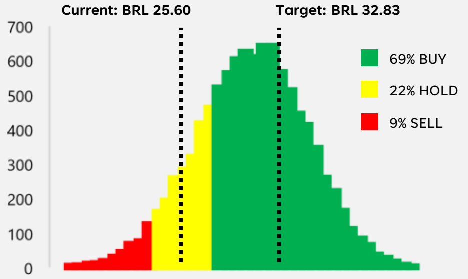


Exhibit 2: Monte Carlo Simulation



Highlights		21'	22E	23E	24E	25E	26E	27E	28E	29E	30E	31E	32E
Financial Estimates													
Net Revenue	[BRL th.]	1,466,387	1,590,179	2,045,722	2,618,615	3,326,055	3,955,973	4,494,691	4,954,833	5,364,535	5,656,441	5,894,126	6,280,153
Adj. EBITDA	[BRL th.]	286,349	255,707	376,862	543,071	756,033	959,053	1,137,262	1,295,400	1,436,787	1,540,440	1,624,687	1,725,471
Net Income	[BRL th.]	298,490	245,410	336,044	463,641	642,128	836,529	1,012,709	1,166,024	1,301,903	1,403,991	1,485,265	1,562,670
Margins													
Gross Margin	[%]	67.6%	67.2%	68.0%	69.2%	70.0%	70.5%	70.9%	71.2%	71.5%	71.6%	71.7%	71.8%
Adj. EBITDA Margin	[%]	19.5%	16.1%	18.4%	20.7%	22.7%	24.2%	25.3%	26.1%	26.6%	26.9%	27.1%	27.5%
Net Margin	[%]	20.4%	15.4%	16.4%	17.7%	19.3%	21.1%	22.5%	23.5%	24.1%	24.5%	24.8%	24.9%
Profitability													
ROA	[%]	12.7%	9.3%	11.2%	12.9%	15.1%	17.3%	19.1%	20.1%	20.7%	20.6%	20.2%	19.7%
ROE	[%]	23.3%	15.5%	18.9%	22.1%	26.0%	29.6%	32.3%	34.1%	34.9%	34.5%	33.5%	32.5%
ROIC	[%]	35.2%	17.1%	16.1%	17.2%	19.5%	22.5%	24.9%	26.5%	27.7%	28.6%	29.1%	29.8%
Operational Ratios													
Number of Stores	[#]	267	328	416	500	558	578	598	618	625	625	625	625
SSS	[%]	44.2%	13.7%	13.9%	17.6%	17.2%	16.5%	12.1%	9.2%	7.8%	6.1%	5.0%	4.9%

Business Outlook

Vivara Participações S.A. (IBOV: VIVA3) is Brazil's largest jewelry retail company, with more than BRL 1.8 bn in gross revenues in 2021. The company was founded in 1962, with its first opening in São Paulo, by the Kaufman family. In 1980, the company began operating in malls and created its watch portfolio, selling in-house-made products and third-party watches. The company has sealed partnerships with renowned watch retailers, such as Hugo Boss, Lacoste, and Tommy Hilfiger. In 1992, the company opened its factory in Manaus, starting its vertical integration, a strategic decision that has proven to be the right one since the tax benefits allowed the company to create a vast expansion process. In addition to that Vivara has two distributions centers which supplies stores via an airplane. During the 2000s, the company became the largest jeweler in Brazil, being an essential consolidating agent in the sector and reaching national coverage. In 2011 the company took another bold decision, expanding its portfolio to include silver pieces under another brand, Life by Vivara, which is currently the company's main growth avenue.

Vivara's Brands and Products

Vivara: Vivara is the company's original product line and most relevant brand (see Exhibit 4). It consists mainly of designing gold jewelry, having the highest company's brand average ticket.

Life by Vivara: The brand was created in 2011, targeting a different public: a younger and less traditional audience looking for cheaper yet stylish jewelry. Life pieces are mostly made of silver, a material with better markup than gold, yielding better gross margins. Currently, this represents almost 30% of total sales.

Vivara Watches: The segment was created in 1980. Vivara has exclusivity in selling watches from well-known brands, such as Tommy Hilfiger, Lacoste and others. In addition to that, the company has its own brand, Vivara Watches. This segment represented 13% of 2021 revenue.

Vivara Accessories: Created in 2000, Vivara Accessories are various products from their brands and third-party brands. It has a revenue of BRL 45 mn, representing 2.5% of Vivara's 2021 Gross Revenue.

Sales Channels – Brick and Mortar leading the way

When looking at the jewelry market-share podium, Vivara is an absolute leader with about 16% market share, almost eight times the second largest player.

(I) Vivara's Stores: The company's main store is Vivara, which currently has 232 own points of sales, primarily located in malls, with a 38% penetration in the entirety of Brazilian malls. It had BRL 1.4 bn in sales in 2021, representing about 76% of the company's total revenue. Although it sells all of Vivara's brands, its focus is on selling higher-priced gold and gems jewelry, resulting in an average ticket of BRL 1,100, according to the company. This store model is already inserted in the best locations, limiting potential expansion.

(II) Life by Vivara Standalone: Launched in 2011 as a product brand sold inside Vivara stores, the Life by Vivara segment opened its first store in 2015, and today there are 53 stores in this model. Its focus is to sell silver items with a lower average ticket for a younger and more casual audience. Due to the potential openings, it is currently the main avenue of expansion, which is not yet fully penetrated in Brazilian's best malls. In 2021, one standalone Life store had gross revenue of BRL 63 mn, around 3.4% of the total gross revenue. Due to the accelerated growth of this model, most stores are not yet 100% mature, so we expect to see even better results in the future.

(III) Kiosk: This segment is increasingly losing its relevance with the closing of kiosks and migration mainly to new Life and Vivara stores. Despite this, it was the second most relevant until 2021, with a revenue of BRL 45 mn. We look at kiosks as strategic to evaluate potential mall openings, given their lower Capex than a store, which helps to reduce expansion risk.

(IV) eCommerce: Jewelry digital sales have just started blossoming worldwide. Vivara is beginning to see a gain of relevance on this channel, especially after COVID-19. This channel also represents an integration with physical stores, given the omnichannel strategy that supports the customer during the purchase. The participation of eCommerce in Brazil's jewelry industry has not rapidly increased like other retail segments, such as electronics. Nonetheless, it has been gradually gaining share looking at the whole industry, but we expect the participation on Vivara results to return to levels slightly bigger than pre-pandemic.

Clusterization: Vivara and Life stores' performance and sales mix are highly dependent on the income exposition of the point of sale. For instance, Morumbi Shopping, which is in a wealthy and populated São Paulo area, has a yearly store revenue of approximately 40 BRL mn, much higher than the average Vivara store of 7,17 BRL mn. Therefore, properly understanding the differences between stores with distinct income exposition is imperative. To do so, we can cluster points of sales into four groups: AA, A, B and C. Noticeably, the lower the cluster, the higher Life and watches participation in the sales mix, as seen in Exhibit 8. Therefore, the company adjusts the inventory and store display accordingly to the cluster's particularities (e.g., Vivara Cluster C must emphasize the watches showcase over jewelry).

A vertically-integrated company – Vivara's true hidden gem

Vivara's operating structure consists of two subsidiaries: **I) Tellerina**, which handles retail operations, and **II) Conipa**, responsible for manufacturing products. Around 80% of Vivara's products are made by Conipa and sold at an internal transfer price to Tellerina, which will then sell to the final consumer. Vivara has been operating Conipa in Manaus since 1992, and it was an absolute pioneer move. But why is this so important? Verticalization ensures the product's portfolio mix and design flexibilities, allowing the Company to adapt to new market trends. But the most important: having industry in Manaus grants tax benefits for Vivara.

Tax Benefits – a gift better than diamonds

Brazilian tax rules are complex, rigorous and an obstacle to entering the market. For instance, the tax rate for interstate circulation of jewels (ICMS) varies from 4% to 35%, depending on the state. In such scenario, what companies seek when opening a factory or distribution center is not necessarily the best geographical logistics but the most beneficial fiscal incentives. That said, Amazonas state presented the greatest scenario for Vivara, as Manaus free trade zone provides exemption or reduction of gross revenue incident taxes, and Incentive to Exploration reduces income tax and CSLL.

I) ICMS, IPI, PIS e COFINS and II: These are taxes that fall upon the gross revenue. The most important is the tax over the circulation of merchandise and services (ICMS), whose exemption is extremely relevant to the company, having accounted for 15% of its net income in 2021 (see Exhibit 5). Other fiscal benefits of the Manaus industry are the exemption from raw material and input imports on PIS e COFINS and an 88% reduction in Import Taxes (II). Finally, there is also a total exemption of IPI, which applies to all merchandise sales and distribution. The cherry on top of all these incentives is that they are accounted in the income statement. In other words, they are tax deductible in the calculation of income tax and CSLL.

II) IRPJ: Vivara also has benefits in the Income Tax for Legal Person, which is directly deducted from EBT. This incentive is available to all companies in the Manaus free trade zone and reduces 75% of taxes over the exploration profit.

However, all these deductions can not be directly distributed to shareholders in the form of dividends, thus generating Tax Reserves, which are, in simple words, extra cash. Currently, this cash is fueling Vivara stores' expansion plans. But, in the long term, we could see different applications as acquisitions or structuring financial revenues, like footwear retailer Grendene. On the one hand, we see these benefits as solid levers for Vivara's growth, but on the other hand, it is not an understatement to say that the company's health is very dependent on them.

Exhibit 3: A stable market size

Brazilian jewelry Total Addressable Market [BRL bn] | Source: Euromonitor

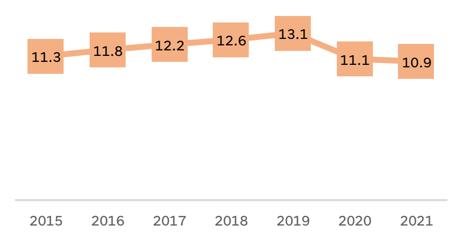


Exhibit 4: A Well Distributed Portfolio

Portfolio Mix, 2021 [%] | Source: Company Data

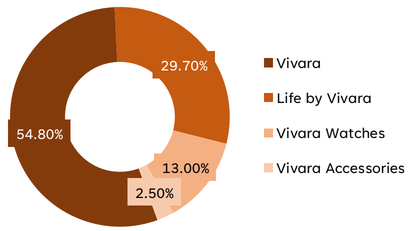


Exhibit 5: Tax Benefit Contribution

% of Net Income, [%] | Source: Company Data

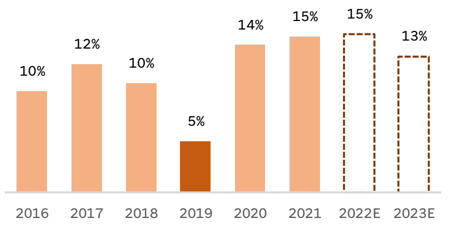


Exhibit 6: Market Share

% of Total Jewelry Market, [%] | Source: Company Data

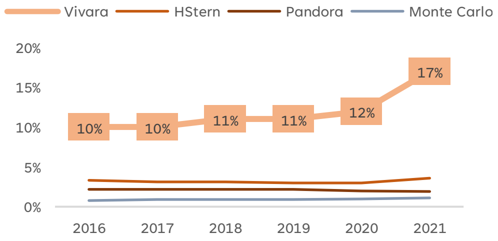


Exhibit 7: eCommerce penetration

Vivara vs General Jewelry Retail [%] | Source: Company Data

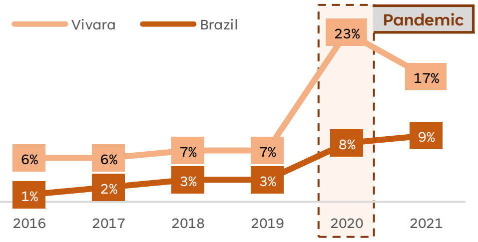
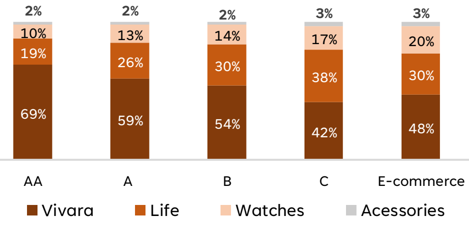


Exhibit 8: Vivara's Product mix

Product mix per Cluster Vivara and eCommerce [%] | Source: Company Data



Industry Outlook

The Brazilian jewelry industry is resilient, highly fragmented and somewhat sensitive to raw costs. According to Euromonitor, the industry's CAGR from 2007-2021 stood at a steady 2.4%. Also, the luxury sector in Brazil is not as attractive to global brands compared to huge markets such as the United States, China and Europe. Thus, leaving a gap that Vivara is currently filling.

Adjacent markets competing for the same Jewelry's customer

The jewelry market is ultimately a part of a broader context: gifting. Hence, we foresee an undirect competition with traveling, other luxury articles and gift shops. The adjacent markets mentioned are exceptional expenses in Brazilian households. Therefore, the decision to buy a jewel in a special circumstance of the customer's life may be overshadowed by the desire to travel or even seek another special gift elsewhere. To prove that point, we did field research *(see Appendix AH)* in which 80% of all interviewed that had bought jewels before mentioned gifting as the purchase reason.

Branded vs. Unbranded

Fine jewelry is synonymous of a Tiffany blue box or a Cartier red box, but, despite the prominence of these iconic brands, sales of branded fine jewelry only account for 20% of the worldwide market. Nevertheless, a McKinsey study shows that, by 2025, brands are set to take a bigger slice from the unbranded segment, representing up to 30% of the market. The rise of branded jewelry has already been a trend in the last 20 years, reinforcing the consultancy results (see Exhibit 12). We confirmed that trend by going to the field and interviewing Vivara clients. Our results showed that 75% of Vivara's customers have the brand as a decisive factor in the purchase process. Vivara may not yet have Tiffany's prestige, but it has built the best possible brand awareness for itself, considering the Brazilian scenario. At the end of the day, Vivara and Life balance exclusivity with middle-class affordability, becoming an appealing gifting option.

Resilience to Adversities – Tenacious sector

The jewelry industry is not among the exciting high-growth sectors, even so, it may present one of the greatest investing opportunities. The jewelry market size had grown for 13 straight years until it finally regressed in 2020 due to the pandemic. Even the extreme luxury sub-segment has presented steady results all around the globe. The stressed macro is not excessively damaging in the aftermath, but good economics doesn't hurt either. Hence, saying there is not much in the jewel industry is a complete overstatement. But how exactly is the market that stable and resilient?

(I) Cultural insertion: For over 3,500 years, jewels have been a part of almost every culture. Although designs and production have drastically changed, the essence of the product has remained intact. Keeping that in mind, jewels still play a big role in Brazilian society, being present on special occasions and everyday situations, such as weddings, birthday parties, and religious celebrations. Therefore, we believe that the obsoletion of the industry is more than unlikely. For instance, a drop in weddings during the pandemic may be a surprising growth driver as numbers stabilize, since wedding rings are culturally a must in every union. To put it in perspective, 2020 and 2021 had a decline of 250,000 and 80,000 weddings compared to the pre-pandemic average. If we abstract the problem and consider the wedding ring pair average ticket equal to BRL 800, this product has by itself made an approximately BRL 260 million impact in the sector.

(II) Top-notch clients: Although Vivara has an affordable luxury approach, jewelry customers are mostly from higher-income classes. Thus, the sector has clients less impacted by inflation (see Exhibit 9) and purchase volume does not necessarily drop.

(III) Gems and minerals are dollar dependent: Commodities are strongly correlated to the Exchange rates. We have reached an R2 of 0.9070 between gold prices and the peer USD-BRL since 2007. Therefore, a rising exchange rate substantially increases the Brazilian jewel sector's raw costs. Repass on costs is the sector's main growth driver and can be blatantly seen through a linear regression between the market size and exchange rates (USD–BRL). From 2007 to 2019 (excluding pandemical years), we reach a R2 of 0.9126. Rising exchange rates send sales volume down and yet the market size remains stable *(see Appendix N)*.

Resilient, but still a discretionary service

Even though being a resilient industry, long periods of poor economic development are concerns once it affects customer behavior. And, for the jewelry market, it is not a good picture a macro environment that favors savings over spending. The relation between savings as a percentage of GDP and jewel market size since 2007 is inversely proportional, with a -0.97 correlation coefficient. The takeaway is that the sector could suffer from a worsening in consumer trust.

A perfect scenario for consolidation

The Brazilian jewelry industry is singularly fragmented. Comparing it to international peers, we see space for consolidation on Life and Vivara's hands (see Exhibit 11). Approximately 23.6% of the market is concentrated in the top 5 players. The described scenario is changing in the last two years, this "dominant" group captured 7% market share, being 6% concentrated in Vivara. This market share move was also favored by the following sectorial dynamics:

(I) COVID-19 revealed the fiercer survivors: The COVID-19 crisis has shaken the sector, nonetheless, Vivara was able to thrive in the chaos and close 2020 gaining stores and decreasing only 10% of gross revenue. Most players were severely impacted by the pandemic losing a lot of revenue and closing stores this was the case of Pandora, which suffered especially from increasing exchange rates (see Exhibit 20) as well as HStern, whose revenue was almost reduced in half in 2020 *(see Appendix AC)*. If even some of the largest players, which had capital means and enough brand to adapt to the eCommerce have suffered, we are led to believe that smaller local stores, whose financials statements are inaccessible have been even more impacted.

(II) eCommerce – Millenary business adapting to new times: As a segment of the luxury market, jewels have always been sold through physical means, mostly due to the special treatment in the stores and somewhat lack of preference towards online purchases of delicate and high-priced items, represented by low eCommerce penetration in the sector. Nevertheless, the industry has adapted during the pandemic period, going from 3% to 8% of eCommerce penetration. In addition, jewelry retail revenue has suffered less than many public Apparel and Footwear companies, that were already more eCommerce ready. At the end of the day, COVID-19 has forced a digitalization tendency to be watched for the near future.

Vivara – Undisputed Leader in the digital: In this perfect storm, Vivara has claimed an advantageous positioning due to its scale, product sorting, customer trust, and branding. Due to its advantages, the company reached a 35% market share in digital sales (see Exhibit 14). In 2021 eCommerce has begun to slow down with physical traffic increasing and stores reopening, but the company did not stop improving its website, shifting from a slow Oracle platform to a faster VTEX framework as a measure to seize and maintain dominance over this channel of sales. To thoroughly analyze Vivara's eCommerce superiority, we wrote a Python code that simulated an online order of a specific product, "Essence Ring," for every city in Brazil. After that simulation, the code returned the delivery time for the particular location. We did the same procedure for Pandora. Thus, we were able to visualize that not only Vivara is the only player that can deliver to every Brazilian city, but also that it has the best delivery time. In the worst-case scenario, Vivara takes eight days to deliver, while Pandora, was 19 days. The takeaway is that Vivara is by far the best jewelry in the digital world, an achievement made possible by national coverage and a diluted cost structure that allows eCommerce upgrades *(see Appendix P)*.

Exhibit 9: Inflation per income class

Inflation by income [%] | Source: IPEA

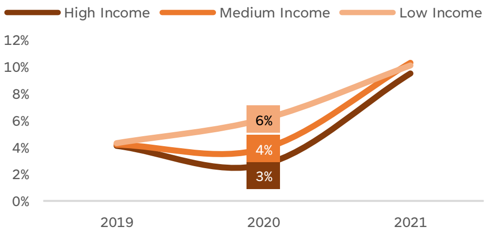


Exhibit 10: Retail growth in 2020

Revenue change 19-20 [%] | Sources: Companies, Euromonitor

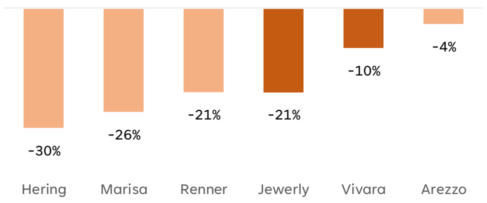


Exhibit 11: Concentration in different markets

Market Share of Top 5 players [%] | Source: Euromonitor

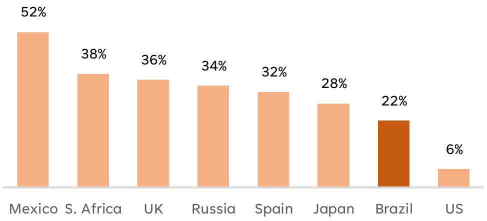


Exhibit 12: Branded vs unbranded jewelry

Branded x Unbranded [%] | Source: McKinsey

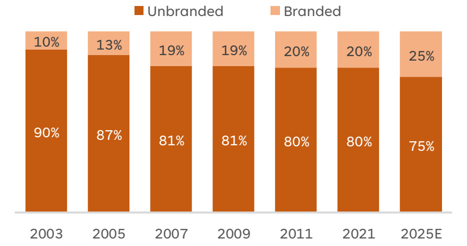


Exhibit 13: eCommerce coverage and delivery

Source: Team 2

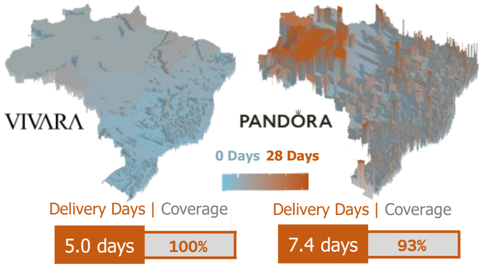
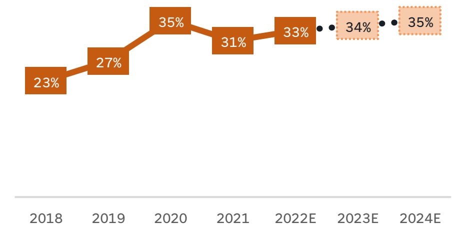


Exhibit 14: eCommerce market share

Vivara eCommerce market share [%] | Source: Team 2



Competitive Positioning

Vivara's business model is hard to replicate and can easily top global and local retailers. The company is the only one to successfully implement an accessible luxury strategy, reaching the middle class. Therefore, it competes with much higher average ticket retailers in the luxury segment and is almost homogenous in Life's silver product line. We highlight the three competitive advantages that provide this position.

(I) Assertive marketing strategy, putting Vivara in a unique market positioning. **(II) Scale**, ensuring cost dilution and bargain power with malls, reflected on A-1 positioning not only on the best malls but also inside them; **(III) Vertical integration**, with Manaus free trade zone providing key tax benefits and agile reaction to changes in the market.

Assertive marketing strategy

Vivara is playing chess not checkers - what has truly set them apart from local competition? During Nelson Kaufman's first years running the company, Vivara was just one among thousands of jewelry stores. Nevertheless, the founder's son has taken a series of proper steps toward success. For instance, Vivara was the first Brazilian jewelry to announce prices in the country's most-read magazines and was a pioneer in accepting 10x installment payments with no interest. A priori, those strategies sound insignificant, but they were crucial factors in attracting the middle class and eliminating the fear of entering a jewelry store. As a result, significant brand acceptance was generated, and the accessible luxury concept was effectively established. At present, it is safe to assume that those measures paid off.

Marketing bang for the buck is great: Vivara is not taking its foot out of the gas as marketing efforts are higher than ever. The company sealed a deal in 2012 that made Brazilian world-class model/influencer Gisele Bündchen (20mn followers on Instagram) the brand's face. Also, a recent partnership with Marina Ruy Barbosa (41mn followers) has effectively settled Vivara as an uncontested top-of-mind brand in Brazil.

But how is this marketing strategy translated into a competitive superiority?

To understand this point deeply, we conducted two studies: field research and webpage traffic analysis. In our field research *(see Appendix AH)*, we ran an online form and asked respondents to name the top three jewelry brands they remembered and some personal information such as gender and age. This analysis demonstrated that Vivara is a top-of-mind jewelry, as 79% of all interviewed remembered the brand, which was by far the most out of any other jewelry (Exhibit 15).

In addition, Vivara's webpage traffic is the most dominant compared to every other jewelry store. We highlight direct search data, which requires knowing the company's name and therefore indicates that it is the most known jewelry, as shown in (Exhibit 16). Finally, regarding social media exposition, Vivara tops every Brazilian competitor regarding Instagram followers with 2.7 million on the main account and 1.2 million on the Life one. Although numbers are terrific, they are restricted to the Brazilian population and are much lower than top global peers. Hence, any international expansion attempt would be very questionable.

Reaping the benefits from a golden past – Economies of scale

Vivara is an elephant amongst ants in the national jewelry sector, as it is safe to assume that it stands alone as the only incumbent. Solid strategy and execution in the past have led to the construction of economies of scale competitive advantages, which are expressed in 3 main ways: (I) Fixed costs dilution; (II) Bargain power over malls; (III) A1 positioning in the country's best malls.

Fixed costs dilution: Although nominally immense, the previously seen marketing expense is just a breeze through Vivara's cost structure due to its economies of scale. In Exhibit 17, scale is demonstrated, as Vivara's marketing expenses are very well diluted, at only 6% of net revenue. In comparison, the largest competitor would need at least 21% of net revenue to match Vivara's marketing expenditures.

Bargain power over malls: Today Vivara is present in around 38% of Brazilian malls, and its aggressive expansion forecasts a 50% occupation until 2024. The Brazilian mall industry fragmentation, along with Vivara's extremely strong brand and dominance in the jewelry sector, provides Vivara bargaining power in leasing negotiations. Given that the brand is a must in any relevant mall, it can, for instance, extinguish signing bonus payments, which substantially lowers the invested capital per opening, improving the store's 4-wall ROIC and the payback time.

Cornering the market: Nonetheless, the biggest benefit of such a strong brand and scale is the A-1 positioning inside the malls. The top spots which have the most foot traffic are corners. These vacancies are only given to proven, well-known retailers. Vivara has earned the right to take these places; therefore, its positioning is outstanding, with 74.3% of stores on corners. Compared to its main competitors, the fight for such spots is not close, as the second-best positioned HStern, has 53.8% of stores on corners, see Exhibit 18.

To further demonstrate the importance of corners, we conducted a Foot Traffic analysis using Google Cloud data and a proprietary algorithm written in R. The purpose of our code is to return the average traffic of all jewelry stores inside a studied mall, allowing us to compare traffic on each jewelry store quantitively.

We ran the algorithm for three different scenarios (see Exhibit 19 and *Appendix Q*) in order to contemplate malls of distinct clusters, as well as understand traffic differences between non-corner and corner Vivara stores. Our results reassure us that positioning is key in making Vivara the best in attracting bystanders to their stores.

Vertical integration – Efficiency and tax benefits

Also, in crisis times, verticalization brings forth an inventory adaptation ability from simple solutions, such as reducing the amount of gold and precious stones in products, to more elaborate plans, such as changing rings' radius or reshaping hard-to-sell jewels.

Emerging countries are a no-go neighborhood for global brands: Global competitors such as Pandora and Tiffany see Brazil as a secondary market due to exchange rate risks, unstable politics and smaller TAM. Therefore, they have little to no interest in verticalizing operations nationally, which restrains their potential growth. Importing jewels increases the average ticket, making them almost exclusively exposed to cluster A. Also, their inventories are much less dynamic, yielding to more vulnerability to the previously mentioned raw materials volatility issue.

Hence, it is no surprise that many Pandora stores did not survive the pandemic and that Tiffany, Bulgari, Hèrmes and Cartier have a hard time escalating their businesses here, as seen in (Exhibit 20). The weakening of those global brands leaves a gap in the market to be filled by Vivara.

To put it in perspective, Pandora imports all its products from Thailand, which may bring cost advantages in production. However, this gain is irrelevant face to a 16% importation tax, along with ICMS, PIS & COFINS. Nonetheless, taxes are only one of Pandora's problems. Exchange rates make franchising in Brazil challenging since shareholders expect returns in Denmark Krone, which is strongly correlated to the Euro. This has caused the cost of opening a franchise to rise a lot due to the weakening of the Brazilian Real. Also, prices must increase above the market to keep a satisfying markup.

National competitors trying to recover lost ground: Monte Carlo has recently begun attempting to transfer its industry to Manaus. With a 5 million BRL investment, they were able to move 20% of their production, which was enough for the CEO to preview a 10% drop in costs for 2022. Although national competitors have proved to be able to verticalize their operations and enjoy tax benefits, Vivara is still not reachable in terms of silver products production that requires much more volume and, therefore, scale than gold.

Exhibit 15: Share of mind

[%] | Source: Team 2 Field Research

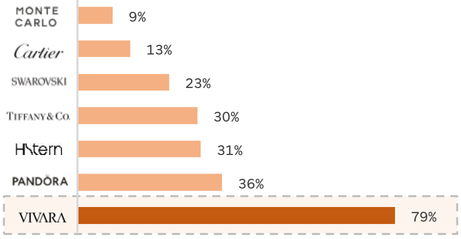


Exhibit 16: Organic Searches online

Brands direct searches [#] | Source: Semrush

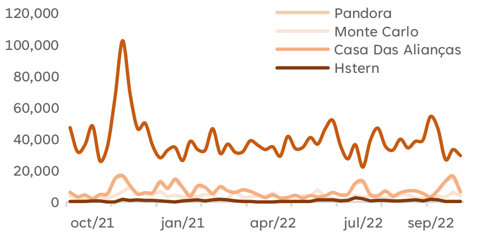


Exhibit 17: Marketing expenses

[BRL mn; %] | Sources: Company Data, Euromonitor

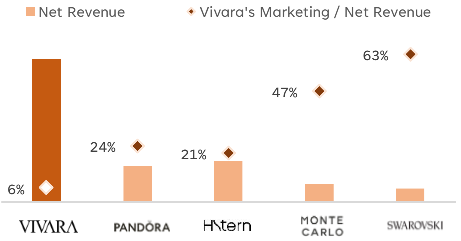


Exhibit 18: Corner Stores

Stores in corners over total stores [%] | Source: Team 2

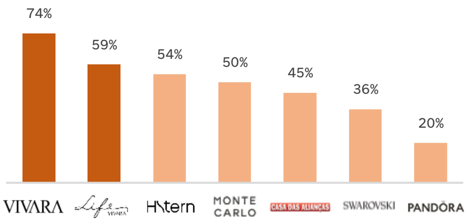


Exhibit 19: Foot Traffic – Morumbi

Source: Team 2

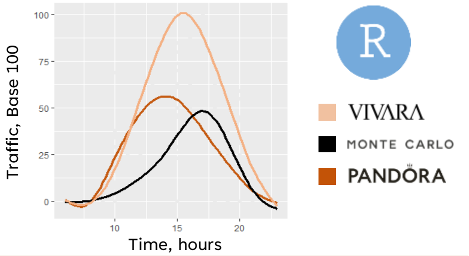
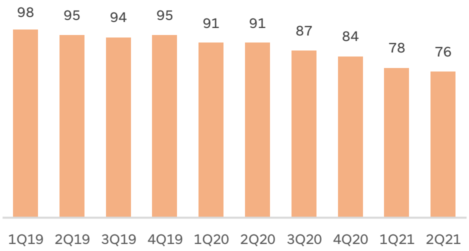


Exhibit 20: Brazilian Pandora Stores

Pandora Stores in Brazil [#] | Source: Company data



Words may convince some, only numbers convince us...

To wrap up, we know for a fact that Vivara has the best branding, best positioning inside malls, unmatched bargain powers on leasing negotiations and a unique verticalized business that provides both tax incentives and inventory flexibility. However, how genuinely relevant is inventory flexibility? Which player has the best pricing policy? To answer those questions, we developed a web scraping code for Vivara and each of its competitors, and with the aid of "The Wayback Machine" collected data since 2011 in order to analyze price changes, current prices, as well as a variation on inventory and resistance to macro.

Flexibility: We were able to prove that Vivara has a high capability of changing its inventory using a daily website scrapping, done with an authorial Python algorithm. Results showed that from the 2nd of September to the 20th of October, 47% of Vivara's SKUs were replaced. Meanwhile, Tiffany, Casa das Alianças and Pandora's inventory remained almost, if not, the same. In addition, with the Wayback Archives, we could see concrete changes in specific products to adapt to the market. For instance, as shown in Exhibit 24, the wedding ring "True Love" had its design changed in 2019 to decrease its total gold amount and lower the product's price, given that it is one of the category's entry points.

Vivara has an efficient assortment adapted to each cluster with a sales-oriented design. If product demand changes due to macroeconomics, the factory solves the issue by adjusting existing products. Although a simple solution, international players such as Pandora, have a much more inefficient structure, in which assortment is much harder to change, being defined by a Denmark controller and brought from Thailand.

Best pricing policy, balancing margins and accessibility: When it comes to price, there is no comparable peer. Vivara's (excluding Life) average price found on scraping was BRL 4,553, and Life BRL 346. Therefore, the company offers quality at affordable prices for the middle class without losing brand prestige and keeping a high margin. This is an achievement that HStern, with an average price of BRL 9,583, Tiffany BRL 28,006 and Pandora BRL 1,242 (3.6 times higher than Life), struggle to replicate. Hence, competitors are far from reaching a cluster C client. Also, when comparing silver products, it is possible to conclude that Life has been extremely successful in stealing Pandora's market share, especially on hot-selling silver bracelets, with much lower prices (see Exhibit 22 and Appendix T), especially since 2020. In sum, competitive pricing is only possible due to the verticalized operation, tax benefits and high inventory days as a hedge against commodity volatility.

Vivara's price domination goes way back: Once again, using Wayback Machine archives, we also got the website's historical data and analyzed prices since 2011 for six constant products in its portfolio. This allowed us to understand pricing throughout several macroeconomic scenarios better. We found an 82% correlation with gold price in BRL with 12 months lag. The lag applied to the gold quotation is due to the one-year plus inventory days. Hence, it is possible to ensure that raw material costs are most definitely repassed to the final consumer, but with one year delay. Besides that, given the company's high inventory, it can strategically not buy gold in moments of price spikes.

We managed to confirm the pricing parity with one-year lagged gold prices, except for the period concerning the years 2016 and 2017 (see Exhibit 26). This exception is explained because in 2015 and 2016 gold became excessively high, and the company strategically decided to hold its jewelry prices steady, sacrificing gross margin in the category, while other players had no choice but to increase their prices. Thus, resulting in Vivara gaining market share. Despite not increasing jewelry prices in those two years, Vivara has not significantly lost gross margins (see Exhibit 32), thanks to the second strategical decision of increasing silver products offerings in its mix (as seen in Exhibit 25). As mentioned before, silver products have a much higher gross margin and were not negatively impacted by commodity oscillations in the period (see Exhibit 27). We also believe that its inventory flexibility improves the timing to buying raw materials.

We did the same study for Casa das Alianças, a smaller but relevant peer. For the competitor, we analyzed five constant portfolio products since 2010. We found a 95% correlation with 5 months lagged gold prices *(see Exhibit 23 and Appendix AD)*. Results demonstrated a higher vulnerability to gold price oscillations, as it needs to update prices constantly. The much higher correlation to gold than seen on Vivara evidences the edge of having mix, product design and gold buying flexibilities, as well as the ability to hold a heavy working capital structure.

Now, having compared the pricing strategies of Vivara with a smaller national competitor, we analyze its Silver products pricing against an international competitor, Pandora. The same procedure of observing the oscillation of a product basket. We noticed that the Danish company had similar percentual price updates to Life until 2020. From 2020 onwards, Pandora suddenly more than doubled its prices, noticeably this movement happened months before a spike in Silver prices. We conclude that Pandora struggles with its pricing strategy in Brazilian territory, creating two gaps in its products prices: one between Life's prices (see Exhibit 27) and the other between its products value perceived by customers. The result is a drop in sales, contributing to the closing of many owned stores and franchises in the country, and desperate attempts to increase sales, such as 50% off sales from Dec/20 to jan/21 and from Dec/21 to Jan/22 (see Appendix AD).

The key takeaway is that we have found robust evidence to properly answer many crucial questions to understand Vivara's investment thesis. We conclude that the national vertical integration allows a real competitive edge over international competitors, providing much more operational efficiency and crisis resilience. Moreover, Vivara's prices are by far the most attractive in the market, both in the silver battleground, in which Life has a much lower price than Pandora, and in the more luxurious battlefield, since HStern is quite far from matching Vivara. Lastly, although the company repasses raw costs volatility, it does so more subtly than any other peer, which is a positive point to consumers.

Exhibit 21/22: Web-Scraping Price comparison

Vivara and Life vs Competitors [BRL] | Source: Team 2

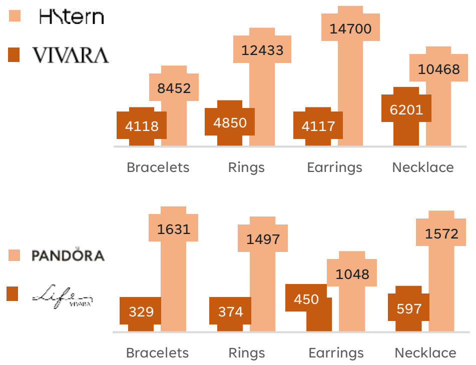


Exhibit 23: Web-Scraping Price comparison

[%] | Source: Wayback Machine & Casa das Alianças

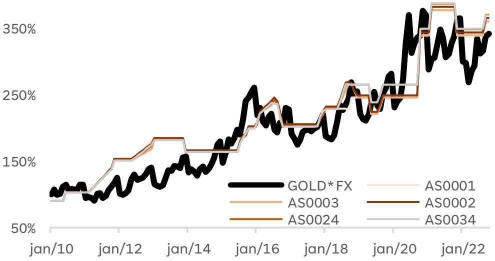


Exhibit 24: Change in True Love Ring

[BRL] | Source: Company's Website & Wayback Machine

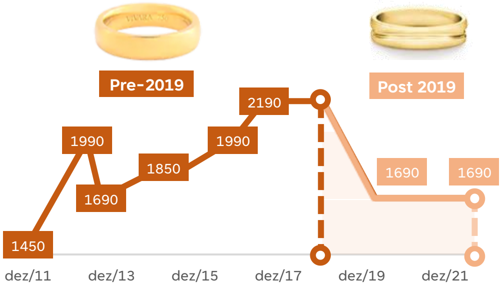


Exhibit 25: Vivara product mix

[%] | Source: Company Data

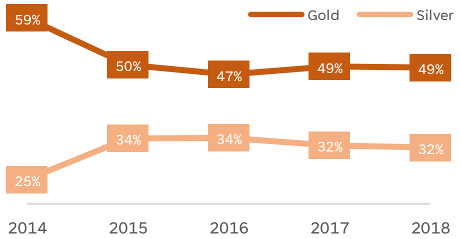


Exhibit 26: Vivara's Prices and 1 year lagged Gold*FX (Nov/11 = 100)

[%] | Source: Team2, Vivara & Wayback Machine

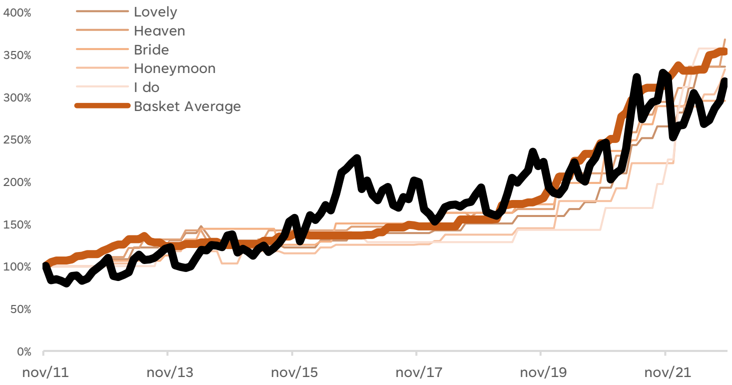
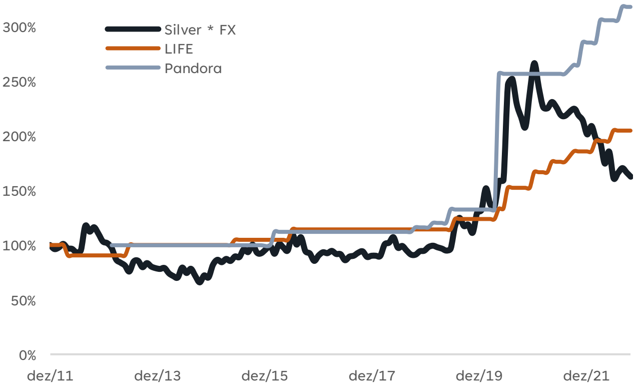


Exhibit 27: Life, Pandora and Silver*FX (Nov/11 = 100)

[%] | Source: Team 2, Vivara, Pandora and Wayback Machine



A winning expansion gameplan – Vivara to the honeymoon

In our view, Vivara clearly plays in a pulverized industry and is the most likely player to consolidate. But what are the engines of this expansion? Well, we observed the following three options:

(I) International Expansion: Vivara's IR has been talking about it, but the idea of going out of Brazil is still incipient and, therefore, will not be considered in our valuation. We also do not believe in this strategy for the time being. We are mainly concerned because there are great opportunities nationally, but also, by not thinking locally, Vivara would not enjoy its three main competitive advantages: Brand, Scale and Verticalization. Firstly, replicating a brand in a new country is not simple, even with higher and unhealthy marketing expenses, the jewelry market is generally dominated by local players working with traditional brands for decades. Secondly, Vivara would not have any fixed costs dilution abroad. Finally, the company would lose its tax benefits and its inventory flexibility, armor against commodity volatility.

(II) National Expansion through M&A: Clearly, acquisitions are not the core of Vivara's strategy, but strong rumors have created an expectation of M&A, especially about HStern. As the deal was not closed on the thriving macroeconomic scenario of 2020 with low interest rates, we do not expect any moves soon. Nonetheless, when looking closely at that deal, we dislike HStern involvement in corruption scandals, which could hurt Vivara's image.

(III) National Expansion through Organic Growth: Since we are not very optimistic about international expansion or M&A, organic growth is the best strategic decision towards expansion. We do not believe in the franchising model like Pandora or Swarovski, but in owned stores, due to Vivara's capability to generate cash, supporting its expansion. Its expansion plan has been masterfully executed, going from 158 stores in 2015 to 285 stores in 2022 and building the most privileged positioning in the sector. To thoroughly understand this potential, we conducted a mathematical analysis that simulates the opening pattern. 1) We analyzed the macroeconomic pattern of existing Vivara stores, thus setting a minimum value of GDP per capita, population and GDP; 2) Classify all current Vivara and Life stores into four clusters based on income exposure pattern (AA, A, B and C) and combined with an isochrone analysis (see Exhibit 28 and *Appendix R*), in order to understand the consuming pattern of adjacent population in malls that contains a Vivara store; 3) Exclude all Brazilians malls that do not fit the macroeconomic and income exposure pattern, that were defined in the first and second steps, remaining with 91 Vivara potential openings (see Exhibit 29) amongst the 397 analyzed malls.

What about Life expansion?

To estimate Life openings, we consider Vivara's footprint in malls as the main guidance. We support this premise in three pillars: **customer pattern, healthy cannibalization level and bargain power**. Firstly, Vivara and Life may have different marketing "personas", however, when analyzing a potential opening, the most important aspect is the mall's class exposure. Since the two brands' public are customers from class A to C, in terms of income, the stores are to be opened in a similar range of malls. Secondly, cannibalization concerns, but we do not see enough to cripple Life store openings.

Nonetheless, we understand that each cluster has its own dynamic since C is the riskiest, once Life represents 40% of a Vivara store revenue. Thirdly, following Vivara's footprint means taking advantage of more favorable negotiations for vacancies where it already operates. Therefore, leasing and signing bonus gets more attractive.

To conclude, we estimate 259 possible openings. This huge expansion will be supportive for consolidated margins in the coming years, as Life stores have a 4-wall EBITDA of around 45% vs 36% for a Vivara Cluster B store. This difference can be explained by the higher margins of silver against gold.

But why do we believe in Life expansion success? Life has strong returns and margins, even superior to Vivara's clusters B and C, becoming clear that it is a winning store format. But we expect returns to get even better with Life's stores due to their maturity being reached quicker than Vivara's stores. With that in mind, we conducted an analysis that examines Life's maturation curve (see Exhibit 30), concluding that they are reaching maturity in less time than expected *(see Appendix X)*. More precisely, until 2021, a store needed nine quarters to reach maturity. Today we expect this number to be around only eight quarters.

An aggressive expansion with an inevitable risk: Cannibalization

Vivara and Life are almost entirely restricted to inside mall openings. There are already 53 malls with the two stores, and the number is bound to increase even more with further openings. Even though the target audience is not the same, cannibalization unavoidably becomes a thesis risk. According to the company's IR, current cannibalization does not outweigh 4%. However, we believe this figure is only that low because the database has much noise from unmatured Life stores, which are not yet stealing clients at their fullest potential. Also, most of Life's openings took place in cluster A and B malls, where Vivara stores' revenue has less composition of Life products when compared to the 38% from cluster C stores (see Exhibit 8). Having that said, we did a cannibalization analysis *(see Appendix Y)* considering new stores maturation, as well as cluster positioning, and conclude that it will probably not be a problem for the expansion plan.

Cannibalization Analysis – a deep dive into the situation: To calculate cannibalization we did a 4-wall analysis of Vivara stores on every cluster, as well as a general Life standalone 4-wall *(see Appendix Y)*. With the results, we are now able to input cannibalization on the model, which is defined by Life sales lost inside a Vivara store due to the opening of a Life standalone in the same mall. For example, suppose we have a cluster C Vivara, whose mix is 38% composed of Life products and a cannibalization rate of 10%. In that case, the hypothetical store will end up losing 3.8% of total revenue. Accordingly, we sensitized our 4-wall Net Present Value using this cannibalization rate and cost of capital. Finally, as an output, we have Exhibit 31, which demonstrates the maximum cannibalization for each cluster to keep NPV above 0.

We conclude that, for clusters A and B, there is not much to worry about cannibalization, as even for a high cost of capital, a high cannibalization is viable. As expected, cluster C is the most sensitive to cannibalization due to the significant dependency on Life sales. Nevertheless, there is still a good safety margin for expanding Life standalone stores in cluster C malls with a Vivara store.

Financial Analysis

As said before, Vivara is an unmatched competitor in the Brazilian market. However, do the financial statements and past years results are in line with such statement?

Margins – Walking through the cost structure

Gross Margin: Jewels have a high aggregated value; therefore, high gross margins are expected in the sector. Vivara currently stands at 67.6% gross margin, higher than Tiffany's, which is at 62.5%, but lower than Pandora's at 76.1%. However, the actual discrepancy is seen when compared to HStern, which presents a low 38% gross margin.

More than 92% of the company's cost structure comes from raw materials. Nonetheless, Vivara's margin is highly resilient to raw materials price volatility and Brazilian inflation, presenting no correlation to gold prices, with an R2 of only 0.32 since 2016. Even in 2020, the gross margin was unaffected by a huge spike in the gold quotation. That said, it is possible to conclude that the company can repass costs to customers, allowing that margin stability. To better understand Vivara's gross margin, we divided it into four main product segments: Jewelry, Life, Watches and others. Using a solver tool, we confirmed what the IR had verbally given on a Conference Call (see *Appendix AE*). Also, as an output, we reached more precise figures in Exhibit 33.

Exhibit 28: Isochrone Analysis

[BRL mn] | Source: Team 2

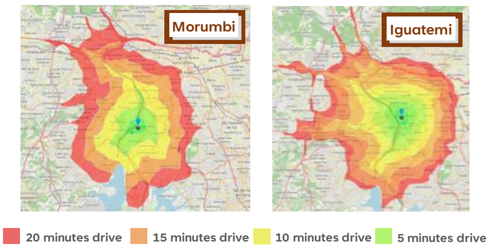


Exhibit 29: Vivara's Potential Openings

Vivara Stores Projections [#] | Source: Team 2

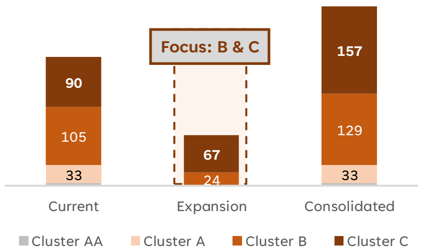


Exhibit 30: Life Maturation Curve

Life Maturation Curve [%] | Source: Team 2

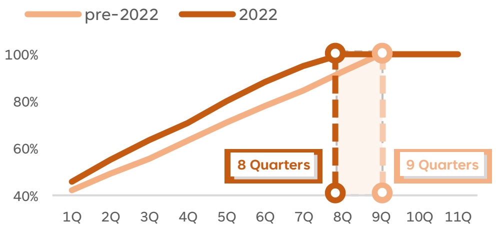


Exhibit 31: Cannibalization Threshold

For g = 5% | Source: Team 2 & Vivara

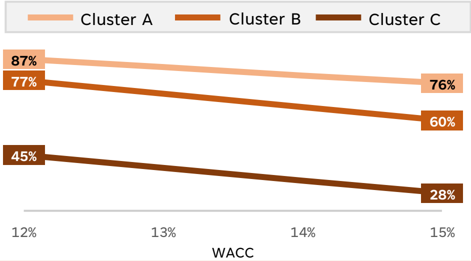


Exhibit 32: Gross Margin x Gold Price

[%, BRL per Ounce] | Source: Team 2 and Company Data

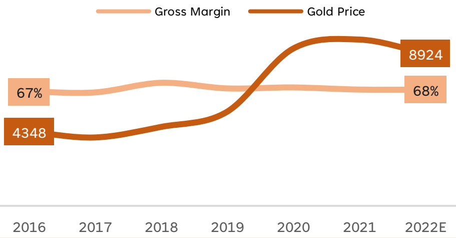
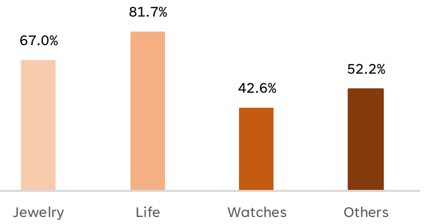


Exhibit 33: Gross margin per product

Products Gross Margin [%] | Source: Company Data



Lastly, the eCommerce Gross Margin is approximately 66%, which is very similar to Vivara stores. In 2021, eCommerce sales represented 16.6%. We expect this channel's gross margin to improve in the future, following the recent decrease in watches and jewelry sales growth. In 2019, watches represented 31% of the online sales mix and jewels only 29%. By 2021 watches sales have remained nominally stable, but its mix participation went to 16%, meanwhile jewelry have gone to 45%.

Rock Solid Returns – ROIC and ROE show value creation

DuPont Analysis: Vivara's Return on Equity has been dropping since 2016, (seen in Exhibit 34). Is the company lowering the value generated to its shareholders? Through a DuPont analysis, we can blatantly observe two main aspects that have caused such a downfall:

(I) Leverage decrease: Vivara's Equity Multiplier has fallen from 3.48x in 2016 to 1.76x in the first half of 2022. This decrease is undoubtedly positive, as Vivara now has a much more comfortable debt ratio, expanding with generated cash from operations and IPO, diminishing debt need. The company has even reported net cash instead of net debt from 4Q19 to 4Q21. With a possible follow-on to come at the end of 2022, the company might solidify even more its cash position, being financed mainly by equity.

(II) Asset turnover: The company's assets have gone through a huge boom after the IPO, which has by itself lead to an enormous cash in-flow. Nevertheless, the company is in the climax of its expansion. Hence there are plenty non-mature stores and ongoing openings that have not yet yielded a revenue increase, which would have maintained the asset turnover on pre-IPO levels.

To sum up, we are optimistic about ROE increase as more openings mature. In addition to that, we see Vivara outperforming its global peers.

Does Pandora really have better returns to shareholders? Although Vivara's ROE is lower, Pandora has higher leverage, and franchising allows for a more asset-light model, which explains a higher asset turnover.

Vivara stores are a gold mine: Vivara's Return on Invested Capital shows us the ability to generate revenue from Capital Expenditures, thus being a metric much less affected by the IPO than ROE. The pandemic has caused a great impact on the metric, which was, even so, held at a healthy 24% in 2020. Since then, NOPAT margins have been stabilized along with Invested Capital Turnover.

As most of the company's CapEx is destined to store expansion, the increase in this metric indicates that openings are generating revenue for the company and that maturation is happening fast. But how much value is being created per store? To answer this question, we did a Unit Economic analysis for Life standalone and for Vivara stores in each cluster.

We reach exceptional returns for all store types, emphasizing Life, whose ROIC stands out at 46%. The results corroborate to Vivara's bold expansion plan, proving its sustainability. Even for the lowest return opening, Vivara Cluster C, we have reached an attractive 22% ROIC (see Exhibit 36 and Appendix Y).

Other key metrics support advantageous positioning

SSS: Same Store Sales is a key metric in retail as it indicates real revenue growth, disregarding growth caused by openings. Therefore, it is a good indicator of cannibalization levels, repass on prices and maturation in Vivara's case. Except for the challenging 2020, here it has had a -12% Same Store Sale including eCommerce the company has constantly been increasing SSS, as Vivara closed 1H22 with the metric at 20%. This growth reveals that Vivara can repass not only IPCA but, most importantly, gold volatility, without losing customers.

Weathering the storms with high inventory days: The ounce of gold at the pandemic's peak reached an all-time high of $2000, and today it is standing at $1700, 30% higher than pre-pandemic levels. In the face of input volatility, Vivara has more than a 1-year inventory of silver and gold mainly on the shelves. Nonetheless, this is not necessarily a bad indicator since it replaces a gold hedge, though the company does have a dollar hedging. In addition, Vivara has been increasing days payable outstanding, from 35 in 2019 to 115 in 2021, indicating a gain of bargaining power. With all that in mind, cash conversion is extremely high, which is typical of the sector standards.

Cash is king: Vivara may have a high cash conversion cycle, nonetheless, it has no problem generating cash, as CFO/EBITDA has almost always been close to 100%. In addition to that, CFO - CFI has been historically positive. The periods of 2019 and 2020 were exceptions due to increased invested capital in 4Q19 after the IPO, followed by COVID-19. The takeaway is that Vivara's operation is self-sustainable, generating enough cash to expand organically without excessive leverage.

ESG Investment framework

Over the years, the ESG theme has been increasingly explored in investment decision-making, so it is crucial to pay attention to these aspects that influence a company's business by avoiding legal and regulatory problems, increasing work, and aligning the board's interests with the shareholders. Having that said, we take a deep look at how Vivara is positioned in the Environmental, Social, and Government pillars and compare it with other retailers (Soma, Arezzo, Pandora and LVMH), creating a proprietary ESG index. This index is based on the company's current and future efforts in each of the topics in ESG analysis, with a grade from 0 to 5. in our view Vivara was very well positioned *(see Appendix AF)*.

Environmental – The planet is our most valuable jewel

It all starts in the mine: Vivara pays special attention to environmental values. Starting with raw material suppliers, Vivara acquires silver from mines in Latin America certified by the Responsible Jewelry Council. Diamonds are sourced exclusively from the Kimberley mines, preventing the purchase of diamonds mined in war zones. When it comes to gold, the company buys it exclusively from AngloGold Ashanti, a certified London Bullion Market Association gold mining company. That is not only a trophy on the shelf as it really brings environmental benefits to the world. In perspective, the average global mining company emits 28,700kg of CO2 per gold kg mined, while AngloGold emits only 8,615 kg of CO2 for each kg of gold extracted.

Supported by a Nature paper we put effort into evaluating quantitatively how much less impact Vivara causes simply by having a less polluting gold supplier. We estimated Vivara's spending on gold and converted it into kg of gold purchased. In that way, we were able to calculate the value in BRL of the SC-CO2 savings Vivara has by buying from AngloGold and we sensitize it by the discount rate and the Social Cost of Carbon Dioxide (SC-CO2), as seen in Exhibit 38 (for more details, see Appendix AG).

No jewelry left behind: Another advantage of Vivara's vertical business model is that it can reuse products to create new ones, unlike other retail models. Initiatives such as "Gold Week" and "Silver Week" offer credit to customers who take their jewelry to a store, which is sent to the factory in Manaus, where they are fused to form new pieces that will be sold in stores. Reusing these gold and silver pieces avoids the emission of 98% and 86% of CO2 into the atmosphere, minimizing the environmental impacts of jewelry production.

Social – Serving with excellence

For customers, Vivara goes the extra mile: Vivara's primary goal is to offer customers excellence. To provide that, the company has a personalized service, which seeks to engage the customer in the purchase journey by getting to know all kinds of jewelry and better deciding its final checkout. This special attention to the client led to an increase in NPS in recent years, from 89 in 2019 to 93 in 2021. Besides that, Vivara has also offered superior service than its competitors, reflected by better "Reclame Aqui" scores than other jewelry stores. That reflects in captive customers, as 32% of Vivara's clients are recurrent and make more than one purchase a year. This captivity is increased with a 10% cashback for the next purchase, enhancing the average ticket spent by five times.

Exhibit 34: Vivara DuPont Analysis

Vivara Dupont Analysis [#,%] | Source: Company Data

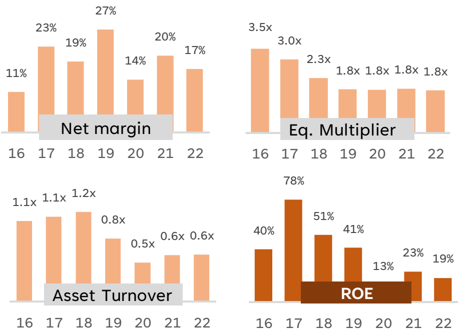


Exhibit 35: Pandora DuPont Analysis

Pandora Dupont Analysis [#,%] | Source: Company Data

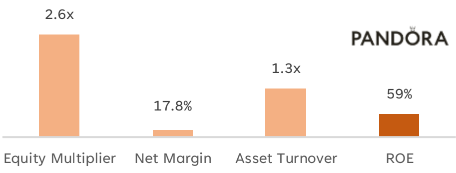


Exhibit 36: ROIC Evolution and per cluster

Vivara ROIC evolution [%] | Source: Vivara, Team 2

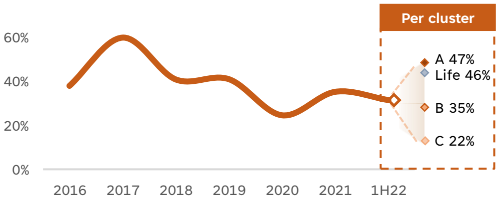


Exhibit 37: CFO – CFI, CFO / EBITDA Evolution

[BRL mn, %] | Source: Company Data

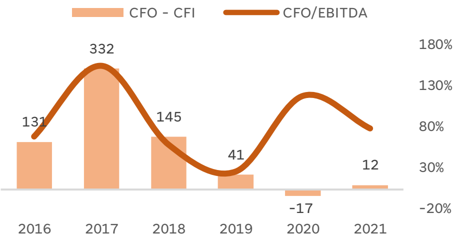


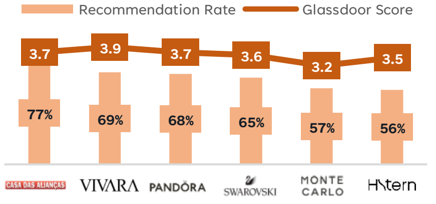
Exhibit 38: "Saved" SC-CO2

[million BRL] | Source: Team 2, Nature, Journal of Cleaner Production, AngloGold Ashanti

Discount Rate	SC-CO2 @PV	"Saved" SC-CO2
3%	80 US$	151,459
2.5%	118 US$	229,730
2%	185 US$	370,510
1.5%	308 US$	634,750

Exhibit 39: Glassdoor Metrics

Glassdoor score and recommendation rate [# and %]
Source: Glassdoor



A welcoming environment requires a welcoming team: Vivara sells an accessible luxury idea, therefore a good saleswoman goes beyond selling. Good treatment is crucial to fulfilling the company's goal to propagate jewels to the middle class. With that in mind, we developed a Python algorithm (see Exhibit 40) to compare Google ratings of every Vivara store to some competitors, excluding stores with less than 25 evaluations. We reached a weighted score of 4.61 for Life, the highest in the sector.

Corporate Governance – The right people in charge

Jewel with sharp edges: Vivara is listed on B3 in the Novo Mercado segment, the highest governance level on the Brazilian stock exchange. This guarantees minority shareholders a series of rights, as well as establishing duties for the company's management, such as the minimum distribution of 25% of net income in the form of dividends, and the issuance of only common shares.

Paying the right price for the jewel: The company's Board of Executive Officers is remunerated with a fixed salary and a variable income that depends not only on the financial and operational goals established but also on ESG goals. In this way, there is not only an alignment of interests with the shareholder, since variable compensation favors measures to improve profitability and increase the company's profit, but also the remuneration of the Board of Directors is almost entirely fixed, with a small portion of the payment through shares.

Generational talent: We are already in the third generation of Kaufman's running the business. The founding family has accumulated excellent industry know-how over 60 years, elevating what once was a single store to a powerhouse. The Brazilian jewelry sector is almost entirely familiar and Vivara is the first and only brand to have gone public. Marina, Nelson and Márcio Kaufman detain together 53.66% of Vivara's shares and are the biggest benefiters from the company good performance. To put it in perspective, we estimated, using Exame data, that 76.7% of Nelson's fortune is in Vivara's stocks.

Every jewel has its goldsmith: Vivara's Board of Directors is composed of five members, 40% of which are women, 2 are independent members and one is from the founding family, which reflects an alignment of minority shareholders. João Cox is the Chairman, with experience in telecommunications, with extensive knowledge in corporate finance and corporate governance. Sylvia de Souza Leão is an independent board member with over 30 years of experience in retail, contributing to strategic planning, people management and marketing. Anna Chaia is an independent member with experience in large companies such as L'Occitane, Natura, Unilever, and American Express, contributing her knowledge of marketing, operations and retail strategy to the Board. Fábio José Silva has been the CEO of Google Brazil since 2011 and brings to the Board extensive knowledge in digital strategies, innovation and omnichannel strategy. Finally, we have Márcio Kaufman, former CEO of the company and grandson of the founder, David Kaufman. He was responsible for the implementation of the company's eCommerce, the development of the Life segment, and the subsequent expansion strategy through exclusive stores for the sale of silver pieces. He currently contributes to the company with his knowledge of entrepreneurship, people management and business vision.

Diamonds are made under pressure: Vivara's board of directors is proving themselves to the market, despite some of them having a questionable track record: The CEO, Paulo Kruglensky, has recently had a failed experience at Kaufman's furniture retail company Etna, which was forced to terminate operations at the beginning of 2022; The CFO, Otávio Chacon was previously CFO at Netshoes, where he has taken part at a terrible results period; Marina Kaufman used to be both head of marketing and HR, she now is all focused on the marketing department, a positive step into taking the company from a family business with little regard to governance policies to a more professional company. Also, as mentioned before, Marina has skin in the game, possessing 14% of all stocks. Notwithstanding all that, the past is the past and now the board is gaining positive attention from the market. Through an algorithm that counts words in Vivara's conference calls' Q&A, to extract the overall market sentiment towards the results, we have reached an extremely positive result, as we see the management is quickly adapting to the challenges in the expansion plan, mainly in cannibalization matters, as it becomes more and more relevant to the company(see *Appendix U*).

Investment Summary

Up to now, we present points and perspectives that reiterate our recommendation to buy VIVA3, which is based on three main theses: (I) A resilient industry going through a consolidation scenario; (II) Vivara's business model ensures brand awareness, organic growth and verticalization; and (III) A promising expansion path exploring Vivara and Life potentials.

A resilient industry that will not grow, but will consolidate

Not a high-growth industry, the Brazilian jewelry stands out as a pulverized market waiting for a consolidator. And, for us, there is a clear candidate, given the market share gap between Vivara and its main competitors. Such share has been expanding even more after a successful IPO in B3, which gave the company a better capital structure and provided governance standards.

Resiliency to macro-downturns: Even being a discretionary industry sensitive to economic cycles, we do not consider the sector completely dammed by crisis. In our view, it is quite the contrary, sales dropped in 2020, but not as much as other retailers, such as electric home appliances, apparel and footwear. Also, Vivara, as an incumbent, stepped up in the crisis and stole share from smaller unprepared players.

Top tier operations

Economies of scale are what truly set Vivara apart from any other peer. Marketing has a major role in an industry where most consumers consider the brand a critical factor in the purchase decision. Vivara understands that and defends its competitive advantages. The company's marketing expenses are almost as large as the competitors' total revenue. Nonetheless, Vivara's true hidden gem is its factory in Manaus, which provides a vertical integration imperative to operational efficiency and tax benefits, leading to unfair competition to international and non-vertically integrated peers.

Expansion – Incredible returns on a silver platter

None of the advantages mentioned would matter if there were no room to grow. Vivara has plenty of opportunities for expansion, as it has not even reached 40% penetration in all Brazilian malls. Nonetheless, the true gold mine is, actually, in selling silver with the Life brand. Life standalone stores have recorded great returns, and we mapped a lot of potential openings.

Valuation

We issue a BUY recommendation for Vivara, with a 2023 target price of BRL 32.8/share, representing an upside of 28.8% from the closing price of 7/11/2022, obtained through a 10-year nominal DCF Model. Comparing our DCF with the company's trading multiples, we verified our thesis that Vivara is far from its fair value, presenting a margin for upside. We also considered a 5-year IRR through P/E (17%), with an IRR-Ke spread equal to 3.2%. All this, linked with our sensibility analysis, confirms our recommendation.

Key assumptions to our DCF

Store Expansion: We expect Life to be Vivara's engine for growth. We project 259 Life store openings and 91 Vivara store openings, mostly in cluster C, until 2031. These premises match the results from our geospatial and isochrone analysis *(see Appendix R)*, which not only give us an output of total potential openings but also

Exhibit 40: Weighted average rating of stores

Jewelry store review [Google Ratings] | Source: Google

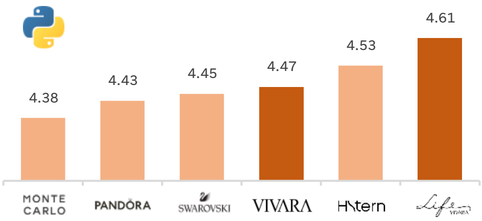


Exhibit 41: Ownership Breakdown

Participation of largest shareholders | Source: Company

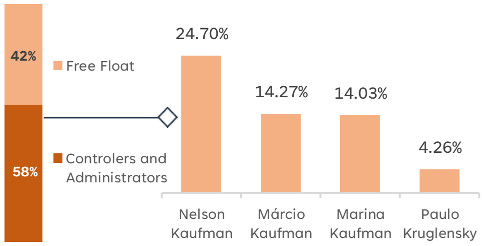


Exhibit 42: Compensation Policy

Board Compensation | Source: Company Data

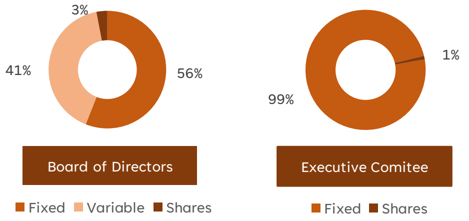


Exhibit 43: Stores Projection

Vivara's Store Forecast [#] | Source: Team 2

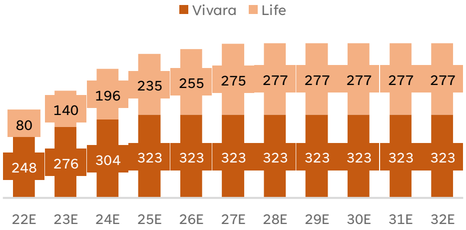


Exhibit 44: Gross Revenue Breakdown

Gross Revenue and growth [BRL mn, %] | Source: Team 2

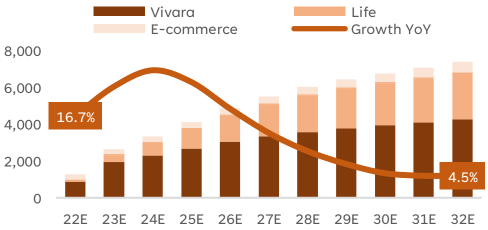
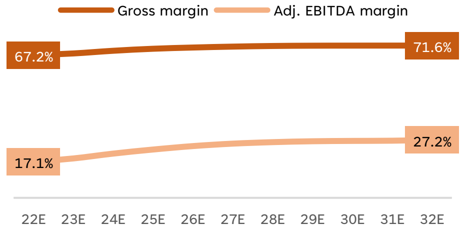


Exhibit 45: Margins Projection

Gross and Adj EBITDA Margin Forecast | Source: Team 2



the probable cluster of the mall. In addition, we reiterate the viability of opening Life standalone in a mall that already has a Vivara, given our cannibalization analysis output. The openings are distributed so that higher cluster stores come first, and we do not project kiosk openings or closures. To sum up, by 2032, we reach 323 Vivara stores and 302 Life stores, totaling 625 stores and 23 kiosks.

Store Revenue: We projected sales by using the average revenue of a Vivara store weighted on cluster distribution. Life standalone revenue was calculated using a similar methodology but disregarding clusterization.

eCommerce Revenue: We project eCommerce taking a step back from current levels, as 2021 online sales were still inflated due to the pandemic. From 2024 on, we increasingly grow each segment according to past tendencies. At the end of the projection, eCommerce represents 10.7% of total sales in 2032. This reflects our vision toward online jewelry sales, which are not disruptive but still greatly complement the revenue.

Tax Benefits: We assumed the renewal of Exploration Profits fiscal benefit, which ends in 2024, until 2032, based on the current politic conjuncture in which the recent elected president, Luiz Inácio Lula da Silva, has many times claimed to be favorable of the Free Trade Zone benefits maintaince. The company also seems to be extremely optimistic about the renewal, since it has just invested millions in the Manaus factory. With that in mind, we get a 5.5 bn BRL total tax reserve at the end of 2032. Such high value for tax reserves diminishes the need to take debt for expansion, which can be executed almost exclusively using operations cash. Taking the given premises, the tax benefit represents around 35% of the company's Equity Value in our valuation.

Gross Margin improvement with better silver markup: Gross Margin improves as Life increases participation in the company's mix. To project gross margins, we did a weighted average between projected Vivara, Life and eCommerce's margins. For Life, we consider an 81.7% fixed Gross Margin. For Vivara, we calculated the average gross margin based on the product mix in each cluster weighted on the projected cluster distribution in each quarter. For eCommerce, we maintain historical ratios, more precisely 66.2% of Gross Margin. We consider that the company will maintain its great markup, yielding to the projected margins projection (See Exhibit 45).

SG&A providing Operational Leverage as the years pass: Now, moving to the operating expenses, we forecast Personnel (both in Sales and G&A) as a variable cost, as with Marketing and MDR expenses that grow in line with the Net Revenue. Other Sales fixed expenses will increase according to inflation and the growth of the Stores' Area. Finally, services, rents, and other expenses in G&A will also grow in line with inflation. As a result, we reached an Adjusted EBITDA Margin next to 27.5% in the last year projected. In Exhibit 44, we show the gradual improvement of the adjusted EBITDA margin, mainly driven by the increasing relevance of Life in the company's revenue pool and the dilution of some fixed costs.

Working Capital: On the issue of Working Capital, we believe that Vivara is to keep a high DIO. As explained before, high inventory days may hurt the company's cash conversion cycle, but it is common in the sector and protects raw materials from volatility. Regarding Days Payable Outstanding, we see no room for any bargaining power gain, as AngloGold is an extremely large supplier and not very dependent on Vivara.

Store Opening CAPEX: To forecast Vivara's openings Capital Expenditure, we used four different premises: for Vivara Stores, we projected a CapEx of BRL 14k per sqm for all clusters. We consider that the average size will remain the same from today. Therefore, we think 76m2 for AA, 109m2 for cluster A, 92m2 for Cluster B and 85m2 for Cluster C. Also, for Life we had an average size per store around 69m2 and used the same CapEx per square meter. Nonetheless, due to Life still not having such a strong brand as Vivara, we added signing bonuses of BRL1mn for Cluster AA, BRL900k for Cluster A, BRL700k for Cluster B and no signing bonus for Life Cluster C stores.

Projected Returns: With financial statements projected, we obtain an increasing ROE and ROIC. It is crucial to highlight that ROE is constantly above the equity cost of capital and ROIC is also above WACC, both with a substantial spread (see Exhibit 48).

Cash Generation: Vivara has been a terrific cash generator in the past, and according to our projections, this shall continue. CFO-CFI is to stay positive and grow, even considering the company's bold expansion plan. Nonetheless, FCFF is projected to be negative until 2024, as most stores get closer to maturation (see Exhibit 49 to understand this dynamic). Furthermore, we also forecast a rising CROCI (cash return on capital invested), a metric developed by Deutsche Bank, which provides a cash generation proxy for the investors' capital.

DCF Methodology

The value of Vivara was calculated by the Discounted Cash Flow method and we used the Capital Asset Price Model for the discount rate and FCFF as free cash flow. We use FCFF instead of FCFE because Vivara has a predictable debt with no need to leverage in the future. Nonetheless, we still did a model with FCFE as a sanity check, ending up with a similar upside.

WACC calculation: To calculate our Cost of Equity, we used: (I) a Risk-Free Rate of 4.0% in 2022E (US 10Y Treasury Bond); (II) An unleveraged beta of 1.0 (NYU Stern); (III) An Equity Risk Premium of 5.1%, calculated by Aswath Damodaran; (IV) Brazil Risk Premium (BRP) of 3.6% also by Damoradan; and (V) The inflation differential between Brazil's IPCA and the US CPI. Using this method, we arrived at the Cost of Equity of 13.8% in 2022. We also got a 12.6% cost of debt pre-tax, using Vivara's debt portfolio, and a Weighted Average Cost of Capital (WACC) of 13.1%

Perpetuity: We used a 4.5% terminal growth rate, calculated by adding Brazil's long-term inflation projection of 3.5% with a 1.0% real growth. It is worth pointing out that we do not consider tax benefits in perpetuity, as we use a 34% tax rate.

Multiples

For the relative valuation analysis, we compared Vivara to national and international luxury retailers, seen in the Trading Comps Table in Appendix M. It's possible to see that the company is trading slightly below the FWD EV/EBITDA regression line, as seen in Exhibit 51, at 18.3x. It is not trivial to do a relative valuation of Vivara since the company is the only jewelry listed in Brazil. To conclude, when considering growth over the last five years, cash generation and ESG standards, Vivara is outstanding, even being worth a premium.

5Y Price-to-Earnings IRR

To improve our valuation, we did an IRR study in order to reassure our BUY position. We used a 10.1 exit P/E Fwd 1Y in 2026E, calculated by fair value in line with our DCF projection and excluding tax benefits, to keep a conservative standpoint. We arrived at a 17.0% IRR, meaning a 3.2% IRR-Ke spread. The base result was highly positive, reinforcing our thesis. Nonetheless, we also sensitized the result with revenue CAGR and different costs of equities to be even more sure. As a result, considering a positive spread as a buy recommendation, we reached more than enough 63.0% of all scenarios pointing to a buy recommendation.

Can our projections be wrong?

Bull, Base, and Bear: Valuation is not an exact science, and our projections can be wrong. Therefore, we recalculated our target price in two scenarios, one very optimistic and the other very pessimistic. We changed our SSS projections, cluster C Life openings, cannibalization rates, exploration profit incentive and eCommerce projections (see Exhibit 52). In our bull case, we reach a target price of BRL 37.7, 47.2% of upside, with a strong buy recommendation, this being one of the perfect scenarios for the company's expansion. In our bear

Exhibit 46: P&L Breakdown

Cost and Expenses [% net revenue] | Source:Team 2

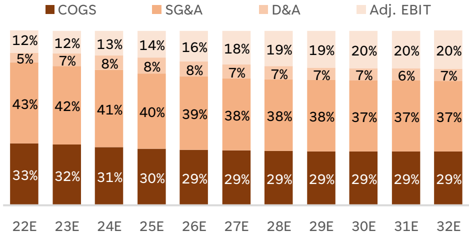


Exhibit 47: Cash Conversion Cycle

Cash Conversion Cycle [days] | Source:Team 2

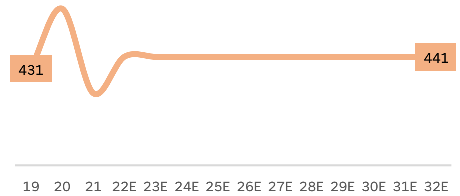


Exhibit 48: ROIC vs WACC

Vivara ROIC and WACC [%] | Source:Team 2

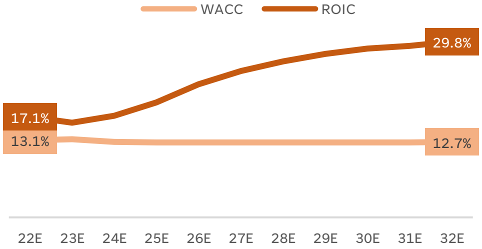


Exhibit 49: FCFF Forecast

FCFF [BRL mn] | Source: Team 2

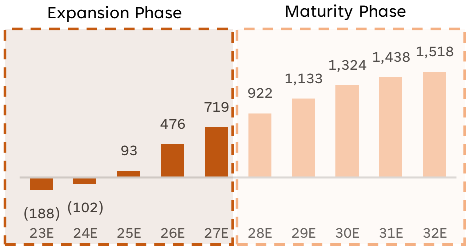


Exhibit 50: Value Composition

Target Price Breakdown [BRL] | Source:Team 2

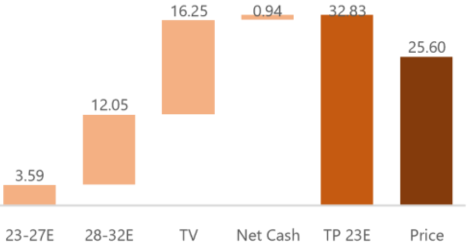
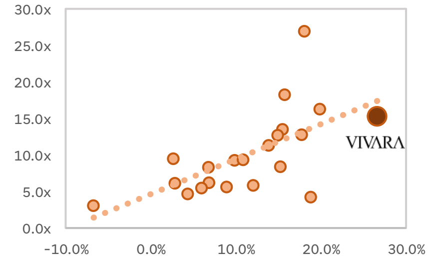


Exhibit 51: EV/EBITDA vs. EBITDA growth

EV/EBITDA fwd 1y vs. EBITDA growth (21-24E) | Source: Refinitiv



case, we see a target price of BRL 21.65, representing a downside of 15.7%, being this one of the worst scenarios for the company's expansion.

Monte Carlo simulation: Finally, we also performed a simulation with 10,000 interactions, changing Revenue growth, Gross Margin, SG&A Expenses, D&A and Capex according to a historical standard deviation. More than 69% of the simulations here reiterated a buy scenario (see Exhibit 2).

Investment Risks

In this section, we will take a closer look at the main risks associated with our valuation, representing them in a Risks Matrix (*see Exhibit 57*), in which we can assess such risks regarding their likelihood and impact on the company's future and our assumptions. We separated them into three groups: Business and Operational (B); Market Risks (M); and Macroeconomic Risks (E).

Business and operational Risks (B)

(-) Acquisitions and unsuccessful integrations (B1): Vivara does not have an M&A track record, and the hottest possibility, Hstern, does not look like a great capital allocation for us. After Hans left the company command, HStern suffered from corruption denounces and value destruction. HStern also does not match Vivara's business model, being an internationalized company with 29 stores in 7 countries (according to its website). So, even though this move would give Vivara access to a high-end public, there is a high risk involving integrating two familiar businesses, geographic pulverization of stores, and governance problems.

(-) Cannibalization worse than expected (B2): As our analysis makes clear (see Appendix Y), cannibalization is a key point to understanding a store opening viability, mainly in clusters C, which not only will be the main expansion target but also are more sensitive to cannibalization between a Life and a Vivara store (Exhibit 53). So, in a mature scenario, we see cannibalization reaching 6-7%, but given that 95% of life stores are not in clusters C today, such cannibalization may outweigh in cluster C malls. We did a sensitivity analysis regarding this ratio and the company's stock price, only getting a downside in 16.7% of the scenarios. So, if we present higher than expected cannibalization, which is not impossible, given the small sample space disposable to study today, we could change our recommendation.

(-) Renewal problems with Manaus' tax benefits (B3): The company enjoys fiscal benefits, representing around 25% of its Equity Value. To better understand the impacts of an improbable failure on benefit renewal, we did a DuPont analysis adding back tax benefits and adjusting the balance sheet, which makes clear that without the benefits, we would see an enormous value erosion. But we see the management acting to ensure this benefit, at least in the following years, considering its investments in Amazonas. So, we preview a high likelihood for such benefits to be renewed, but modifications in the tax legislation would risk the company's competitive position.

(-) Governance quality to play Vivara's sprawl (B4): A scarcity of managerial talent can be a problem supporting an aggressive expansion. We see a questionable track record: the CEO, Paulo Kruglensky, had a failed experience at Etna, which terminated operations in 2022; The CFO, Otávio Chacon, was CFO at Netshoes, presenting terrible results. Despite these points, Vivara's management is unquestionably proving itself with strong results, mainly in adverse conditions, promising expansion and market share growth.

(-) Life stores opening outside shopping malls (B5): In our valuation, we projected only openings in malls, given the lack of clarity on another expansion strategy. However, the company's IR clarifies that it does not discard openings outside the shopping malls. This possibility exists because Life stores are different from Vivara stores in looking at security spending and target customer, enabling expansion targets in the streets.

Market Risks (M)

(-) Peers capitalization (M1): Although the industry is highly fragmented and competitors lack Vivara's scale, the entry of any well-capitalized competitors in the jewelry sector could be a game changer. The industry has low Private Equity penetration, but a specialized investment, for example, in Monte Carlo, would be a threat. Capitalization could be a means for some peers to execute a strong expansion that would diminish the distance to Vivara. One could argue that Pandora and Swarovski have access to such capital. Still, due to the global conglomerate nature and weak Brazilian exchange rates, these international brands have difficulties in the national territory.

(-) International players bounce back in Brazil (M2): Pandora, Swarovski, and Tiffany have either stopped expanding or closed stores in the national territory. Nevertheless, a change of strategy, focusing on LatAm expansion, could intensify competition, leading to more franchise openings in Brazil. Also, an efficiency improvement from better planning could tighten things up between the foreign companies and Vivara.

(-) Vacancy rates (M3): Many shopping mall tenants could not keep their stores open after the pandemic, leading to high vacancy rates and creating opportunities for Life expansion, mainly at locations where Vivara has significant bargaining power. On the other hand, stabilizing the macro scenario and a consumption recovery, we expect low vacancy rates and harder access to A1 positions as corners. Furthermore, suppose Life has difficulties finding vacancies in malls that already have Vivara and is obliged to expand to unpenetrated malls. The company will lose bargaining power on leasing and signing bonus negotiations in that case.

(-) Tax Reform (M4): PEC 45/2019 and PEC 105/2019 are constitutional amendments under discussion in Congress and Senate, respectively. Both regard the replacement of ICMS, PIS & COFINS, IPI, and ISS to a single uniform tax rate, IVA. If approved we expect industries outside the Manaus Free Trade Zone to thrive, and the Brazilian Market will become more appealing to foreign investments. Nonetheless, the changes would be gradual. Therefore, Vivara would probably still enjoy its tax benefits until 2032.

(-) Malls are losing relevance (M5): Although according to ABRASCE (Malls association in Brazil), foot traffic in shopping centers has been rising above pre-pandemic levels, we recognize that the possibility of a future shift in populational habits could be a risk to Vivara. Malls are much more than stores and sales, as they are leisure places for most of the population. If malls, for whatever reason, cease to be a strong leisure place for Brazilians due to the strengthening of digital sales among all retail segments, or even movie theaters' replacement for streaming services, Vivara would have reduced foot traffic, which would impact sales.

Macroeconomic Risks (E)

(-) Macro crisis and loss of purchasing power (E1): Thanks to its brand awareness, exposure to higher-income groups, and a vertically-integrated business, Vivara has good pricing power. These characteristics limit losses under challenging macroeconomic scenarios. Nevertheless, an extended period of poor economic activity could still negatively impact demand.

(-) Change in consumer preferences (E2): Pandora's charms' popularity fading and the difficulty of dealing with its huge inventory opens our eyes to changes in consumer preferences. In the Danish company case, it resulted in impairment and a 25% drop in its price stock in one day. With that in mind, Life's portfolio's constant adaptations indicate a watchful eye of the company on this risk, and this capacity comes from a vertically-integrated business providing flexibility and product reshaping. Nevertheless, not adapting to new trends may impact sales and require intense markdowns, with negative implications for margins.

Exhibit 52: Bull, Base, Bear

Fair Value Sensitivity [%, %, #] | Source: Team 2

Avg 22E-32E	BULL	BASE	BEAR
SSS Life (Yearly)	10%	9.3%	6%
Exploration Benefit until 2032	Yes	Yes	No
Cannibalization rate Cluster C	7%	12,5%	25%
Life openings Cluster C	157	142	97
Upside/Downside	47.2%	28.8%	-15.7%

Exhibit 53: Cannibalization sensitivity

Fair Value Sensitivity [%] | Source: Team 2

Cannibalization C

Cannibalization B	0%	20%	40%	60%	80%	100%
0%	31.7%	28.4%	25.0%	21.6%	18.3%	14.9%
20%	27.8%	24.5%	21.1%	17.8%	14.4%	11.0%
40%	23.9%	20.6%	17.2%	13.9%	10.5%	7.1%
60%	20.1%	16.7%	13.3%	10.0%	6.6%	3.2%
80%	16.2%	12.8%	9.4%	6.1%	2.7%	-0.6%
100%	12.3%	8.9%	5.5%	2.2%	-1.2%	-4.5%

Exhibit 54: Tornado Analysis

Target Price Sensitivity [BRL] | Source: Team 2

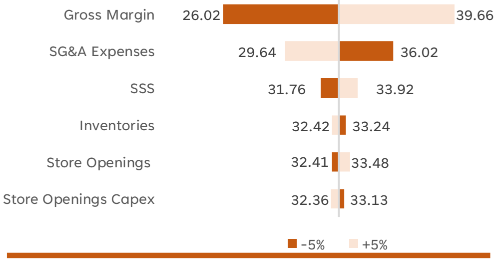


Exhibit 55: WACC x g Sensitivity

Fair Value Sensitivity [%] | Source: Team 2

WACC

g (perpetuity)	11.1%	11.6%	12.1%	12.6%	13.1%	13.6%	14.1%	14.6%	15.1%
2.0%	40%	32%	25%	19%	13%	8%	3%	-2%	-6%
2.5%	45%	36%	29%	22%	16%	10%	5%	0%	-4%
3.0%	50%	40%	32%	25%	18%	12%	7%	2%	-3%
3.5%	55%	45%	36%	28%	21%	15%	9%	4%	-1%
4.0%	62%	51%	41%	32%	25%	18%	12%	6%	1%
4.5%	69%	57%	46%	37%	29%	21%	15%	9%	3%
5.0%	77%	64%	52%	42%	33%	25%	18%	12%	6%
5.5%	88%	72%	59%	48%	38%	29%	21%	15%	8%
6.0%	100%	82%	67%	54%	43%	34%	25%	18%	11%

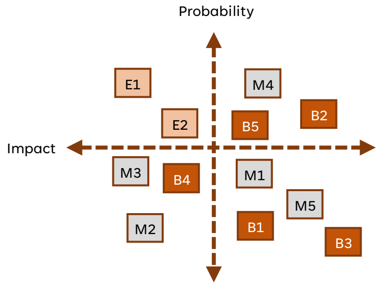
Exhibit 56: IRR Sensitivity

IRR Sensitivity Analysis [%] | Source: Team 2

P/E FWD Exit 2026E

Net Revenue CAGR	7x	8x	9x	10x	11x	12x	13x	14x	15x
4%	-11%	-8%	-6%	-4%	-2%	0%	2%	4%	6%
8%	-6%	-3%	-1%	2%	4%	6%	8%	10%	12%
12%	-1%	2%	5%	7%	10%	12%	14%	16%	18%
16%	4%	8%	10%	13%	16%	18%	20%	22%	24%
20%	10%	13%	16%	19%	22%	24%	26%	28%	31%
24%	15%	19%	22%	25%	28%	30%	33%	35%	37%
28%	21%	24%	28%	31%	34%	36%	39%	41%	44%
32%	26%	30%	34%	37%	40%	43%	46%	48%	50%
36%	32%	36%	40%	43%	46%	49%	52%	55%	57%

Exhibit 57: Risk Matrix



Appendix Index

Appendix A – Income Statement

Income Statement	[Unit]	2020	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Gross Revenue	**[BRL MM]**	**1,338,142**	**1,842,455**	**998,142**	**1,993,287**	**2,598,775**	**3,326,546**	**4,225,241**	**5,025,455**	**5,709,813**	**6,313,862**	**6,861,567**	**7,272,956**	**7,622,437**	**7,977,967**
growth YoY	[%]	-10.2%	37.7%	-	8.2%	30.4%	28.0%	27.0%	18.9%	13.6%	10.6%	8.7%	6.0%	4.8%	4.7%
Deductions	[BRL MM]	(290,595)	(376,068)	(191,328)	(403,108)	(553,053)	(707,932)	(899,186)	(1,069,482)	(1,215,122)	(1,343,671)	(1,460,230)	(1,547,779)	(1,622,153)	(1,697,814)
growth YoY	[%]	-8.8%	29.4%	-	7.2%	37.2%	28.0%	27.0%	18.9%	13.6%	10.6%	8.7%	6.0%	4.8%	4.7%
% of Gross Revenue	[%]	-21.7%	-20.4%	-19.2%	-20.2%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%
Net Revenue	**[BRL MM]**	**1,047,547**	**1,466,387**	**806,814**	**1,590,179**	**2,045,722**	**2,618,615**	**3,326,055**	**3,955,973**	**4,494,691**	**4,970,191**	**5,401,337**	**5,725,178**	**6,000,284**	**6,280,153**
growth YoY	[%]	-10.6%	40.0%	-45.0%	8.4%	28.6%	28.0%	27.0%	18.9%	13.6%	10.6%	8.7%	6.0%	4.8%	4.7%
COGS	[BRL MM]	(330,064)	(474,909)	(261,555)	(521,348)	(654,667)	(807,055)	(998,170)	(1,167,455)	(1,309,395)	(1,430,238)	(1,538,948)	(1,623,516)	(1,697,381)	(1,772,865)
growth YoY	[%]	-11.7%	43.9%	-	9.8%	25.6%	23.3%	23.7%	17.0%	12.2%	9.2%	7.6%	5.5%	4.5%	4.4%
% of Net Revenue	[%]	-31.5%	-32.4%	-32.4%	-32.8%	-32.0%	-30.8%	-30.0%	-29.5%	-29.1%	-28.8%	-28.5%	-28.4%	-28.3%	-28.2%
Gross Profit	**[BRL MM]**	**717,483**	**991,478**	**545,259**	**1,068,831**	**1,391,056**	**1,811,559**	**2,327,885**	**2,788,518**	**3,185,297**	**3,539,953**	**3,862,388**	**4,101,662**	**4,302,904**	**4,507,288**
growth YoY	[%]	-10.1%	38.2%	-	7.8%	30.1%	30.2%	28.5%	19.8%	14.2%	11.1%	9.1%	6.2%	4.9%	4.7%
Gross Margin	[%]	68.5%	67.6%	67.6%	67.2%	68.0%	69.2%	70.0%	70.5%	70.9%	71.2%	71.5%	71.6%	71.7%	71.8%
Sales Expenses	[BRL MM]	(331,679)	(457,374)	(264,338)	(512,911)	(651,221)	(829,221)	(1,039,570)	(1,213,845)	(1,360,471)	(1,492,813)	(1,615,184)	(1,705,521)	(1,783,148)	(1,862,325)
growth YoY	[%]	-7.9%	37.9%	-	12.1%	27.0%	27.3%	25.4%	16.8%	12.1%	9.7%	8.2%	5.6%	4.6%	4.4%
% of Net Revenue	[%]	-31.7%	-31.2%	-32.8%	-32.3%	-31.8%	-31.7%	-31.3%	-30.7%	-30.3%	-30.0%	-29.9%	-29.8%	-29.7%	-29.7%
G&A Expenses	[BRL MM]	(131,544)	(161,246)	(91,745)	(184,991)	(206,962)	(239,537)	(278,710)	(314,140)	(345,148)	(373,138)	(399,057)	(419,764)	(438,192)	(457,021)
growth YoY	[%]	-4.7%	22.6%	-	14.7%	11.9%	15.7%	16.4%	12.7%	9.9%	8.1%	6.9%	5.2%	4.4%	4.3%
% of Net Revenue	[%]	-12.6%	-11.0%	-11.4%	-11.6%	-10.1%	-9.1%	-8.4%	-7.9%	-7.7%	-7.5%	-7.4%	-7.3%	-7.3%	-7.3%
D&A Expenses	[BRL MM]	(55,749)	(68,598)	(49,654)	(88,389)	(136,464)	(204,348)	(267,874)	(297,375)	(314,337)	(332,554)	(350,752)	(362,088)	(374,165)	(391,850)
growth YoY	[%]	22.5%	23.0%	-	28.9%	54.4%	49.7%	31.1%	11.0%	5.7%	5.8%	5.5%	3.2%	3.3%	4.7%
% of Net Revenue	[%]	-5.3%	-4.7%	-6.2%	-5.6%	-6.7%	-7.8%	-8.1%	-7.5%	-7.0%	-6.7%	-6.5%	-6.3%	-6.2%	-6.2%
Other Expenses	[BRL MM]	6,567	(9,338)	(6,536)	(11,797)	(9,790)	(12,561)	(15,838)	(18,722)	(21,152)	(23,352)	(25,294)	(26,723)	(27,999)	(29,311)
growth YoY	[%]	-93.9%	-242.2%	-	26.3%	-17.0%	28.3%	26.1%	18.2%	13.0%	10.4%	8.3%	5.7%	4.8%	4.7%
% of Net Revenue	[%]	0.6%	-0.6%	-0.8%	-0.7%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
EBIT	**[BRL MM]**	**205,079**	**294,686**	**132,987**	**270,743**	**386,619**	**525,891**	**725,893**	**944,436**	**1,144,188**	**1,318,096**	**1,472,101**	**1,587,566**	**1,679,400**	**1,766,780**
growth YoY	[%]	-43.3%	43.7%	0.0%	-8.1%	42.8%	36.0%	38.0%	30.1%	21.2%	15.2%	11.7%	7.8%	5.8%	5.2%
EBIT Margin	[%]	19.6%	20.1%	16.5%	17.0%	18.9%	20.1%	21.8%	23.9%	25.5%	26.5%	27.3%	27.7%	28.0%	28.1%
Financial Result	**[BRL MM]**	(41,542)	(31,509)	(20,246)	**(55,831)**	**(65,232)**	**(76,142)**	**(93,669)**	**(109,123)**	**(123,780)**	**(136,842)**	**(148,596)**	**(157,183)**	**(164,466)**	**(171,876)**
growth YoY	[%]	1588.2%	-24.2%	-	77.2%	16.8%	16.7%	23.0%	16.5%	13.4%	10.6%	8.6%	5.8%	4.6%	4.5%
% of Net Revenue	[%]	-4.0%	-2.1%	-2.5%	-3.5%	-3.2%	-2.9%	-2.8%	-2.8%	-2.8%	-2.8%	-2.8%	-2.7%	-2.7%	-2.7%
Financial Revenue	[BRL MM]	20,294	35,547	23,218	34,684	25,673	25,673	25,673	25,673	25,673	25,673	25,673	25,673	25,673	25,673
Financial Expenses	[BRL MM]	(57,561)	(62,781)	(42,001)	(86,510)	(87,887)	(98,797)	(116,323)	(131,778)	(146,434)	(159,497)	(171,251)	(179,837)	(187,121)	(194,531)
Exchange rate variation	[BRL MM]	(4,274)	(4,275)	(1,462)	(4,006)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)	(3,018)
EBT	**[BRL MM]**	**163,537**	**263,177**	**112,741**	**214,912**	**321,386**	**449,749**	**632,224**	**835,313**	**1,020,408**	**1,181,254**	**1,323,505**	**1,430,383**	**1,514,933**	**1,594,904**
growth YoY	[%]	-54.5%	60.9%	-	-18.3%	49.5%	39.9%	40.6%	32.1%	22.2%	15.8%	12.0%	8.1%	5.9%	5.3%
EBT Margin	[%]	15.6%	17.9%	14.0%	13.5%	15.7%	17.2%	19.0%	21.1%	22.7%	23.8%	24.5%	25.0%	25.2%	25.4%
Income Taxes	[BRL MM]	(16,865)	35,313	22,233	30,499	14,658	13,892	9,903	1,196	(7,699)	(15,230)	(21,602)	(26,392)	(29,668)	(32,234)
Tax Rate	[%]	-10.3%	13.4%	19.7%	14.2%	4.6%	3.1%	1.6%	0.1%	-0.8%	-1.3%	-1.6%	-1.8%	-2.0%	-2.0%
Net Income	**[BRL MM]**	**146,672**	**298,490**	**134,974**	**245,410**	**336,044**	**463,641**	**642,128**	**836,509**	**1,012,709**	**1,166,024**	**1,301,903**	**1,403,991**	**1,485,265**	**1,562,670**
growth YoY	[%]	-53.9%	103.5%	-	-17.8%	36.9%	38.0%	38.5%	30.3%	21.1%	15.1%	11.7%	7.8%	5.8%	5.2%
Net Margin	[%]	14.0%	20.4%	16.7%	15.4%	16.4%	17.7%	19.3%	21.1%	22.5%	23.5%	24.1%	24.5%	24.8%	24.9%

Appendix B – Balance Sheet

Balance Sheet	[Unit]	2020	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
CURRENT ASSETS	**[BRL MM]**	**1,428,554**	**1,583,220**	**1,471,843**	**1,481,429**	**1,732,788**	**2,067,854**	**2,492,811**	**2,915,413**	**3,288,260**	**3,674,519**	**4,115,668**	**4,596,075**	**5,108,839**	**5,657,264**
Cash and cash equivalents	[BRL MM]	477,319	325,588	164,942	172,561	114,289	75,989	36,811	47,069	70,247	152,530	318,960	589,965	922,715	1,287,652
Trade receivables	[BRL MM]	410,263	531,777	491,508	592,513	762,252	975,716	1,239,314	1,474,027	1,674,757	1,851,932	2,012,580	2,133,246	2,235,753	2,340,034
Inventories	[BRL MM]	365,184	527,139	646,091	547,053	686,945	846,847	1,047,384	1,225,016	1,373,954	1,500,755	1,614,826	1,703,562	1,781,069	1,860,275
Other Assets	[BRL MM]	175,788	198,716	169,302	169,302	169,302	169,302	169,302	169,302	169,302	169,302	169,302	169,302	169,302	169,302
NONCURRENT ASSETS	**[BRL MM]**	**712,142**	**980,649**	**1,081,615**	**1,245,183**	**1,554,919**	**1,856,613**	**2,074,821**	**2,166,378**	**2,261,743**	**2,361,062**	**2,423,312**	**2,465,081**	**2,508,104**	**2,552,417**
Right to Use	[BRL MM]	320,442	462,183	533,208	620,787	805,153	985,178	1,121,986	1,191,025	1,263,197	1,338,627	1,392,317	1,434,086	1,477,109	1,521,422
Property, plant and equipment	[BRL MM]	20,465	18,805	17,217	93,206	218,577	340,246	421,646	444,163	467,357	491,246	499,806	499,806	499,806	499,806
Other Assets	[BRL MM]	371,235	499,661	531,189	531,189	531,189	531,189	531,189	531,189	531,189	531,189	531,189	531,189	531,189	531,189
CURRENT LIABILITIES	**[BRL MM]**	**580,561**	**669,587**	**542,927**	**492,086**	**561,168**	**634,946**	**707,724**	**761,431**	**811,155**	**858,463**	**900,227**	**936,187**	**971,966**	**1,010,224**
Suppliers	[BRL MM]	53,198	157,556	167,524	102,605	128,843	158,834	196,446	229,763	257,697	281,480	302,875	319,518	334,055	348,911
Borrowings and financing	[BRL MM]	277,821	127,176	114,007	125,637	141,309	156,517	166,692	169,507	172,406	175,392	176,462	176,462	176,462	176,462
Leasing liabilities	[BRL MM]	39,955	59,920	60,842	63,290	90,463	119,040	144,031	161,607	180,497	201,037	220,335	239,652	260,894	284,296
Other Liabilities	[BRL MM]	209,587	324,935	200,554	200,554	200,554	200,554	200,554	200,554	200,554	200,554	200,554	200,554	200,554	200,554
NONCURRENT LIABILITIES	**[BRL MM]**	**384,178**	**504,842**	**491,689**	**595,710**	**801,592**	**1,016,844**	**1,201,954**	**1,327,802**	**1,462,931**	**1,609,695**	**1,745,854**	**1,881,073**	**2,029,764**	**2,193,577**
Borrowings and financing	[BRL MM]	112,500	164,037	118,270	125,637	141,309	156,517	166,692	169,507	172,406	175,392	176,462	176,462	176,462	176,462
Leasing liabilities	[BRL MM]	235,273	310,148	346,375	443,030	633,240	833,283	1,008,218	1,131,252	1,263,481	1,407,259	1,542,348	1,677,567	1,826,259	1,990,071
Other Liabilities	[BRL MM]	36,405	30,657	27,043	27,043	27,043	27,043	27,043	27,043	27,043	27,043	27,043	27,043	27,043	27,043
EQUITY	**[BRL MM]**	**1,171,476**	**1,392,731**	**1,518,842**	**1,638,816**	**1,924,947**	**2,272,677**	**2,657,954**	**2,992,558**	**3,275,917**	**3,567,423**	**3,892,899**	**4,243,897**	**4,615,213**	**5,005,880**
Earnings reserves	[BRL MM]	0	0	134,974	254,947	541,079	888,809	1,274,086	1,608,689	1,892,049	2,183,555	2,509,031	2,860,028	3,231,345	3,622,012
Others	[BRL MM]	1,171,476	1,392,731	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868	1,383,868

Appendix C– EBITDA Reconciliation (exc. IFRS-16)

EBITDA Reconciliation	[Unit]	2020	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
EBIT	**[BRL MM]**	**205,079**	**294,686**	**132,987**	**270,743**	**386,619**	**525,891**	**725,893**	**944,436**	**1,144,188**	**1,318,096**	**1,472,101**	**1,587,566**	**1,679,400**	**1,766,780**
D&A expenses	[BRL MM]	58,273	71,830	52,119	90,854	136,464	204,348	267,874	297,375	314,337	332,554	350,752	362,088	374,165	391,850
EBITDA	**[BRL MM]**	**263,351**	**366,516**	**185,105**	**361,597**	**523,082**	**730,240**	**993,766**	**1,241,811**	**1,458,525**	**1,650,650**	**1,822,853**	**1,949,654**	**2,053,565**	**2,158,630**
IFRS-16 Impact	[BRL MM]	47,032	72,647	41,817	97,809	146,220	187,169	237,734	282,758	321,263	355,250	386,067	409,214	428,877	433,160
Non Recurring Events	[BRL MM]	0	7,520	8,081	8,081	0	0	0	0	0	0	0	0	0	0
Adjusted EBITDA	**[BRL MM]**	**216,319**	**286,349**	**135,208**	**255,707**	**376,862**	**543,071**	**756,033**	**959,053**	**1,137,262**	**1,295,400**	**1,436,787**	**1,540,440**	**1,624,687**	**1,725,471**
Adjusted EBITDA Margin	[%]	20.7%	19.5%	16.8%	16.1%	18.4%	20.7%	22.7%	24.2%	25.3%	26.1%	26.6%	26.9%	27.1%	27.5%

Appendix D – Tax Reserves

Income Taxes & Tax Reserves Addition	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Tax Reserves BoP	**146,475**	**322,513**	**446,549**	**652,934**	**880,337**	**1,179,096**	**1,570,761**	**2,053,273**	**2,615,762**	**3,248,336**	**3,943,740**	**4,686,343**	**5,467,793**
Net Add - ICMS	131,465	91,553	154,019	163,126	208,809	265,220	315,450	358,407	396,324	430,703	456,526	478,463	500,780
Net Add - IRPJ	44,662	32,236	52,366	64,277	89,950	126,445	167,063	204,082	236,251	264,701	286,077	302,987	318,981
Tax Reserves EoP	**322,513**	**446,549**	**652,934**	**880,337**	**1,179,096**	**1,570,761**	**2,053,273**	**2,615,762**	**3,248,336**	**3,943,740**	**4,686,343**	**5,467,793**	**6,287,554**

Appendix E – Cash Flow Statement

Cash Flow Statement	[Unit]	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
CFO	**[BRL MM]**	**56.250**	**118.203**	**227.511**	**358.749**	**610.007**	**843.105**	**1.037.431**	**1.198.580**	**1.354.502**	**1.455.895**	**1.526.654**
Net Income	[BRL MM]	110.437	336.044	463.641	642.128	836.509	1.012.709	1.166.024	1.301.903	1.403.991	1.485.265	1.562.670
(+) D&A	[BRL MM]	12.700	65.552	107.245	143.145	152.525	152.131	151.600	150.001	143.270	136.106	132.616
(-/+) ∆Working Capital	[BRL MM]	(66.887)	(283.393)	(343.375)	(426.523)	(379.027)	(321.734)	(280.193)	(253.324)	(192.759)	(165.477)	(168.632)
CFI	**[BRL MM]**	**(176.268)**	**(375.288)**	**(408.939)**	**(361.352)**	**(244.082)**	**(247.496)**	**(250.920)**	**(212.250)**	**(185.039)**	**(179.129)**	**(176.930)**
(-) Maintaince CapEx	[BRL MM]	(12.700)	(65.552)	(107.245)	(143.145)	(152.525)	(152.131)	(151.600)	(150.001)	(143.270)	(136.106)	(132.616)
(-) Expansion CapEx	[BRL MM]	(75.989)	(125.370)	(121.669)	(81.400)	(22.518)	(23.193)	(23.889)	(8.560)	0	0	0
(-) Rights to Use	[BRL MM]	(87.579)	(184.366)	(180.025)	(136.808)	(69.039)	(72.172)	(75.430)	(53.690)	(41.769)	(43.023)	(44.313)
CFF	**[BRL MM]**	**127.637**	**198.813**	**143.128**	**(36.575)**	**(355.667)**	**(572.431)**	**(704.228)**	**(819.899)**	**(898.457)**	**(944.016)**	**(984.788)**
(+/-) ∆ Borrowings	[BRL MM]	18.997	31.343	30.417	20.350	5.629	5.798	5.972	2.140	0	0	0
(+/-) Change in Leasing Liabilities	[BRL MM]	99.103	217.383	228.621	199.926	140.609	151.120	164.317	154.388	154.536	169.933	187.214
(-) Dividends	[BRL MM]	9.537	(49.913)	(115.910)	(256.851)	(501.905)	(729.349)	(874.518)	(976.427)	(1.052.993)	(1.113.949)	(1.172.002)
Cash BOP	[BRL MM]	164.942	172.561	114.289	75.989	36.811	47.069	70.247	152.530	318.960	589.965	922.715
Change in Cash	**[BRL MM]**	**7.619**	**(58.272)**	**(38.300)**	**(39.178)**	**10.258**	**23.179**	**82.283**	**166.430**	**271.005**	**332.750**	**364.937**
Cash EOP	[BRL MM]	172.561	114.289	75.989	36.811	47.069	70.247	152.530	318.960	589.965	922.715	1.287.652

Appendix F – FCFF and FCFE

Free Cash Flow to Firm	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
(=) EBIT	**137,757**	**386,619**	**525,891**	**725,893**	**944,436**	**1,144,188**	**1,318,096**	**1,472,101**	**1,587,566**	**1,679,400**	**1,766,780**
(-) Taxes	12,213	18,421	16,854	11,869	1,688	(8,380)	(16,774)	(23,827)	(29,109)	(32,711)	(35,527)
(=) NOPAT	**149,970**	**405,040**	**542,746**	**737,762**	**946,124**	**1,135,808**	**1,301,321**	**1,448,275**	**1,558,457**	**1,646,689**	**1,731,254**
(-) Capex	(202,303)	(446,200)	(506,042)	(486,082)	(388,932)	(409,703)	(431,874)	(413,002)	(403,858)	(417,188)	(436,163)
(+) D&A	38,735	136,464	204,348	267,874	297,375	314,337	332,554	350,752	362,088	374,165	391,850
(-) ∆WC	(66,887)	(283,393)	(343,375)	(426,523)	(379,027)	(321,734)	(280,193)	(253,324)	(192,759)	(165,477)	(168,632)
(=) FCFF	**(80,486)**	**(188,089)**	**(102,323)**	**93,031**	**475,540**	**718,709**	**921,809**	**1,132,701**	**1,323,929**	**1,438,190**	**1,518,309**
(=) PV of FCFF	**(80,486)**	**(188,089)**	**(80,233)**	**89,914**	**361,356**	**477,893**	**539,878**	**584,224**	**602,930**	**578,933**	**540,423**

FCFF	
Enterprise Value	7,532,463
Net-Debt	221,637
Equity Value	7,754,100
Number of Shares	236,198
Target Price 23E	**32.83**
Current Price	25.60
Upside/Downside	**28.24%**

g
4.50%

Ke
13.82%

Kd
12.58%

WACC
13.08%

Free Cash Flow to Equity	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
(=) FCFF	**(80,486)**	**(188,089)**	**(102,323)**	**93,031**	**475,540**	**718,709**	**921,809**	**1,132,701**	**1,323,929**	**1,438,190**	**1,518,309**
(+/-) Net Borrowings	18,997	31,343	30,417	20,350	5,629	5,798	5,972	2,140	0	0	0
(-) Financial Expenses	(44,508)	(87,887)	(98,797)	(116,323)	(131,778)	(146,434)	(159,497)	(171,251)	(179,837)	(187,121)	(194,531)
(+) Tax Shield	(4,797)	(4,908)	(3,773)	(2,399)	(579)	819	1,812	2,576	3,120	3,473	3,739
(+/-) Lease Liabilities	99,103	217,383	228,621	199,926	140,609	151,120	164,317	154,388	154,536	169,933	187,214
(=) FCFE	**(11,691)**	**(32,159)**	**54,145**	**194,585**	**489,422**	**730,012**	**934,414**	**1,120,554**	**1,301,747**	**1,424,475**	**1,514,731**
(=) PV of FCFE	**(11,691)**	**(32,159)**	**65,582**	**173,940**	**366,620**	**475,349**	**532,339**	**559,143**	**569,526**	**547,171**	**511,048**

FCFE	
Equity Value	7,626,910
Number of Shares	236,198
Target Price 23E	**32.29**
Current Price	25.60
Upside/Downside	**26.13%**

Appendix G – Cost of Capital

Kd	Index	Spread	Debt	22E	23E	24E	25E	26E	27E	28E	29E	30E	31E	32E
Banco Safra - Working Capital	CDI	2.20%	7,533	14.57%	14.52%	11.28%	9.60%	9.60%	9.60%	9.60%	9.60%	9.60%	9.60%	9.60%
Banco Safra - Working Capital	CDI	1.60%	22,434	13.97%	13.92%	10.68%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Banco Santander - Working Capital	CDI	2.46%	41,534	14.83%	14.78%	11.54%	9.86%	9.86%	9.86%	9.86%	9.86%	9.86%	9.86%	9.86%
Banco Itaú BBA - Working Capital	CDI	2.55%	62,123	14.92%	14.87%	11.63%	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%
Banco Itaú BBA - Working Capital	CDI	1.55%	-	13.92%	13.87%	10.63%	8.95%	8.95%	8.95%	8.95%	8.95%	8.95%	8.95%	8.95%
Banco Bradesco - Working Capital	CDI	1.47%	50,248	13.84%	13.79%	10.55%	8.87%	8.87%	8.87%	8.87%	8.87%	8.87%	8.87%	8.87%
Banco Santander - Loan 4131	SOFR	2.35%	48,406	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%	5.38%
Cost of Debt				**12.6%**	**13.8%**	**10.7%**	**9.1%**	**9.0%**	**9.0%**	**9.0%**	**9.0%**	**9.0%**	**9.0%**	**9.0%**
Ke				22E	23E	24E	25E	26E	27E	28E	29E	30E	31E	32E
Risk Free Rate				4.00%	4.02%	4.02%	4.02%	4.02%	4.02%	4.02%	4.02%	4.02%	4.02%	4.02%
Unlevered Beta				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Debt				251,274	282,617	313,034	333,384	339,014	344,812	350,784	352,924	352,924	352,924	352,924
Equity				1,638,816	1,924,947	2,272,677	2,657,954	2,992,558	3,275,917	3,567,423	3,892,899	4,243,897	4,615,213	5,005,880
Tax Rate				14.2%	4.6%	3.1%	1.6%	0.1%	-0.8%	-1.3%	-1.6%	-1.8%	-2.0%	-2.0%
Levered Beta				1.18	1.15	1.14	1.13	1.11	1.10	1.10	1.09	1.08	1.07	1.07
Equity Risk Premium				5.12%	5.12%	5.12%	5.12%	5.12%	5.12%	5.12%	5.12%	5.12%	5.12%	5.12%
Country Risk Premium				3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Nominal Ke (USA)				13.62%	13.53%	13.47%	13.39%	13.32%	13.28%	13.24%	13.20%	13.16%	13.13%	13.10%
USA CPI				2.00%	2.88%	2.49%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%
Real Ke (USA)				13.35%	13.15%	13.14%	13.06%	12.99%	12.95%	12.91%	12.87%	12.83%	12.80%	12.77%
Brazil CPI				3.5%	5.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Cost of Equity				**13.82%**	**13.81%**	**13.60%**	**13.52%**	**13.45%**	**13.40%**	**13.36%**	**13.32%**	**13.28%**	**13.25%**	**13.22%**
WACC				22E	23E	24E	25E	26E	27E	28E	29E	30E	31E	32E
WACC				**13.08%**	**13.21%**	**12.81%**	**12.68%**	**12.69%**	**12.69%**	**12.70%**	**12.71%**	**12.72%**	**12.73%**	**12.74%**

Appendix H – Working Capital Dynamics

Working Capital	[Unit]	2020	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Days in the Period	[#]	360	360	180	360	360	360	360	360	360	360	360	360	360	360
Working Capital	**[BRL MM]**	**722,249**	**901,360**	**970,074**	**1,036,962**	**1,320,354**	**1,663,729**	**2,090,252**	**2,469,280**	**2,791,014**	**3,071,207**	**3,324,531**	**3,517,290**	**3,682,767**	**3,851,398**
∆ Working Capital	[BRL MM]	(15,197)	179,112	68,714	135,601	283,393	343,375	426,523	379,027	321,734	280,193	253,324	192,759	165,477	168,632
Inventories	[BRL MM]	365,184	527,139	646,091	547,053	686,945	846,847	1,047,384	1,225,016	1,373,954	1,500,755	1,614,826	1,703,562	1,781,069	1,860,275
Days of Inventories	[#]	398	400	445	378	378	378	378	378	378	378	378	378	378	378
Trades Receivables	[BRL MM]	410,263	531,777	491,508	592,513	762,252	975,716	1,239,314	1,474,027	1,674,757	1,851,932	2,012,580	2,133,246	2,235,753	2,340,034
Days Receivables	[#]	141	131	110	134	134	134	134	134	134	134	134	134	134	134
Suppliers	[BRL MM]	53,198	157,556	167,524	102,605	128,843	158,834	196,446	229,763	257,697	281,480	302,875	319,518	334,055	348,911
Days Payables	[#]	58	119	115	71	71	71	71	71	71	71	71	71	71	71
Cash Conversion Cycle	**[#]**	**481**	**411**	**439**	**441**	**441**	**441**	**441**	**441**	**441**	**441**	**441**	**441**	**441**	**441**

Appendix I – Store Openings

Store Opening	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Total Openings Vivara	**16**	**28**	**28**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Vivara's Openings Cluster A	0	0	0	0	0	0	0	0	0	0	0
Vivara's Openings Cluster B	6	8	8	2	0	0	0	0	0	0	0
Vivara's Openings Cluster C	10	20	20	17	0	0	0	0	0	0	0
Total Openings Life	**37**	**60**	**56**	**39**	**20**	**20**	**20**	**7**	**0**	**0**	**0**
Life Cluster AA	1	0	0	0	0	0	0	0	0	0	0
Life Cluster A	8	4	0	0	0	0	0	0	0	0	0
Life Cluster B	18	36	36	19	0	0	0	0	0	0	0
Life Cluster C	10	20	20	20	20	20	20	7	0	0	0
Total Stores Opened	**53**	**88**	**84**	**58**	**20**	**20**	**20**	**7**	**0**	**0**	**0**

Appendix J – Revenue Build-Up

Average Revenue per Vivara Store	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Vivara Stores Weighted Average Revenue	6,132	8,034	7,846	8,387	8,973	9,746	10,516	11,231	11,870	12,412	12,929	13467E
Revenue Cluster AA	6700	8,833	8,721	9,422	10,153	10,945	11,737	12,484	13,171	13,779	14,370	14,987
Revenue Cluster A	10700	14,106	14,021	15,215	16,469	17,832	19,196	20,481	21,655	22,687	23,687	24,730
Revenue Cluster B	6500	8,569	8,544	9,290	10,076	10,932	11,789	12,596	13,332	13,975	14,599	15,250
Revenue Cluster C	4100	5,405	5,427	5,929	6,461	7,042	7,626	8,174	8,672	9,104	9,521	9,957
Life Store Average Revenue		3,709	4,218	4,769	5,379	6,068	6,770	7,430	8,019	8,508	8,976	9,470
SSS Life above IPCA (Yearly)		9.3%	9.3%	9.3%	9.3%	9.3%	8.2%	6.3%	4.5%	2.7%	2.0%	2.0%
SSS Vivara IPCA (Yearly)		3.1%	3.1%	3.1%	3.1%	3.1%	2.7%	2.1%	1.4%	0.8%	0.5%	0.5%

Revenue Build-up (Vivara Stores)	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Current Vivara's Stores in Maturation Process												
1Q		7	7	7	2	0	0	0	0	0	0	0
2Q		9	7	7	5	0	0	0	0	0	0	0
3Q		1	7	7	5	0	0	0	0	0	0	0
4Q		2	7	7	7	0	0	0	0	0	0	0
5Q		2	7	7	7	2	0	0	0	0	0	0
6Q		6	9	7	7	5	0	0	0	0	0	0
7Q		13	1	7	7	5	0	0	0	0	0	0
8Q		0	2	7	7	7	0	0	0	0	0	0
9Q		2	2	7	7	7	2	0	0	0	0	0
Mature		206	227	241	269	297	321	323	323	323	323	323
Vivara's Stores in Maturation Net of Return		1,661,542	1,951,229	2,299,417	2,695,321	3,080,396	3,389,086	3,629,721	3,844,030	4,031,191	4,212,208	4,401,357

Revenue Build-up (Life Stores)	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Life's Stores in Maturation Process - Base scenario												
1Q		18	14	14	5	5	5	5	0	0	0	0
2Q		19	14	14	6	5	5	5	0	0	0	0
3Q		8	14	14	14	5	5	5	2	0	0	0
4Q		2	18	14	14	5	5	5	5	0	0	0
5Q		14	18	14	14	5	5	5	5	0	0	0
6Q		5	19	14	14	6	5	5	5	0	0	0
7Q		1	8	14	14	14	5	5	5	2	0	0
Mature		13	35	98	154	210	240	260	280	300	302	302
Life's Stores Net of Return		102,122	387,837	712,058	1,087,165	1,430,845	1,749,876	2,068,962	2,364,799	2,561,433	2,710,878	2,859,976

Life revenue cannibalized in Vivara Stores	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
% Cannibalized Life Revenue in Cluster AA		1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
% Cannibalized Life Revenue in Cluster A		4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
% Cannibalized Life Revenue in Cluster B		7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
% Cannibalized Life Revenue in Cluster C		12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Life Revenue Canibalized in Cluster AA		13	30	33	38	42	48	54	61	68	77	87
Life Revenue Canibalized in Cluster A		489	2,129	2,401	2,708	3,054	3,444	3,883	4,379	4,938	5,569	6,280
Life Revenue Canibalized in Cluster B		1,261	8,311	17,635	27,529	31,814	35,876	40,457	45,623	51,449	58,019	65,428
Life Revenue Canibalized in Cluster C		972	6,405	13,590	22,505	33,476	46,882	63,166	79,264	89,698	101,152	114,069
Life Revenue Canibalized - Total		2,735	16,875	33,659	52,780	68,386	86,249	107,560	129,327	146,154	164,818	185,864

Revenue Build-up (Kiosks)	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Number of Kiosks	26	23	23	23	23	23	23	23	23	23	23	23
Revenue	44,716	39,456	40,332	41,562	42,830	44,158	45,335	46,254	46,897	47,242	47,478	47,716
Revenue per Kiosk	1,720	1,715	1,754	1,807	1,862	1,920	1,971	2,011	2,039	2,054	2,064	2,075

Revenue Build-up (E-Commerce)	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue E-Commerce	306,271	188,291	236,252	307,168	452,704	538,442	611,766	676,485	735,168	779,245	816,690	854,782
YoY growth	-1%	-39%	25%	30%	47%	19%	14%	11%	9%	6%	5%	5%
Revenue Build-up (E-Commerce) as % of B&M Sales	20.3%	21.6%	13.1%	13.0%	15.0%	14.3%	13.6%	13.3%	13.0%	12.7%	12.6%	12.6%
Revenue Build-up (E-Commerce) as % of Total Sales	17%	18%	9%	9%	11%	11%	11%	11%	11%	11%	11%	11%

Consolidated Revenue	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Gross Revenue	1,842,455	2,129,973	2,598,775	3,326,546	4,225,241	5,025,455	5,709,813	6,313,862	6,861,567	7,272,956	7,622,437	7,977,967

Appendix K – Income Tax and CSLL

Income Taxes & Tax Reserves Addition	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
EBT	263,177	112,741	214,912	321,386	449,749	632,224	835,313	1,020,408	1,181,254	1,323,505	1,430,383	1,514,933	1,594,904
Tax rate	34%	34%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%
IR and CSLL	(89,480)	(38,332)	(73,070)	(109,271)	(152,915)	(214,956)	(284,006)	(346,939)	(401,626)	(449,992)	(486,330)	(515,077)	(2,137,171)
Tax Credit Selic Unconstitutionality	18,996	0	0	0	0	0	0	0	0	0	0	0	0
Others	16,437	(2,799)	-1,467	4,189	5,862	8,240	10,887	13,299	15,396	17,250	18,643	19,745	20,787
% EBT	6%	-2%	-0.7%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Fiscal Incentive - Exploration Profits	44,662	32,236	52,670	64,277	89,950	126,445	167,063	204,082	236,251	264,701	286,077	302,987	318,981
% EBT	17%	29%	24.5%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Fiscal Incentives - ICMS (base 34%)	44,698	31,128	52,366	55,463	70,995	90,175	107,253	121,858	134,750	146,439	155,219	162,678	170,265
% Total ICMS	64%	53%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%
Total Paid	35,313	22.233	105,037	119,740	160,945	216,620	274,315	325,940	371,001	411,140	441,296	465,664	489,246

Tax benefits impact on Present Value: Tax benefits are extremely impactful in Vivara's valuation, therefore we decided to bring all the benefits added to present value and see how much participation it has on our fair Equity Value. Results are showed in the below, in which we conclude that 40.5% of the company's value comes from the them. It is important to highlight that total tax benefits are calculated by dividing ICMS benefits by 34% (since it is deductible on income tax) and then summing the exploration profit incentive.

Tax Benefits Valuation	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Tax Benefits	82,900	227,403	298,758	391,665	482,512	562,489	632,574	695,404	742,603	781,450	819,761
Discount Factor	1.0	1.0	1.1	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.1
Present Value	82,900	227,403	273,711	315,413	341,551	350,039	345,935	334,226	313,673	290,029	267,320

Results	
Tax Benefits	3,142,199
Equity Value	7,754,100
% of Equity Value	40.5%

Ke
13.82%

Appendix L – SG&A

SG&A	2021	1H22	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
SG&A	**(624,042)**	**(356,084)**	**(697,902)**	**(858,183)**	**(1,068,758)**	**(1,318,280)**	**(1,527,985)**	**(1,705,620)**	**(1,865,950)**	**(2,014,241)**	**(2,219,291)**	**(2,221,340)**	**(2,319,346)**
% net-revenue	-43%	-44%	-43.9%	-42.0%	-40.8%	-39.6%	-38.6%	-38.0%	-37.6%	-37.3%	-38.9%	-37.2%	-37.1%
Sales Expenses	**(462,796)**	**(264,339)**	**(512,911)**	**(651,221)**	**(829,221)**	**(1,039,570)**	**(1,213,845)**	**(1,360,471)**	**(1,492,813)**	**(1,615,184)**	**(1,705,521)**	**(1,783,148)**	**(1,862,325)**
% net revenue	-32%	-33%	-32.3%	-31.8%	-31.7%	-31.3%	-30.7%	-30.3%	-30.1%	-29.9%	-29.9%	-29.8%	-29.8%
Personnel	(224,883)	(127,332)	(244,837)	(306,858)	(392,792)	(498,908)	(593,396)	(674,204)	(745,529)	(810,201)	(858,777)	(900,043)	(942,023)
(%) net revenue	-15%	-16%	-15.4%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%
Freight	(26,543)	(13,086)	(28,753)	(40,914)	(52,372)	(66,521)	(79,119)	(89,894)	(99,404)	(108,027)	(114,504)	(120,006)	(125,603)
(%) net revenue	-2%	-2%	-1.8%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
MDR	(33,230)	(19,248)	(34,916)	(40,914)	(52,372)	(66,521)	(79,119)	(89,894)	(99,404)	(108,027)	(114,504)	(120,006)	(125,603)
(%) net revenue	-2%	-2%	-2.2%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
Marketing expenses	(76,269)	(41,964)	(81,132)	(102,286)	(130,931)	(166,303)	(197,799)	(224,735)	(248,510)	(270,067)	(286,259)	(300,014)	(314,008)
(%) net revenue	-5%	-5%	-5.1%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Rent and other expenses	(101,871)	(62,709)	(123,273)	(160,247)	(200,753)	(241,317)	(264,411)	(281,745)	(299,967)	(318,863)	(331,478)	(343,080)	(355,088)
(%) net revenue	-7%	-8%	-7.8%	-7.8%	-7.7%	-7.3%	-6.7%	-6.3%	-6.1%	-5.9%	-5.9%	-5.8%	-5.8%
Vivara	(90,905)	(55,644)	(110,195)	(127,834)	(146,099)	(163,182)	(171,503)	(177,506)	(183,719)	(190,149)	(241,924)	(203,692)	(210,821)
Sales per Sqm (per quarter)	-1.1	-1.3	(1.2)	(1.3)	(1.3)	(1.4)	(1.5)	(1.5)	(1.6)	(1.6)	(2.1)	(1.8)	(1.8)
Life	(5,063)	(6,669)	(12,403)	(31,809)	(54,028)	(77,485)	(92,236)	(103,544)	(115,528)	(127,969)	(164,594)	(138,590)	(143,440)
Sales per Sqm (per quarter)	-0.6	-1.1	(0.6)	(0.8)	(1.0)	(1.2)	(1.3)	(1.4)	(1.4)	(1.5)	(2.0)	(1.7)	(1.7)
Kiosks	(715)	(318)	(597)	(605)	(627)	(649)	(672)	(696)	(720)	(745)	(948)	(798)	(826)
Sales per Sqm (per quarter)	-1.1	-1.1	(1.0)	(1.1)	(1.1)	(1.1)	(1.2)	(1.2)	(1.3)	(1.3)	(1.7)	(1.4)	(1.4)
G&A Expenses	**(161,246)**	**(91,745)**	**(184,992)**	**(206,962)**	**(239,537)**	**(278,710)**	**(314,140)**	**(345,148)**	**(373,138)**	**(399,057)**	**(513,770)**	**(438,192)**	**(457,021)**
(%) net revenue	*-11%*	*-11%*	*-12%*	*-10%*	*-9%*	*-8%*	*-8%*	*-8%*	*-8%*	*-7%*	*-9%*	*-7%*	*-7%*
Personel	(79,297)	(45,586)	(84,755)	(102,286)	(130,931)	(166,303)	(197,799)	(224,735)	(248,510)	(270,067)	(350,996)	(300,014)	(314,008)
(%) net revenue	*-5%*	*-6%*	-5.3%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-6.1%	-5.0%	-5.0%
Services	(51,438)	(33,393)	(65,805)	(68,652)	(71,234)	(73,727)	(76,307)	(78,978)	(81,742)	(84,603)	(105,441)	(90,629)	(93,801)
(%) net revenue	*-4%*	*-4%*	-4.1%	-3.4%	-2.7%	-2.2%	-1.9%	-1.8%	-1.6%	-1.6%	-1.9%	-1.5%	-1.5%
Rents	(1,714)	(625)	(1,562)	(1,632)	(1,693)	(1,752)	(1,813)	(1,877)	(1,943)	(2,011)	(2,495)	(2,154)	(2,229)
growth yoy	136%	-64%	-8.9%	4.5%	3.7%	3.5%	3.5%	3.5%	3.5%	3.5%	24.1%	-13.7%	3.5%
Others	(28,797)	(12,141)	(32,871)	(34,392)	(35,680)	(36,929)	(38,221)	(39,559)	(40,943)	(42,376)	(54,839)	(45,395)	(46,984)
(%) net revenue	*-2%*	*-2%*	-2.1%	-1.7%	-1.4%	-1.1%	-1.0%	-0.9%	-0.8%	-0.8%	-1.0%	-0.8%	-0.8%

Appendix M – Trading Comp Multiples

November 22, 2022		Market Cap	Net Debt	EV	EV/EBITDA			P/E			P/B	Revenue CAGR	EBITDA CAGR	EBITDA Margin	ROE	ROIC
	Country	Local Currency	Local Currency	Local Currency	22E	23E	24E	22E	23E	24E	LTM	21-24E	21-24E	22-24E	LTM	LTM
Brazilian Peers																
Vivara (Consensus)	Brazil	6,265	381	6,646	15.2	11.7	8.9	18.2	15.2	12.7	4.2	23.4%	26.7%	25.4%	25.1%	24.9%
Vivara (Team 2 Estimates)	Brazil	6,265	381	6,646	18.4	12.7	9.1	25.5	18.6	13.5	4.2	21.3%	25.8%	25.8%	25.1%	24.9%
Grupo Soma	Brazil	11,405	998	12,403	16.9	12.9	10.4	28.1	19.2	14.4	1.6	33.5%	53.4%	16.7%	8.4%	9.8%
Arezzo	Brazil	11,090	-118	10,972	16.3	13.8	11.1	24.6	21.1	16.6	4.5	23.5%	19.9%	17.3%	20.4%	22.7%
Median					16.6	12.8	9.7	25.1	18.9	13.9	4.2	23.4%	26.3%	21.4%	22.8%	23.8%
Mean					16.7	12.8	9.9	24.1	18.5	14.3	3.6	25.4%	31.4%	21.3%	19.8%	20.6%
Europe Luxury																
LVMH	France	328,235	35,374	363,609	13.51	12.54	11.64	23.1	21.1	19.4	6.6	12.3%	15.5%	34.2%	28.8%	18.9%
Christian Dior	France	116,698	72,117	188,815	N/A	N/A	N/A	N/A	N/A	N/A	6.8	N/A	N/A	N/A	36.3%	19.8%
Hermes Internacional	France	140,252	-2,258	137,994	26.96	24.12	21.81	45.0	40.1	36.7	13.8	15.9%	18.1%	45.0%	31.9%	63.5%
Kering	France	61,540	7,214	68,754	9.2	8.8	8.0	15.4	14.3	13.1	4.6	10.8%	9.8%	35.5%	28.4%	23.1%
Richemont	Switzerland	53,413	252	53,665	9.3	8.6	8.0	19.2	17.0	15.6	3.0	5.8%	10.9%	29.2%	11.0%	18.9%
Swatch Group	Switzerland	12,246	-2,329	9,917	6.2	5.9	5.6	15.0	13.9	12.9	1.1	5.3%	6.8%	20.7%	7.1%	8.5%
Burberry	Britain	7,354	183	7,537	8.3	7.9	7.4	16.8	16.3	15.1	4.9	7.2%	6.8%	29.1%	25.0%	24.6%
Moncler	Italy	12,162	644	12,806	12.7	11.4	10.2	21.3	20.5	18.4	4.9	15.5%	14.9%	47.8%	23.9%	24.2%
Prada	Italy	99,532	-84,631	14,901	11.3	10.1	9.1	28.2	23.7	20.1	4.0	12.1%	13.8%	34.2%	12.6%	9.4%
Pandora	Denmark	38,359	8,751	47,110	5.5	5.3	5.1	7.9	7.3	6.6	6.7	6.1%	6.0%	33.2%	65.0%	39.7%
Hugo Boss	Gemarny	3,226	815	4,041	5.8	5.5	5.1	5.9	14.2	12.0	3.0	12.7%	12.0%	19.7%	N/A	N/A
Ferragamo	Italy	2,533	312	2,845	9.5	10.5	8.6	37.7	57.7	36.2	3.5	9.2%	2.7%	21.9%	15.1%	12.7%
Brunello Cucinelli	Italy	3,828	752	4,580	18.3	16.7	15.3	49.9	45.1	41.3	11.3	14.4%	15.7%	28.2%	25.4%	12.6%
Tod's	Italy	1,035	583	1,618	8.4	7.2	6.5	61.3	27.6	19.0	1.1	7.8%	15.2%	19.7%	1.6%	-6.9%
Median					9.3	8.8	8.0	21.3	20.5	18.4	4.7	10.8%	12.0%	29.2%	25.0%	18.9%
Mean					11.1	10.4	9.4	26.7	24.5	20.5	5.4	10.4%	11.4%	30.6%	24.0%	20.7%
Asian Luxury																
Chow Tai Fook Jewellery	Hong Kong	149,790	11,983	161,773	12.7	10.8	9.5	18.9	15.9	13.9	4.5	13.1%	17.8%	11.7%	20.9%	31.5%
Lao Feng Xiang	China	16,894	2,490	19,384	5.6	5.0	4.5	11.8	10.3	9.3	2.2	9.2%	8.9%	5.6%	18.7%	50.3%
Luk Fook	Hong Kong	10,415	-1,180	9,235	4.2	3.6	3.2	6.7	5.7	5.0	0.9	12.7%	18.8%	17.0%	11.9%	16.5%
Chow Sang Sang	Hong Kong	5,243	3,321	8,564	4.7	4.0	4.2	5.4	4.6	3.8	0.4	7.5%	4.4%	8.0%	5.5%	6.9%
Median					5.1	4.5	4.4	9.2	8.0	7.1	1.5	11.0%	13.3%	9.9%	15.3%	24.0%
Mean					6.8	5.9	5.4	10.7	9.1	8.0	2.0	10.6%	12.5%	10.6%	14.2%	26.3%
US Luxury																
Ralph Lauren Corp	United States	6,443	-289	6,154	6.1	5.7	5.3	12.2	10.6	8.9	2.7	4.0%	2.8%	16.3%	22.0%	19.3%
Signet Jewelers	United States	2,914	-52	2,862	3.0	3.3	3.3	5.8	6.4	6.2	1.44	5.2%	-6.7%	11.3%	22.2%	25.0%
Median					4.6	4.5	4.3	9.0	8.5	7.5	2.1	4.6%	-1.9%	13.8%	22.1%	22.2%
Mean					4.6	4.5	4.3	9.0	8.5	7.5	2.1	4.6%	-1.9%	13.8%	22.1%	22.2%
Global Median					9.3	8.8	8.0	19.2	17.0	13.9	4.1	11.0%	13.3%	21.4%	22.0%	20.7%
Global Mean					10.8	9.4	8.2	21.4	18.8	15.6	4.1	13.1%	14.7%	23.3%	21.1%	21.9%

Appendix N – Sector Projections (TAM, Vivara's market share)

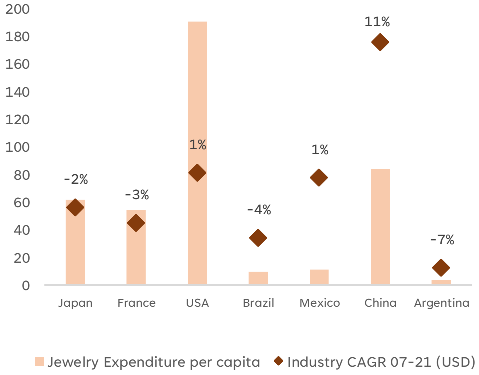
The jewelry industry size in Brazil is unsurprisingly far from being as developed as international wealthier peers.

Moreover, the Brazilian TAM (Total Addressable Market) has decreased in dollars. So, is it a bad sector to invest in?

In our opinion, these adversities are not enough to give up on Vivara; quite the contrary. When looking at the sector size in BRL, the sector appears to be highly stable, even through crisis periods. The weakness of the national exchange rate is mostly a problem for traditional global players such as Pandora, Tiffany, Bulgari, and Cartier, which must report returns in stronger currencies to their shareholders. The disincentive for international investment has been an opportunity snatched by Vivara to become an undisputed market leader. To calculate the TAM for years to come, we first tried to understand the main macro drivers based on the series from 2007 to 2021. Through a linear regression using BRL-USD and savings as a percentage of GDP, two variables highly correlated to the industry size. The exchange rate usage rationale is due to the strong relation of USD to the main raw costs of the sector, gold, and silver. Hence, the dollar is the industry's "inflation" since it is the main driver for price volatility. We also opted to use savings for the projection. The higher the savings, the lowest consumer trust is. Therefore, discretionary items, such as jewels, are more likely to be replaced with essential on most households. Furthermore, it is essential to note that both chosen indicators present an extremely high R^2 with the historical industry size. As mentioned before, exchange rates and savings as a percentage of GDP proved to be two satisfactory drivers to project TAM through a linear regression with a robust historical correlation. We expect the dollar to keep up trading

Jewelry Expenditure per capita and industry growth

Source: Euromonitor



At high rates until 2025, nonetheless, as pandemic effects slow down, we see Brazil's consumer trust improving after a spike in 2021.
Nevertheless, it is impossible to even try to predict the behavior of exchange rates and savings for too long in the future.
Therefore, beyond 2025 we set a flatted growth equal to the **industry's CAGR from 2010-2019 of 8.2%.** Finally, we can integrate our sector projections with our Vivara valuation, reaching the following results:

Year	TAM	USD-BRL	Savings/GDP
21'	10,904	5.32	17%
22E	11,070	5.16	16%
23E	11,782	5.50	15%
24E	14,649	5.50	10%
25E	14,649	5.50	10%
26E	15,848		
27E	17,145		
28E	18,548		
29E	20,066		
30E	20,467		
31E	22,142		

Regression Statistics	
Multiple R	0.945558
R Square	0.894079
Adjusted R Square	0.876426
Observations	15

R^2 (TAM x USD) 07-19

0.9126

R^2 Savings/GDP x TAM

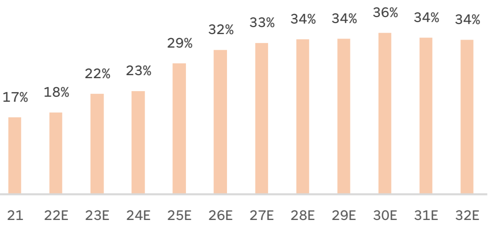
0.9479

sector growth

8.2%

Vivara Market Share Projection

Source: Euromonitor, World Bank, Team 2

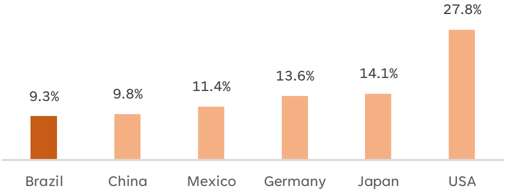


Appendix O – Digital Sales Share in the sector

Brazilian jewelry eCommerce still has a long way to go to match international peers, such as the US. Jewelry retail was taking more time to digitalize than other retail segments since products are extremely refined and expensive, leading to somewhat of customer distrust over unknown websites and the need to inspect and analyze jewels physically. Nonetheless, the pandemic has speeded up this trend, as according to Euromonitor, online sales penetration has drastically increased. This sudden change in the sector dynamics was not a problem to Vivara, as the company was the best positioned in the sector to boost its eCommerce sales due to the brand recognition and much more available capital to improve the website and promote marketing campaigns. Hence, the company is already the leader in physical sales and has gained even more market share in the digital channel.

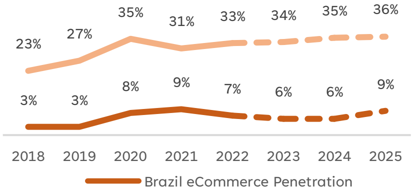
eCommerce penetration in the industry

Source: Euromonitor



Vivara eCommerce market share projection

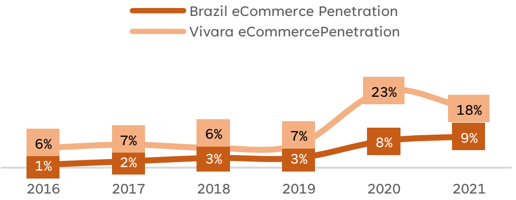
Source: Euromonitor, Vivara, Team 2



Using the previously explained TAM projections and eCommerce penetration in the sector, we try to estimate total digital sales in Brazil. Unfortunately, the data provided by Euromonitor may be misleading and not wholly accurate. However, it is the best proxy we can get. Our projections have as the central premise the deacceleration of the digital sales trend in the next few years. Either way, we expect Vivara to remain the channel's number-one player.

eCommerce penetration in Brazil vs. Vivara

Source: Euromonitor, Vivara



Appendix P – Vivara's eCommerce

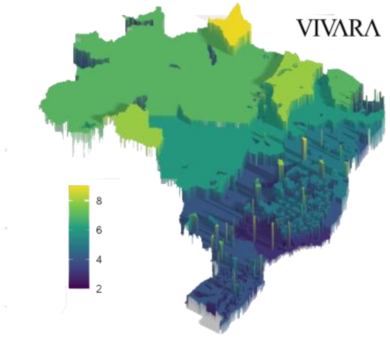
As mentioned, Vivara has the biggest capital available to boost their eCommerce and the most point of sales around Brazil, making deliveries and logistics much more straightforward. However, how can we provide quantitative evidence to back up this narrative?

To prove our point, we developed an authorial code in Python and R that tests delivery requests for a zip code in every Brazilian city. The code returns us if deliveries are available for the inputted address, as well as the maximum estimated time for the delivery. After the two first procedures, we used the gathered data to plot the three-dimensional chart in R. The most elevated reliefs mean a higher time for delivery. The results were extremely promising, given the fact that Vivara not only is the only one to have already achieved full national coverage, as well as the best delivery times.

The initial proposition that Vivara has an eCommerce service superiority allowed by capital availability was quantitively confirmed.

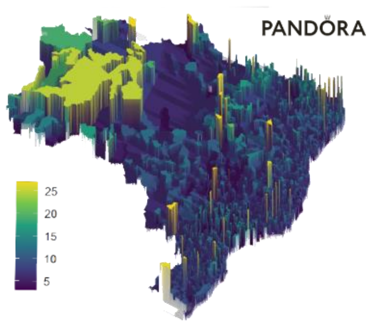
Days to deliver Vivara per city

Source: Vivara, Pandora, Team 2



Days to deliver Vivara per city

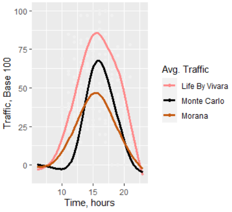
Source: Vivara, Pandora, Team 2



Appendix Q – Foot Traffic analysis

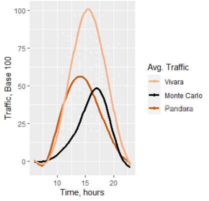
We did a Foot Traffic analysis using proprietary code written in R to understand the relevance of Vivara's top-tier positioning in every Brazilian mall. Most of the company's stores are in corners and top spots in terms of foot traffic. Thanks to the powerful brand, it has earned such privileges in negotiations with the best Brazilian malls. However, is that impactful to the company? From our results, the answer is a sublime yes.

Scenario 1: Life Corner Store in Cluster B



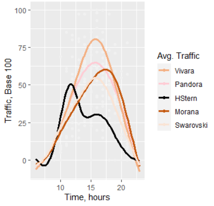
Shopping Eldorado's Life, located in São Paulo has presented the highest foot traffic, in a close competition with Monte Carlo, but much superior to Morana.

Scenario 2: Vivara Corner Store in Cluster A



Shopping Morumbi, as mentioned before, is the highest selling store for Vivara and its foot traffic demonstrates such success, being an isolated number 1

Scenario 3: Vivara corner store outside São Paulo in Cluster A



Shopping Park Shopping Brasília is very competitive, being the largest mall in one of Brazil's wealthiest cities. Once again Vivara has been superior to peers.

It is also worth pointing out that the analysis is limited to Google's data availability, therefore it is not possible to be applied for every mall. Nonetheless, the observations in three very competitive locations is a good proxy for us to reach some conclusions. To wrap up, Vivara is indeed beneficiated with its top spots at Brazilian malls, translating positioning into foot traffic.

Appendix R – Expansion Analysis

To understand Vivara's expansion plan, we sought to understand the number of potential organic openings that it still has in Brazil. The first step to understanding such potential was to analyze the macroeconomic pattern in existing Vivara stores. To do so, we mapped every Vivara in Brazil and gathered relevant macroeconomic statistics of these stores, such as GDP per capita, GDP, and population in the municipality. After listing that information, we used the first quartile as the minimum value to filter which malls would make sense to have a Vivara or not, establishing a clear macroeconomic profile for existing Vivara stores. Once the first filter was decided, we analyzed the GDP, GDP per capita, and population in all Brazilian municipalities with a mall that doesn't have a Vivara. With that data in hand, we did a simple condition. If the analyzed mall presents an equal or higher macroeconomic profile, it will be considered a potential opening. After applying the previously described filter in a base of 396 malls without a Vivara store, we conclude that 166 of these could fulfill the primary macroeconomic conditions to have a Vivara. Although we could set a precise macroeconomic profile, that analysis doesn't bring any information about consumption patterns, an essential factor for determining the possibility of a potential new Vivara store. Therefore, we took a step further to refine our expansion analysis. The objective was to set a consumption pattern for the immediate population of a determined mall. To deal with that problem, we broke the problem into two parts. The first step was to do an isochrone analysis to set the minimum adjacent population for a mall to be considered a potential opening. In this analysis, the isochrone serves two purposes. The first is to define a mall's influence area within a ten-minute drive to all the cardinal points. After the influence area is determined, the analysis returns the population in that area, which we defined as the adjacent population.
After doing an isochrone analysis for every Brazilian mall, we organized the adjacent population within a ten-minute drive. Therefore, this gives us a better insight into what

we should expect regarding urbanization and the adjacent population.

However, the income distribution in the adjacent population is essential to build a solid understanding of the consumption pattern, which brings us to the second part of our problem. To compile the income distribution of all Brazilian malls, we wrote a Web scraping code that collected this information from ABRASCE (Brazilian Association of Shopping Centers), giving us the income exposure of 622 malls. With this information, we combined it with the adjacent population provided by the isochrone analysis, allowing us to thoroughly understand the consumption pattern necessary to open a Vivara store in any mall.

To summarize, after understanding the minimum macroeconomic characteristics that a mall should meet to have a Vivara store, we understood the consumption pattern that the adjacent population in malls with Vivara has, creating the second necessary filter to our expansion analysis. Applying this consumption pattern filter to the remaining 166 malls, we conclude that, in our base case, only 91 malls meet the macroeconomic and consumption pattern conditions, thus being expansion opportunities.

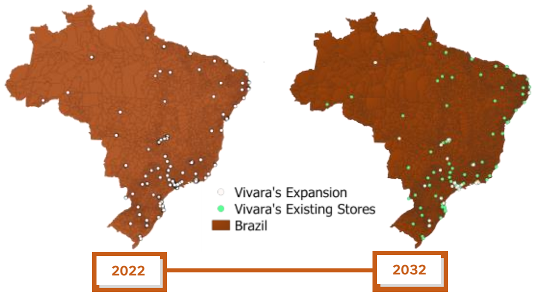
Since we could be wrong, we also sensitized our analysis. We considered the same macroeconomic filter in all cases since the first quartile is a very conservative measure. The consumption pattern filter was considered as the first quartile of the isochrone population and income exposure in the base case. We considered the average of these measures in the bear case, reaching **66** possible openings. For the bull case, we considered the first quartile of both measurements with a discount of -35%, getting **120** potential openings.

We considered that every Life store could coexist with every Vivara store for the current footprint, therefore giving us at least 178 potential Life openings. After that initial expansion, we project that Life will have 81 more potential openings, resulting in **259** potential new Life stores. We don't believe that Life will also have 91 potential new stores, like Vivara, due to the cannibalization in the projected malls since the vast majority of those are C clusters, the most fragile cluster to cannibalization risk.

With that said, we sensitized this analysis by the capability of Life stores to penetrate with Vivara in C clusters. In the bull case, we project 157 potential Life openings in C cluster malls, resulting in 269 possible Life openings. The expansion is justified by the lower cannibalized revenue than expected in the base case. While on the bear case, we foresee a higher cannibalized revenue, only making 97 potential Life openings in C cluster malls possible, resulting in 209 potential Life openings.

Vivara Expansion Projected

Source: Vivara, QGIS

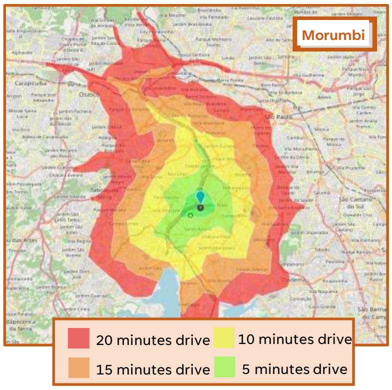


Data of analyzed municipalities

Source: IBGE, Open Route Service

Statistic Data for Existing Vivaras	GDP	GPD Per Capita	Population
Average	1.52E+08	4.58E+04	2.91E+06
Median	3.76E+07	4.40E+04	8.74E+05
First Quartile	1.64E+07	3.17E+04	4.05E+05

Statistic Data for Existing Vivaras	Isochrone Population	Income Exposure
Average	5.77E+09	19%
Median	4.19E+09	20%
First Quartile	2.50E+09	14%



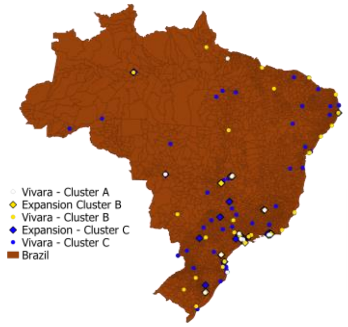
Appendix S – Clustering Analysis

Besides determining potential openings, it's also fundamental to define the cluster of those potential malls. Clusters are defined in four categories, AA, A, B, C, and D. These categories refer to the income exposure of a given mall, reflecting on what type of stores it will have. For example, if we define a mall as cluster AA, it's expected that it has a lot of high-end stores. Meanwhile, it's expected for a cluster C mall to have low-end stores. This segmentation is essential considering that for different clusters, Vivara will face another type of competition, and have a different mix, revenue, and gross margins, therefore heavily impacting the valuation.

The first step to understanding the clustering pattern was to use the information given by Vivara of its store's distribution by cluster. The information contemplated all stores opened in 2021. Hence, we sought to understand the income exposure of a given mall to assign it to a certain cluster. To solve this problem, we looked at two variables, GPD per capita and Income exposure.

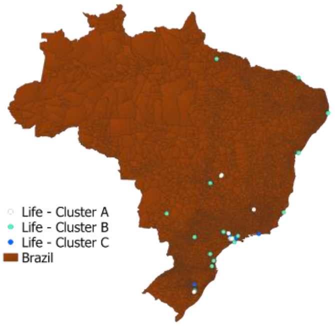
Vivara Clustering

Source: Team 2, Vivara



Life Clustering

Source: Team 2, Vivara



Life Expected Openings	
Cluster AA	1
Cluster A	12
Cluster B	109
Cluster C	137

Vivara Expected Openings	
Cluster AA	0
Cluster A	0
Cluster B	24
Cluster C	67

For the income exposure, we created an "Income Score" that consisted of multiplying the exposition by income class for a certain weight, resulting in the following equation: $S=A*3+B*2+C$, where A, B, and C stand for the percentage of income exposition for these respective income classes. With these two data, we had to solve a system with two variables, putting limits that would give the number of malls in each cluster that was reported by Vivara. After solving the system, we found that cluster A malls had a GDP per capita and Income score equal to or higher than 33 thousand BRL and 2.1, respectively.

For cluster B malls, the number should be equal to or larger than 26 thousand BRL and 1.65. Anything below those criteria was considered a cluster C mall. This pattern gave us 33 cluster A, 105 cluster B, and 90 clusters C malls, precisely what is reported by the company. Therefore, we can use this pattern to define the cluster of future openings.

Appendix T - Web Scraping

We used a proprietary Python algorithm to analyze price fluctuation on each company website. The weekly data above allow us to reach many relevant conclusions regarding vertical integration structure. For starters, we have monitored a huge price spike in Vivara on October 12th. Such a spike was due to a sudden shift in the available products, as only 53% of SKUs from September 7th were kept. This result is, in our view, proof of Vivara's inventory flexibility, as opposed to competitors, whose inventory is almost static (e.g., Tiffany has not changed a single SKU in the time monitored, Casa das Alianças remained 85% static). Furthermore, we managed to separate pricing per each type of product, showing us that Vivara hardly ever increases the website ticket, which is drastically more affordable than Pandora's.

Life Web-Scraping

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Average	297	301	296	298	347	346
Median	250	250	250	250	320	320
Mode	160	160	160	160	250	250
Std Dev	177	180	177	177	185	175

Pandora Web-Scraping

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Average	1263	1207	1243	1366	1549	1513
Median	909	909	909	909	1069	1069
Mode	1735	1730	1830	779	779	779
Std Dev	779	779	779	2097	2542	2472

Tiffany Web-Scrapping

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Average	28006.5	28006.5	28006.5	28006.5	28006.5	28006.5
Median	13000	13000	13000	13000	13000	13000
Mode	6800	6800	6800	6800	6800	6800
Std Dev	36753	36753	36753	36753	36753	36753

Vivara (exc. Life) Web-Scraping

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Average	2595	2540	2422	2508	4736	4543
Median	1650	1590	1490	1550	2520	2590
Mode	990	990	750	750	990	990
Std Dev	3568	3571	3415	3515	7453	6613

Casa das Alianças Web-Scraping

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Average	1834	1756	1225	1317	1153	1082
Median	582	572	345	415	524	479
Mode	2583	81	81	81	582	116
Std Dev	2583	2545	2447	2435	2446	2452

Hstern web-scraping

Date	Sep 7th	Sep 14th	Sep 21st	Oct 5th	Oct 12th	Oct 20th
Average	9575.77	9579.58	9583.12	9605.65	9604.39	9745.98
Median	7970	7970	7970	7970	7970	7970
Mode	457	457	457	457	457	457
Std Dev	7597.06	7593.88	7595.33	7594.29	7602.44	7730.63

Price Average per Product Type Sep 7th Pandora

Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Ring	1263	1207	1243	1366	1549	1513
Bracelet	1630	1886	1838	1896	1884	1890

Price Average per Product Type Sep 7th Life

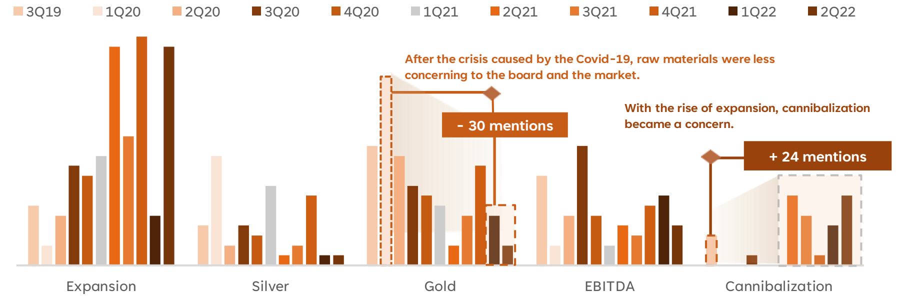
Date	Sep 7th	Sep 14th	Sep 21th	Oct 5th	Oct 12th	Oct 20th
Ring	290	308	324	314	348	373
Bracelet	445	429	428	435	430	425

Appendix U – Corporate Governance Word Count Analysis

To get a better understanding of the strategic positioning of Vivara's board, we wrote a Python code to count the most used words on the previous conference calls. To get the transcripts, we used Capital IQ. Once the code plotted the most used words, we created a filter, looking to common words, such as Silver, Gold, Life, Expansion, and others. The output allows us to create a precise picture of the most concerning factors about Vivara, looking from the board's point of view but also from the market perspective. It's very noticeable that during pandemic times, raw materials were a much more critical concern than expansion, for example. After those moments of crisis, it's possible to see that expansion became the most important topic of discussion.

Transcription word count code

Source: Vivara, Capital IQ, Team 2



After the crisis caused by the Covid-19, raw materials were less concerning to the board and the market.

With the rise of expansion, cannibalization became a concern.

Appendix V – Corporate Governance

Name	Position	Background
Joao Cox	Chairman of the Board	Former Chairman of Telemig Celular and Claro. Chairman of Tim Brasil, board member of Tim Participações, Embraer, Linx, Braskem, Qualicorp, Eldorado and Petrobrás.
Márcio Kaufman	Director	Mr. Márcio Monteiro Kaufman serves as the Vice President of Marketing at Vivara since 2021. He was CEO and Member of Executive Board at Vivara and serves as its Director. He also worked as CEO of Etna. Mr. Kaufman. Mr. Kaufman has a degree in Business Administration from Mackenzie and an MBA in Administration from Thunderbird School.
Anna Votta	Independent Director	Former managing director of Samsonite's South and Latin America operations. Also worked at Unilever, Natura, Swarovski and L'Occitane. Former Operating Partner at Advent International
Sylvia Leão	Independent Director	Ms. Sylvia de Souza Leão Wanderley serves as Director at Vivara since November 11, 2020. She served as an Independent Director at TOTVS and she had been Vice President of the Board at Vivara since November 11, 2020 until March 2021
Fábio José	Independent Director	CEO of Google Brasil. 20 years in experience in sales, marketing and general management. Served as marketing officer at BellSouth LATAM, coordinating 11 countries. Former CEO at Listel. Also worked at Gillette, Quarker and Citibank).

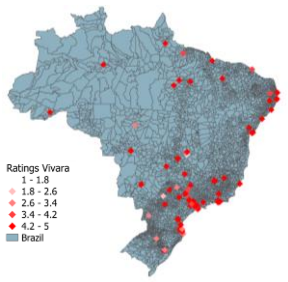
Appendix W – Google Ratings analysis

In order to make an objective analysis of customer satisfaction and service quality in stores, we developed a Python code to gather all store's Google Ratings. These ratings are, in our view, an excellent proxy of quality assurance since on, contrary to websites such as "Reclame Aqui", satisfied customers are more inclined to share the positive sentiment when well served. Moreover, we represented each store's rating on QGIS to evaluate if there were any discrepancies between countryside points of sales and big cities.

As seen on the map, most of the stores indeed have a terrific rating, unrelated to geographical positioning, given the fact that stores in wealthier and populated areas are as good as poorer and more unpopulated cities. Furthermore, if we considered only stores with more than 30 evaluations, the worst-graded point of sale has a 4.0 rating in Brazil's entirety. Meanwhile, Monte Carlo has a 3.7 grade in one of Brazil's most important points of sales, Shopping Morumbi. Hence, having the biggest number of stores has not been a synonym for losing quality in the service. Despite the huge growth, the company has kept its standards, yielding to Google Rating weighted average of 4.61 for Life and 4.47 for Vivara, accounting for the best and third-best grades amongst the main competitors. This analysis is very relevant since a bad grade means a probably lost customer.

Vivara Stores Ratings

Source: Vivara, QGIS



Appendix X – Maturation curve model

In order to properly understand how Vivara and Life stores mature, we did a maturation model using the solver tool and company historical data to reach the most likely maturation curve for each store type. From our analysis, we are extremely optimistic due to the fast maturation of Life in only eight quarters. The procedures may seem complex due to the formulas used, but they are, in fact, straightforward. We use inequations that solely represent the hypothesis that older stores generate more revenue than younger ones. We also use one equation, presented below, and we use same stores sales as the key for our model, minimizing the difference between the reported and the estimated by the model. In the end, we find satisfactory curves that represent well the real maturation of Vivara and Life stores.

We define:

R_{viv} is the total revenue from Vivara's stores;

N_i the number of stores per age;

R_i the average revenue from store with age i.

α_i is the maturation of stores with age i;

$$(1)\quad R_{Viv} = \sum_{i=store\ age} N_i * R_i$$

$$(2)\quad R_i = R_{Average\ Vivara} * \alpha_i$$

$$(3)\quad R_{Average\ Vivara} = \frac{R_{Viv}}{N}$$

$$(4)\quad R_{Viv} = \sum_{i=store\ age} N_i * \frac{R_{Viv}}{N} * \alpha_i$$

$$(*)\quad \boxed{1 = \sum_{i=store\ age} \frac{N_i}{N} * \alpha_i}$$

We also define maturation as a store revenue percentage in relation to a mature store revenue, in function of the age it has. Since we do not have the mature store revenue, our calculations are realized with the average revenue of stores, and the mature stores will also have an α_{mature} in relation to the average revenue. In the end, we normalize all α in relation to the mature one.

(1) Vivara stores total revenue is the sum of the average revenue of i old stores times the number of i old stores, i varying from 1Q to 12Q.

(2) The average revenue of i old stores is the average Vivara store revenue times the maturation level of i old stores, i varying from 1Q to 12Q

(3) But we know that the average Vivara store revenue is the total Vivara stores revenue dividided by the number of vivara stores

We substitute equations (2) and (3) in equation (1), resulting in equation (4). Cancelling Rviv in both sides, we arrive at equation (*)

Our hypothesis is a simple but coherent one: an older store has more revenue than a younger one. What could turn this statement false would be a large difference in area for stores being compared, but this does not happen to recent Vivara openings. With such condition, we arrive at i-1 equations (if we model stores to mature in 12Q, we have 11 inequations)

$$R_{i+1} > R_i$$

$$R_{average} * \alpha_{i+1} > R_{average} * \alpha_i$$

$$(**)\quad \boxed{\alpha_{i+1} > \alpha_i}$$

To solve the problem, we use one equation (*) and the inequations (**). The other equation to be minimized is the key to our model: we use a minimum square method to find the α_i results that satisfy (I) such that the difference between (Calculated SSS – Provided SSS)² is minimized. But this minimization is the last thing to be done, we first model all steps described until now for both Vivara and Life. That is because the provided SSS by the company includes all physical stores. We ignore Kiosks SSS in the analysis.

We conclude that Vivara stores mature in 9Q, not in 12Q, as we first thought. The similarity of curves to all quarters analyzed gives us a high level of confidence in the average curve.

For Life stores, there are many incomplete curves (e.g., no store with 2Q of age in 2Q21), and opened stores have a high variation of area (e.g., 1Q old stores with 70 sqm while 2Q old stores have 40 sqm). Due to such conditions, we work with the average of all curves found, and to find such curves, our hypothesis that older stores have more revenue than younger one's changes to older stores having more revenue per square meter than younger ones.

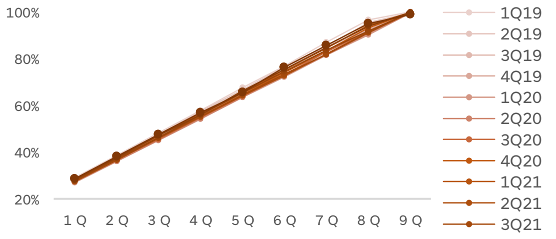
The major conclusion regarding Life stores is that after 4Q21, they mature in 8 quarters. No reasonable solution minimizes the SSS difference for the given conditions considering them to mature in 9 quarters. When we remodel it to mature in 8 quarters, we find satisfiable results to the SSS difference:

SSS as Sanity Check for the Maturation Model

		4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
Vivara Stores Sales	Analyzed Period	426,607	196,141	341,830	311,874	511,079	304,089	452,442
	1y prior to Analyzed Period	438,804	221,871	57,534	220,376	447,759	200,388	351,999
Life Stores Sales	Analyzed Period	6,753	3,398	6,540	7,391	16,400	9,569	14,557
	1y prior to Analyzed Period	4,230	2,769	0,334	3,503	11,835	4,723	9,404
Same Stores Sales (SSS)	Model	-2%	-11%	502%	43%	15%	39%	29%
	Given	-2%	-13%	505%	45%	15%	42%	31%

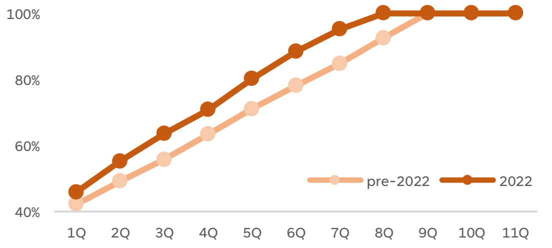
Vivara's Stores Maturation Curves

Source: Team 2, Vivara



Life's stores Maturation Curve

Source: Team 2, Vivara



Appendix Y – Cannibalization Study

Our main concern with Vivara's expansion plan is the possible cannibalization between Vivara and Life standalone in the same mall. Such worry arises because Vivara's stores offer not only gold jewelry but also the Life line of silver products, which represents a relevant share of its 4-wall revenue for every cluster. Will Vivara's customers stop buying Life products where they used to and go to the new standalone store of life products? Will this impact the returns during the expansion?

We don't have the means to determine how much of Life's mix in Vivara's stores are being cannibalized (having to rely on IR's information about it). But what we can do is determine the cannibalization threshold such that the investment of opening a Life store in a mall with a Vivara store still is justified.

To determine such a threshold, we study the Net Present Value of a Life opening investment. To reach the NPV, we did 4-Wall models for each Vivara cluster and for Life to estimate the results each store individually generates for the company. Since our analysis aims to determine the viability of opening a Life, its 4-Wall considers its maturation process, while Vivara's stores are mature modeled. Then, the "8-Wall" are modeled (the aggregate Vivara + Life store Income Statement) for each cluster, considering Vivara's cannibalized revenue.

The cannibalized revenue is defined as the percentual revenue loss of Life revenue in the mature Vivara store. That is, 100% cannibalization would imply a total revenue loss of 26%, 30%, and 38% in Vivara's clusters A, B, and C, respectively. Such cannibalized revenue percentage is a variable in our analysis.

To measure the cannibalization impact on the project, we define the EBIT difference. The idea is to measure how much more result the company earns by opening a Life and cannibalizing part of its Vivara revenue in comparison to the status quo, that is, the results it would have earned with its mature Vivara if it had never opened a Life and not lost revenue due to cannibalization.

$$EBIT_{diff} = EBIT_{aggregate} - EBIT_{Status\ quo\ Vivara}$$

In order to properly determine the viability of the investment, finding the EBIT difference is not sufficient, but the flow of EBIT differences in time and submitting such flow to a Net Present Value analysis is. Given the initial investment for opening a Life, the discount rate, and perpetuity growth of the project (which are sensitized at the end of the study), we do the project's NPV, with the cannibalized revenue as a variable. Finally, using MS Excel's "What-If" tool, we find the cannibalized percentage (a variable in the model) that returns NPV = 0 for each cluster. Thus, we conclude that the cannibalization threshold such that a Life opening in a mall with a Vivara still is justifiable. WACC and perpetuity growth are sensitized since obtained results are highly dependent on both.

The company reports a 4-5% level of cannibalization today. We estimate a weighted average maturity of 69% for all lives today, which would imply 5.7-7.2% of cannibalized revenue when they all mature, much smaller levels than the supported. But by our clustering analysis, we estimate that only 7% of Life stores are in Cluster C is the most vulnerable to cannibalization and the one we expect to see the highest level of such metric. This is a major risk to our investment thesis because there's neither data nor sufficient Life stores in Cluster C to properly evaluate what its cannibalization will be. Still, in the worst-case scenario, the cannibalization in this cluster would have to be 250% of what it is in clusters A and B to threaten our projected returns. In sum, we expect Vivara's expansion not to be disrupted by cannibalization.

The 4-Walls models are supported by: revenue per cluster data (provided by IR); Gross margin per cluster, calculated with the gross margin per product (see AP2) and the revenue mix per cluster (data provided in ITR); EBITDA margin (guideline in conference calls, but with team estimates) and D&A estimated with historical data.

NPV of EBIT Differences per cluster

Source: Team 2, Vivara

WACC = 15%; g = 5%; Cannibalized Revenue = 50%

Cluster	Investment	1 y	2 y	3 y	Perpetuity	NPV
A						
EBIT Diff.		-346	678	922	968	
@ PV	-3.645	-300	512	606	6.363	3.536
B						
EBIT Diff.		-132	891	1.135	1.192	
@ PV	-3.645	-115	674	746	7.836	5.496
C						
EBIT Diff.		-610	128	304	319	
@ PV	-3.645	-530	97	200	2.098	-1.781

4-Wall models

Source: Team 2, Vivara

VIVARA - A	1y	2y	3y
Net of Return	10700	10700	10700
Deductions	-20%	-20%	-20%
Net Revenue	8560	8560	8560
Gross Mg.	66%	66%	66%
Gross Profit	5618	5618	5618
Sales	-2599	-2599	-2599
Lease	-377	-377	-377
EBITDA	2643	2643	2643
D&A	-78	-78	-78
EBIT	2565	2565	2565

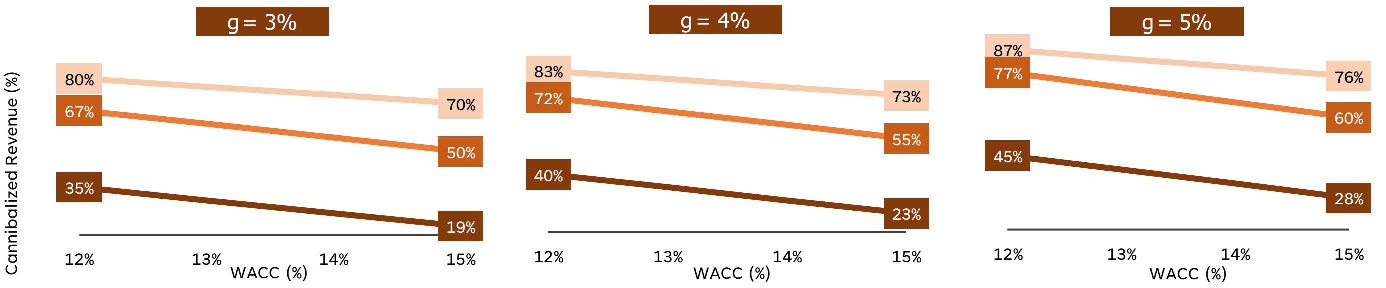
VIVARA - B	1y	2y	3y
Net of Return	6500	6500	6500
Deductions	-20%	-20%	-20%
Net Revenue	5200	5200	5200
Gross Mg.	67%	67%	67%
Gross Profit	3478	3478	3478
Sales	-1586	-1586	-1586
Lease	-230	-230	-230
EBITDA	1662	1662	1662
D&A	-108	-108	-108
EBIT	1554	1554	1554

VIVARA - C	1y	2y	3y
Net of Return	4100	4100	4100
Deductions	-20%	-20%	-20%
Net Revenue	3280	3280	3280
Gross Mg.	67.1%	67.1%	67.1%
Gross Profit	2202	2202	2202
Sales	-1180	-1180	-1180
Lease	-171	-171	-171
EBITDA	851	851	851
D&A	-94	-94	-94
EBIT	757	757	757

LIFE	1y	2y	3y
Net of Return	3379	5080	5486
Deductions	-20%	-20%	-20%
Net Revenue	2703	4064	4388
Gross Mg.	80%	80%	80%
Gross Profit	2163	3251	3511
Sales	-1361	-1361	-1361
Lease	-209	-209	-209
EBITDA	593	1681	1941
D&A	-69	-69	-69
EBIT	524	1612	1872

Cannibalization Threshold for Life Openings

Source: Team 2, Vivara



Appendix Z – "8-Wall" model

VIVARA + LIFE - A	1y	2y	3y
Net of Return	12997	14698	15103
Deductions	-20%	-20%	-20%
Net Revenue	10398	11758	12083
Gross Mg.	69%	70%	70%
Gross Profit	7150	8173	8417
Sales	-3960	-3960	-3960
Lease	-586	-586	-586
EBITDA	2604	3628	3872
D&A	-147	-147	-147
EBIT	2458	3481	3725

VIVARA + LIFE - B	1y	2y	3y
Net of Return	9121	10821	11227
Deductions	-20%	-20%	-20%
Net Revenue	7297	8657	8982
Gross Mg.	70%	71%	71%
Gross Profit	5135	6158	6402
Sales	-2947	-2947	-2947
Lease	-439	-439	-439
EBITDA	1749	2772	3016
D&A	-177	-177	-177
EBIT	1572	2595	2839

VIVARA + LIFE - C	1y	2y	3y
Net of Return	5859	7050	7334
Deductions	-20%	-20%	-20%
Net Revenue	4688	5640	5867
Gross Mg.	73%	74%	74%
Gross Profit	3422	4160	4335
Sales	-2540	-2540	-2540
Lease	-380	-380	-380
EBITDA	502	1239	1415
D&A	-163	-163	-163
EBIT	339	1076	1252

As previously described, these "8-Wall" are modeled considering the revenue cannibalized in Vivara's mature stores and the maturation process of the Life store. So, it is a dynamic model, being in the function of the cannibalized revenue. The presented models are for the cannibalization of 50%. Besides that, we assume Life's store's revenue will be different for each mall cluster, being the 4-Wall presented only for AA and A clusters. We assume it to have 80% of that revenue in cluster B and 70% in cluster C.

Appendix AA – Brazilian Tax System

Brazil's tax regime is extremely complex, which is a huge burden on many international investors. The ICMS rates, for instance, go from 4% in Bahia to 35% in Roraima. Therefore, let's simplify the incident taxes upon the jewel chain.

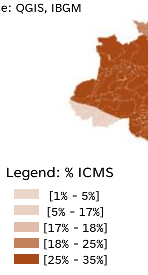
In the North and the Northeast regions, it is impossible to operate in the jewelry sector without tax benefits. São Paulo and many Southern states have rates around 18%

Simplification of Current Tax System						
Steps	**Value (R$)**	**PIS/COFINS (3.65%)**	**ICMS (18%)**	**ICMS Credit**	**IPI (12%)**	**Amount Paid**
Gold Acquisition	200.00	7.30	36.00			43.30
Gems Acquisition	200.00	7.30	36.00			43.30
Inputs	100.00	3.65	18.00			2165
Industrialization x14	700.00	25.55	126.00	-90.00	84.00	145.55
Retail x3.0	2100	76.65	378.00	-126.00		328.65

Total Amount Paid	**582.45**
Total Tax Rate	**27.7%**

ICMS rate per state

Source: QGIS, IBGM



Appendix AB – Possible Tax Reforms

The current tax system is complex and goes in the opposite direction of OECD systems. With that in mind, there are two constitutional amendment proposals being voted on, one in Congress (PEC45/2019) and the other in the Senate (PEC 105/2019). The reform would be a game changer in the sector, diminishing the competitive edge, especially from the companies installed at Manaus Free Trade Zone. If any were to happen, changes would be gradual, with a 10-year estimation to a full conclusion. Hence Manaus provided competitive advantages are still far from ending. Moreover, we did this In order to simplify the consequences of a possible constitutional change.

To conclude, less complexity would not end Vivara's dominance. In fact, the company would benefit from it in some aspects due to the possibility of expanding Distributions Centers with a logistic-oriented strategy and not oriented on tax benefits available, as happened with the Pernambuco DC opening in 2022. Nonetheless, it would be extremely positive to international players and other players outside Manaus, which would mean a slightly more competitive market for Vivara.

Tax Reform being voted on Congress

Steps	Value (R$)	PIS/COFINS (0%)	IVA (25%)	IVA Credit	IPI (0%)	Amount Paid
Gold Acquisition	200.00	0.00	50.00			50.00
Gems Acquisition	200.00	0.00	50.00			50.00
Inputs	100.00	0.00	25.00			25.00
Industrialization x1.4	700.00	0.00	175.00	-125.00	0.00	50.00
Retail x3.0	2100	0.00	525.00	-175.00		350.00

Total Amount Paid	**525.00**
Total Tax Rate	**25.0%**

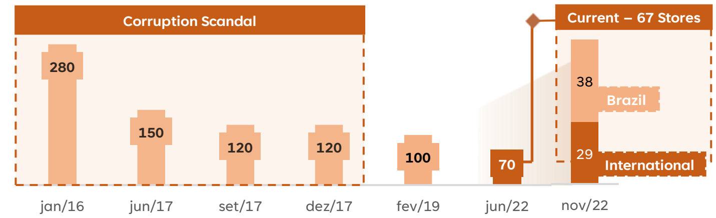
Source: IBGM

Appendix AC – HStern downfall

HStern is one of Vivara's main competitors, the Rio de Janeiro company in 2017 had 280 total points of sale. Now it was reduced to 35 in Brazil and 35 internationally. Such a bad shape is translated to terrible financial results. In addition to that, the company's image was damaged by corruption scandals. They were accused of laundering money and turned state's evidence against former state governor Sérgio Cabral. This scandal resulted in a fee of almost BRL 19 million for the Stern family. In 2021 there were rumors of a possible HStern acquisition by Vivara. It ended up not happening, and, in our view, it would have been a good deal, as a turnaround is not trivial.

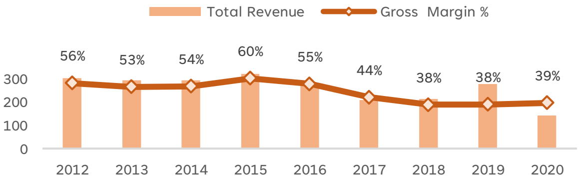
HStern stores evolution

Source: Team 2; Company's Website, Wayback Machine



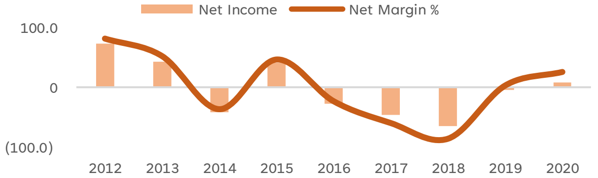
HStern revenue and gross margin

Source: Capital IQ



HStern net income and net margin

Source: Capital IQ



Appendix AD - Historical Price Analysis

With the objective of comprehending how the company prices its products, how vulnerable it is to commodity price oscillations, and verifying if it's higher than one year inventory truly provides an edge over competitors, we conduct a historical price analysis.

Enabled by "The Wayback Machine", a digital archive of the World Wide Web founded by the Internet Archive, that allows the user to go "back in time" and see how websites looked in the past, we can explore Vivara's past web pages and find its products and prices since 2011.

It would be interesting to study products made only of gold or silver to verify only the impact of these commodity price oscillations without additional design value or gems embedded in them, which would pollute the analysis.

Requirements were easily met, as we found products that have been constant in Vivara's portfolio since 2011. We collect every price available at "Internet Archive" for a silver bracelet and for five wedding rings: "I do", "Bride", "Heaven", "Lovely" and "Honeymoon".

The selected wedding rings cover well the range of Vivara's products prices, varying from low price entry products ("I Do") to high-end ones ("Honeymoon" and "Bride"). The only silver product chosen is the Life bracelet because every other available product in the portfolio goes through design changes over the analyzed period.

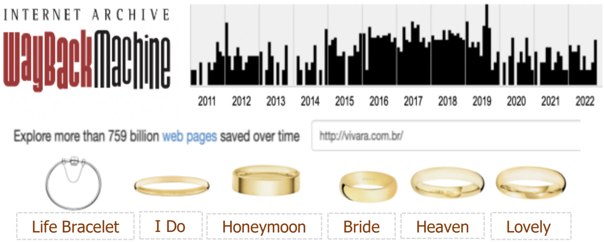
Then, we wish to analyze the correlation between the products' price change and the commodity price change. We know by Vivara's Balance Sheet that it has more than one year of inventory since 2016, a physical hedge in gold and silver. We analyze if it historically had such a stock of goods. November/11 is set as the 100 bases for products, and December/2010 for both gold and silver (in BRL). The historical evolution series of each individual product and the basket, including all of them, is presented (Exhibit 26 and 27). Our first conclusion is the lack of immediate impact of gold oscillations in Vivara's product prices, which was expected. The best correlation found is that of 12-month-lag.

The next step is to do the same analysis for peers in Brazil. This task proved challenging because very few peers' web pages are documented in the Web Archiver. Pandora, an international silver peer, and Casa das Alianças, a national mid-sized peer, are relevant players with a well-documented digital presence and are therefore used for comparison.

Due to abundant information about Casa das Alianças, it is chosen peer for comparison. We find five specific rings that remained constant throughout time (AS0001, AS0002, AS0003, AS0024, and AS0034 wedding ring models). We do multiple lagged correlations between this mid-sized player's products prices and gold prices evolution in order to find the best correlation, which is that for the 5 month-lagged gold series.

Hence, Vivara's pricing strategy advantage over its smaller peers is clear: thanks to its physical hedge in gold. It can both choose strategic moments to buy the commodity and keep stable prices while smaller competitors raise theirs, thus gaining market share. A rise sharp in gold or in FX will only impact Vivara's prices one year later, while peers suffer the impact in less than half a year. Besides that, it is not a good practice in retail to constantly update product prices.

Having compared the company's gold jewelry in relation to smaller players, we now compare its silver jewelry pricing to an international peer, Pandora. Both companies' pricing is quite similar until Dec/19, when Pandora almost doubles its prices, even before the sharp rise in silver prices. This creates a gap between its prices and its products' value perception by customers, evidenced by many 50% off sales since 2020. It also creates a gap between Life's prices, which helps it to gain a share over Pandora.



Explore more than 759 billion web pages saved over time

http://vivara.com.br/

Life Bracelet | I Do | Honeymoon | Bride | Heaven | Lovely

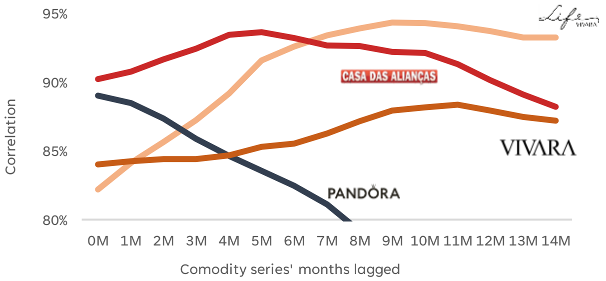
Vivara's correlations lagged

Source: Team 2

	Correlations [BASKET]				
	Lag	0 M	11M	12M	13M
Period	Dec/11 - Dec/13	54%	75%	71%	67%
	Jan/14 - Dec-16	66%	81%	76%	75%
	Jan/17 - Oct/22	82%	91%	91%	90%

Players Correlation in Function of Lagged Gold*FX

Source: Team 2



Pandora working with aggressive discounts

Source: Pandora's website, WayBack Machine

Bracelete Pandora Fecho De Coração
-50% ~~De: R$ 629,00~~
R$ 314,50
ou até 3X de R$ 104,83

Bracelete Pandora Reflexions
-50% ~~De: R$ 629,00~~
R$ 314,50
ou até 3X de R$ 104,83

Bracelete De Prata De Lei
-50% ~~De: R$ 629,00~~
R$ 314,50
ou até 3X de R$ 104,83

Bracelete Pandora Rígido - Fecho Coração
-50% ~~De: R$ 629,00~~
R$ 314,50
ou até 3X de R$ 104,83

Bracelete Moments Pomo De Ouro - Harry Potter
-50% ~~De: R$ 879,00~~
R$ 439,50
ou até 4X de R$ 109,87

Bracelete Link - Pandora Me
-50% ~~De: R$ 879,00~~
R$ 439,50
ou até 4X de R$ 109,87

Appendix AE -Gross Margin per Product Sanity Check

IR provides information about its product's gross margins, which seemed excessively high (more than 80% for Life). Therefore, we run a sanity check to verify such numbers. With the company's gross margin by quarter and the mix of revenue per product since 2Q19, we elaborate on the system below. With four variables and four inequations, we use MS Excel's Solver tool to minimize (I) for every quarter, given the variables (gross margins) constraints:

$$Gross\ Mg. = \frac{\sum_i Gross\ Mg_i * Revenue_i}{Revenue}$$

$$(I)\ \left(Gross\ Mg. - \sum_{i=Products} Gross\ Mg_i * \frac{Revenue_i}{Revenue}\right)^2 = 0$$

IR's Gross Mg. Range

$80\% < \text{Gross Mg.}_{Life} < 84\%$

$65\% < \text{Gross Mg.}_{Jewelry} < 68\%$

$40\% < \text{Gross Mg.}_{Wacthes} < 45\%$

$50\% < \text{Gross Mg.}_{Access.} < 55\%$

With this, we verify that the provided gross margin per product by IR is plausible since 2Q21. We do the average gross margin per product for [2Q21; 2Q22] and use the results in our valuation: Jewelry=67%, Life=81.7%, Watches=42,6%, Accessories=52.2%.

Gross Mg. Sanity Check	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
Jewelry	65%	68%	68%	67%	68%	68%	68%	65%	67%	68%	67%	67%	66%
Life	80%	82%	82%	82%	82%	82%	82%	80%	82%	82%	82%	82%	82%
Watches	40%	45%	45%	42%	45%	45%	45%	40%	42%	44%	42%	42%	42%
Accessories	50%	55%	55%	52%	55%	55%	55%	50%	52%	53%	52%	52%	52%
Gross Mg. Calculated	65%	68%	68%	66%	67%	68%	69%	66%	68%	68%	68%	68%	68%
Gross Mg. Reported	63%	68%	72%	66%	68%	70%	69%	66%	68%	68%	68%	68%	68%
|Calculated - Reported|	2,1%	0,2%	4,0%	0,0%	0,5%	2,0%	0,2%	0,4%	0,0%	0,0%	0,0%	0,0%	0,0%

Appendix AF – ESG Index

To better understand companies' commitment to ESG issues, we combine qualitative and quantitative methods to create our own ESG Score. Our structure includes Brazilian luxury retailers, international luxury retailers, and jewelry stores. Thus, we chose Grupo Soma, Arezzo, LVMH, and Pandora as comparable to Vivara. The ESG score is based on six environmental criteria, seven social criteria, and five governance criteria, all rated from 1 to 5. The conclusion is in the tables on the right.

Results were positive for Vivara, which has improved its governance a lot since the IPO. Moreover, the company has solid environmental plans and social practices. The biggest red flags in our evaluation were the lack of data. For instance, LVMH only started publishing Sustainability Reports in 2020, although it had gone public in 1990. In contrast, Pandora has much more detailed information since 2010.

Grade	Meaning
0	The company doesn't disclose plans about the criteria, doesn't have any goals or doesn't mention how they're making it
1	The company doesn't disclose plans, but mention the criteria and have vague goals, even tough there is not much effort put into it or it failed in the past
2	The company have an execution plan, few ESG goals, but its efforts have failed in the past or are not enough to make an impact
3	The company is executin a plan that already suceeded in some way, even if it doesn't have high impact
4	Clear and traceable goals, with a plan that haven't reached its full potential
5	Clear goals for each ESG spectrum, strong execution plan with dedicated team working on it, already showing impactful results

	Criteria	Vivara	Soma	Arezzo	LVMH	Pandora
E1	Does the company have a well-defined environmental responsibility policy, with relevant purposes?	5	4	5	4	5
E2	Is the company signatory to pacts with major global institutions? And sectoral? Does it associate environmental responsibility with the products and services offered?	5	4	4	4	5
E3	Is the company transparent about its practices? How are ESG disclosures?	4	3	5	2	5
E4	Are there well-defined goals for the coming years? Are they ambitious? Have they been fullfiled historicaly?	4	4	5	3	4
E5	Do the company's suppliers follow recognized enviromental standards (e.g. less carbon emissions and water usage)	5	5	4	4	5
E6	Is there a waste management policy?	5	4	5	3	5
E Score		4.7	4.0	4.7	3.3	4.8
S1	Customer focused culture and position of the company in complaint/problem resolution, such as Reclame Aqui	5	5	4	5	4
S2	How diverse is the company now?	4	4	3	3	3
S3	Initiatives to promote diversity in the company	5	4	5	4	4
S4	Employees perception of the company (Glassdoor)	4	5	4	4	4
S5	Talent attraction and retention: career oportunities, remuneration	5	4	4	5	5
S6	Does the company seek to make donations and investments in projects focused on the company	4	4	4	3	3
S7	Has the company had problems with product regulations? Is it frequent?	4	5	5	4	4
S Score		4.4	4.42857	4.1	4.0	3.9
G1	Board Composition: is there i) at least 20% of women, ii) 1/3 of independent members or iii) any ESG-specialist member in the board?	5	4	5	5	5
G2	Does the company have any corruption-related scandals recorded in the past? Have they done anything to change their practices? sectoral? Does it associate environmental responsibility with the products and services offered?	5	5	5	4	5
G3	How does the compensation policy work? Is there a relevant variable stake in the management's income?	4	4	4	4	5
G4	Is there a counsel member also at the executive direction? Is there any conflit of interests?	4	3	3	3	5
G5	What are the company policies regarding control and minority shareholder protection?	4	4	4	3	4
G Score		4.4	4.1	4.2	3.8	4.6
ESG	**Final Grade**	**4.5**	**4.2**	**4.3**	**3.7**	**4.5**

Appendix AG – ESG Valuation

Vivara buys gold from AngloGold Ashanti, whose Brazilian gold mine is one of the least polluting in the entire world, being rewarded with several international certificates. In order to analyze the importance of such a certified supplier, we have quantitively valued how much CO2-related social impact Vivara avoids by buying from them. We use the Social Cost of Carbon Dioxide (SC-CO2), which measures the monetized value of the damages to society caused by an incremental metric ton of CO2 emissions, recently estimated in a paper published in Nature to be 185 US$, at a discount rate of 2%.

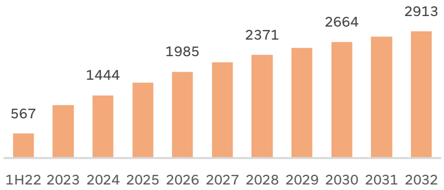
A paper from "Journal of Cleaner Production" claims that the world average CO2 emission of 28700 kg for 1 kg of gold mined. Moreover, the average emissions from AngloGold Ashanti in its Brazilian operation are 8615 CO2 kg for each kg of mined gold, according to data provided in their sustainability report. Hence, if we estimate how much gold Vivara will buy until 2032, we can project how much CO2 emission will be avoided from gold mining.

To reach the amount of gold bought by the company, we first estimate how much of its COGS on jewelry is destined for the acquisition of raw materials. To do so, we get total costs as a percentage of revenue, which is 33%, and exclude factory-related costs, which are equal to 4% of gross revenue. Therefore, we estimate that 29% of jewelry's revenue is destined for buying gold.

Finally, assuming the cost of 1 kg of gold will be kept at 270,000 BRL (price at 03/11/22) and that BRL-USD conversion will remain at five until 2032, we project how much gold the company will buy, as well as the CO2 it will not emit thanks to its supplier's efficiency.sc-CO2 We bring all gold Vivara will buy [kg] to present value at a 2% discount rate and then multiply it by the USD 185, estimated by Nature. We also do sensitivities to the other SC-CO2 values Nature Researchers found for different discount rates.

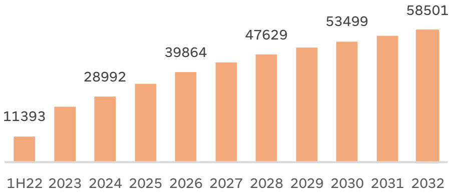
Projection of Gold purchase by Vivara [kg]

Source: Team 2, Nature, AngloGold Ashanti, Journal of Cleaner Production



"Saved" Emissions [tCO2]

Source: Team 2, Nature, AngloGold Ashanti, Journal of Cleaner Production



Not caused SC-CO2 [million BRL]

Source: Team 2, Nature, AngloGold Ashanti, Journal of Cleaner Production

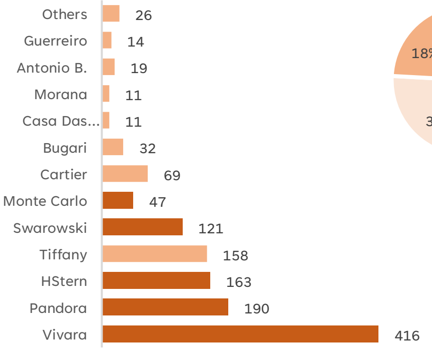
Discount Rate	SC-CO2 @PV	"Saved" SC-CO2
3%	80 US$	151,459
2.5%	118 US$	229,730
2%	185 US$	370,510
1.5%	308 US$	634,750

Appendix AH – Field Research

We conducted field research using Google Forms to demonstrate Vivara's brand awareness in the country, as well as to better understand the sector. The research had 527 answers. The first three questions were mainly made to profile each interviewed, as we got gender, age, and domiciliary income. After that, we asked the interviewee to mention the first three pieces of jewelry he or she could think of, which would serve as our share of mind index. Finally, we posed two questions concerning the sector dynamics, verifying purchase recurrence and motivation.

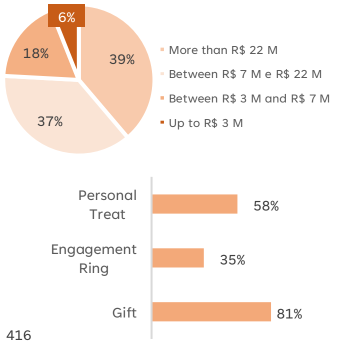
The first 3 jewelries you remember

Source: Team 2



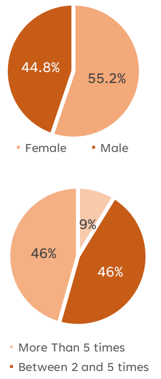
Income & Motivation

Source: Team 2



Gender & Recurrence

Source: Team 2



In addition to the first online field research, we went to four malls that have both Vivara and Life stores around the city of São Paulo to interview customers directly. Our objective was, now, to understand the reasoning behind choosing Life, as well as to understand Life's brand public perception. After 250 interviews, all with people that have already made purchases before, results showed us that branding is indeed the main factor for a purchase decision. Showing us that Life is benefited from Vivara's strong brand.

Factors for Life preference

Source: Team 2